

REGULATORY AND PLANNING COMMITTEE AGENDA

FRIDAY 20 APRIL 2012

AT 2.30 PM

IN COMMITTEE ROOM 1, CIVIC OFFICES, 53 HEREFORD STREET

Committee: Councillor Sue Wells (Chairperson),
Councillors Helen Broughton, Sally Buck, Tim Carter, Jimmy Chen, Jamie Gough, Yani Johanson,
Glenn Livingstone and Claudia Reid.

Principal Adviser
Acting General Manager
Brigitte de Ronde
Telephone: 941-8281

Committee Adviser
Megan Pearce
Telephone: 941-8140

PART A - MATTERS REQUIRING A COUNCIL DECISION

PART B - REPORTS FOR INFORMATION

PART C - DELEGATED DECISIONS

INDEX

PAGE NO

- | | | | |
|---------------|-----------|---|--|
| PART C | 1. | APOLOGIES | |
| PART B | 2. | DEPUTATIONS BY APPOINTMENT | |
| PART A | 3. | PROPOSED PLAN CHANGE 66 – TEMPLETON SPECIAL RURAL ZONE | |
| PART A | 4. | PRIVATE PLAN CHANGE 67 – HIGHFIELD | |

INDEX OF REPORT ATTACHMENTS

REGULATORY AND PLANNING COMMITTEE 20. 4. 2012

- 1. APOLOGIES**
- 2. DEPUTATIONS BY APPOINTMENT**

3. PROPOSED PLAN CHANGE 66 – TEMPLETON SPECIAL RURAL ZONE

General Manager responsible:	General Manager, Strategy and Planning
Officer responsible:	Programme Manager, District Planning
Author:	Andrew Long, Senior Planner

PURPOSE OF REPORT

1. This report seeks a recommendation from the Committee for a Council decision on whether or not to proceed to notification of proposed Plan Change 66 – Templeton Special Rural Zone (PC66). The recommendation is for the Council to notify the proposed plan change and Section 32 assessment (**Attachment 1**).

EXECUTIVE SUMMARY

2. The plan change site is located one kilometre north of Templeton and is the bulk of the former Templeton Hospital site. The site is currently zoned Special Purpose (Hospital) (SP(H)) except that for uses not health-care related Rural 2 (Templeton – Halswell) zone provisions apply. Of the 66 hectare site, 60 hectares is proposed to be rezoned Templeton Special Rural Zone. The remaining 6 hectares would remain as Special Purpose (Hospital) zone. A location map is provided in **Attachment 2**. The site contains a significant number of buildings and internal roads related to the former hospital, and also the Westmount School and buildings.
3. Prior to the Council initiating this plan change, private Plan Change 23 (PC23), lodged by (the landowner) Rookwood Holdings Ltd (RHL) , sought to rezone the site to a new Business 4M (Maddison Park) zone, based largely on the Business 4T (Suburban Industrial - Technology Park) zone provisions. PC23 was declined because it was not the most appropriate way to achieve relevant objectives and policies of the City Plan, particularly those at Volume 2 Section 6 (Urban Growth). RHL appealed against the decision on PC23. The appeal is outstanding but RHL have agreed to withdraw it upon notification of an alternative plan change.
4. The Council resolved on 14 June 2011 to initiate a plan change to enable development of the site in a manner consistent with the rural character of the site and which would enable the re-use and remediation of the site. Staff have prepared PC66 in consultation with Rookwood Holdings Ltd, and in accordance with the Regional Policy Statement (RPS), particularly Chapters 12A (Development of Greater Christchurch) and 22 (Response to Canterbury Earthquakes). PC66 will facilitate development on 60 hectares of the former Templeton Hospital site through a proposed 'Templeton Special Rural Zone' (TSRZ).

FINANCIAL IMPLICATIONS

5. Should the Council resolve to proceed with notifying the plan change there are legal processes which must be followed in accordance with the First Schedule of the Resource Management Act (RMA) 1991. This is a standard process that all plan changes must follow and there are no particular issues or risks that would be incurred if the processes are correctly followed. There would be costs arising at various stages of the plan change process relating to the preparation of officer reports and a hearing in response to submissions. The scale of costs would depend on the level and complexity of the submissions received. There is the potential for costs associated with responding to any Environment Court appeals received. Funding is provided from existing budget as part of the District Planning work programme agreed by the Council.
6. The costs of preparing the plan change are shared between the Council and RHL, up to and including the decision on submissions. A formal agreement has been entered into by the parties. This agreement also requires RHL to withdraw their appeal on PC23 when PC66 is notified.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

7. The recommendations and costs incurred align with the District Planning budget and work programme as provided for under the 2009-2019 LTCCP budget.

3 Cont'd

LEGAL CONSIDERATIONS

8. There is a legal process which must be followed for plan changes in accordance with the First Schedule of the RMA. Proceeding in accordance with these procedures should create no particular risks.

Have you considered the legal implications of the issue under consideration?

9. The legal process to be followed in accordance with the First Schedule of the RMA is familiar to the Council through both the private plan change process and in respect of Council initiated plan changes.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

10. The process of Council initiated plan changes is provided for under the LTCCP and Activity Management Plans. This proposed plan change is specifically identified as a project within the Council's District Planning Work Programme.

Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?

11. The LTCCP identifies an ongoing programme of maintaining and reviewing the City Plan improvements in respect of enhancements to ensure an attractive built environment and to minimise adverse effects on the environment.

ALIGNMENT WITH STRATEGIES

12. The plan change aligns with: Greater Christchurch Urban Development Strategy (UDS) and the Regional Policy Statement (RPS). Specifically, the Regional Policy Statement at Chapter 12A defines rural activity and PC66 has been prepared to be consistent with this definition.

CONSULTATION FULFILMENT

13. PC66 has been developed in conjunction with RHL, with input from technical experts as necessary. Council staff have discussed the plan change with the Council, Regulatory and Planning Committee, and the Riccarton-Wigram Community Board. Staff have also met with ECan, the Christchurch International Airport Limited (CIAL) and two adjoining landowners who made submissions in opposition to the previous plan change (PC23).
14. Some amendments were made to PC66 to address concerns, particularly from ECan and CIAL in relation to noise sensitive activities (education and residential), and it is considered that no party has any significant outstanding concerns. Should the plan change be notified, a submissions and hearings process will follow, enabling interested and affected parties to comment formally on the proposal.

STAFF RECOMMENDATION

That the Regulatory and Planning Committee recommend that the Council adopts proposed Plan Change 66 (Templeton Special Rural Zone) and assessment under section 32 of the Resource Management Act 1991 and proceed to publicly notify it in accordance with clause 5 of Schedule 1 of Act.

3 Cont'd

BACKGROUND

15. The former Templeton Hospital is located one kilometre north of Templeton and is 66 hectares in size. It is located near the intersection of Kirk and Maddisons Roads, between State Highways 1 and 73, as shown on the location map (**Attachment 2**). The main trunk rail line adjoins State Highway 1 at Templeton. The site is surrounded by both rural and institutional uses, including the Christchurch Men's and Women's Prisons, Nova Trust Drug and Alcohol Rehabilitation Centre, Waitaha Learning Centre, Templeton Chapel, and the Brackenridge Residential Estate (full-time residential care for disabled people).
16. The site is currently zoned Special Purpose (Hospital) except that for uses not health-care related, the provisions for the Rural 2 (Templeton – Halswell) Zone apply. It contains a significant number of buildings and internal roads related to the former hospital, including the Westmount School buildings.
17. Prior to this plan change, PC23 sought to rezone the site to a new Business 4M (Maddison Park) zone, based largely on the Business 4T (Suburban Industrial - Technology Park) zone provisions. PC23 was declined because it was not consistent with relevant objectives and policies of the City Plan, particularly those at Volume 2 Section 6 (Urban Growth). The site is also outside the urban limit as delineated in what was then Proposed Change 1 (PC1) to the Regional Policy Statement (RPS), and is now the operative Chapter 12A of the RPS.
18. RHL appealed against the decisions on both PC23 and PC1. The appeal on PC1 is now void following the deletion of PC1 and insertion of Chapters 12A and 22 into the Regional Policy Statement. RHL have agreed to withdraw its appeal on PC23 upon notification of PC66.
19. Following discussions with RHL, officers have developed a framework for re-zoning the site which is considered appropriate for the site and surrounds and which gives effect to the RPS. The Council resolved on 14 June 2011 to initiate a plan change and PC66 has been prepared on that basis.
20. PC66 will facilitate development of 60 hectares of the former Templeton Hospital site through a proposed 'Templeton Special Rural Zone' (TSRZ). The remaining 6 hectares in the south of the site and adjacent to Brackenridge Residential Estate will retain the SP(H) zoning. Activities will be limited to small-scale rural land-uses, those that support rural land-uses, and those associated with strategic infrastructure.
21. The zone is split into three precincts to ensure the outcomes sought can be achieved. In general terms, the zone seeks to achieve a low density rural development with a large amount of landscaping, and the retention of the rural character of the area. The Rural Business 1 precinct covers the bulk of the site. It provides a balance between building footprint and open space, to enable retention of the rural character of the site and create viable business opportunities. Anticipated land uses in this precinct might include plant for processing agricultural or horticultural produce, farm machinery sales or hire, rural contracting business, warehousing of rural produce or supplies, strategic infrastructure and depots, light engineering and mechanical repairs, and similar uses.
22. The Rural Business 2 Precinct provides for activities which require larger ratio of open space to building footprint. Uses might include vet clinic, small scale horticulture or agriculture, landscape supplies, sand and gravel sales, depots for strategic infrastructure, and similar uses.
23. The Community Facilities Precinct caters for the existing, pool/gym, and hall. Other facilities might include a small diary or café servicing the zone. The rest of the precinct is likely to develop similarly to the Rural Business 2 precinct.

REGULATORY AND PLANNING COMMITTEE 20. 4. 2012

3 Cont'd

24. The following table provides an overview of the bulk and location provisions for each precinct.

	Site coverage (community std)	Site coverage (critical std)	Outdoor storage	Landscape	Front setback	Side and rear setback	Height
RB1 (west boundary)	20%	30%	20%	20% or 2000m ² (the lesser)	10m	5m	9m
RB2 (north end)	10%	20%	30%	20% or 2000m ² (the lesser)	15m	10m	9m
CF (Kirk Rd boundary)	20%	30%	15%	20% or 2000m ² (the lesser)	15m	10m	9m

SUMMARY OF ISSUES

Existing Buildings

25. The site currently contains a large number of former hospital buildings and associated infrastructure (i.e. water, sewer, roads). Most of the buildings are in reasonable condition. The existing infrastructure is old and the bulk of it is unlikely to meet current Council standards. It is unlikely that the buildings and infrastructure would be re-used under the current zoning regime and their gradual decline in condition can be anticipated. This issue was specifically identified in the Commissioners' decision on PC1 in relation to this site (and two former freezing works sites at Islington and Belfast). Allowing development of the site as proposed by PC66 would fund and encourage rehabilitation of the site, thereby avoiding potential adverse visual effects and the risk of failure of private infrastructure on the site.
26. Some of the former hospital buildings are used by the Westmount School, and the site is also used for a driver training course. The site is useful for driver training largely because there is no traffic, and it is likely that the driver training would relocate if the site was developed. The plan change does not specifically promote or protect the driver training activity.
27. The Westmount School has been advised that it will need to relocate, because education activities are considered noise sensitive under both the City Plan and the RPS, as discussed below. The School has a temporary resource consent until April 2016.

Chapter 12A of the Regional Policy Statement

28. Chapter 12A to the RPS (essentially the former PC1), includes an urban limit. The site is outside the limit and therefore is restricted in use to rural activities as defined in Ch12A (below). PC66 takes this into account and seeks to promote activities which fit this definition. The City Plan and changes to it (including PC66) must give effect to the RPS and staff have discussed PC66 with Canterbury Regional Council (ECan) officers to ensure that it does so.

Rural Activities: means

- *Rural land use activities such as agriculture, aquaculture, horticulture and forestry*
- *Businesses that support rural land use activities*
- *Large-footprint parks, reserves, conservation parks and recreation facilities*
- *Residential activity on lots of 4 ha or more*
- *Quarrying and associated activities*
- *Strategic Infrastructure outside the urban limits.*

29. Volume 2 Section 6 (Urban Growth) of the City Plan seeks similar outcomes as Chapter 12A. The effects of large scale development outside the urban area on transport, services, and urban form are a significant driver in the preparation of PC66 and the rationale for a low density development. The rules seek to control density, bulk and location in order to achieve these outcomes.

3 Cont'd

30. The rules also seek to retain the bulk of existing trees and shelterbelts, a significant landscaping component, and large building setbacks. These rules to help retain the character of the area.

Chapter 22 of the Regional Policy Statement

31. The site is within the air noise contours shown in the City Plan and Chapter 22 of the RPS. ECan and Christchurch International Airport Ltd (CIAL) are concerned to ensure that land-uses within the contours are not noise-sensitive. They consider that creating residential units within the air noise contour would be inconsistent with the RPS.
32. PC66 proposes 15 custodial units over the 60 hectares site, at an average of 1 per 4 hectares. This is commensurate with Rural 2 provisions in the City Plan where 4hectares rural-residential allotments (each with a dwelling) are permitted. It is also considered by Council staff not to be inconsistent with the definition of rural activities in Chapter 12A which provides for residential activity on lots 4hectares or more.
33. ECan and CIAL have indicated that this level of residential activity is not a significant issue for them. Acoustic insulation would be required for residential activities at the plan change site through amendments proposed by PC66 to Rule 2.5.7 (Volume 3 Part 4).
34. PC66 proposes a Facilities precinct within which the existing school would be located. The plan change does not actively promote education facilities because a school is considered to be a noise sensitive activity and the site is within the Christchurch International Airport air noise contour.
35. The school has consent to remain at the site until April 2016.

Stormwater

36. A Report from Barnett and MacMurray Ltd (reviewed for the Council by e2 Environmental Engineers Ltd and Mr Roy Eastman, Council's stormwater engineer) indicates that the site is considered to be suitable for on-site stormwater disposal. A rule addressing stormwater provision is proposed by PC66, and the ODP provides guidance on this matter also.

Water and Wastewater

37. Reports from Eliot Sinclair Ltd (reviewed by Mr Eoghan O'Neill, Council's Water and Wastewater Engineer) finds that some upgrade would be required. Mr O'Neill also noted that the site is located on the periphery of the Council's system. Existing subdivision rules will ensure this occurs in a timely and appropriate manner.

Transport

38. A report was received in relation to the previous PC23 from Traffic Design Group Ltd (TDG), and was reviewed by Abley Transport Engineers Ltd. A subsequent report from TDG reviews their findings in light of the significant differences in density of development and the range of anticipated activities provided by PC66. TDG found that because of the density reduction, activity range, and identified road upgrade projects (Christchurch Southern Motorway and the Barters Road / SH1 intersection), there are no significant road safety or road network issues. TDG find that Levels of Service at these intersections will be acceptable, and generally in accordance with what is anticipated under the Christchurch Transport Model.
39. It is noted that the upgrade to the Barters Road / SH1 intersection is not yet part of any work programme, and the Stage 2 of the Christchurch Southern Motorway ('CSM2') is not designated and the route has yet to be formally selected. The CSM2 is the major upgrade in the area and it is likely its construction (scheduled to commence in 2015) will coincide with development of the plan change site, mitigating concerns with Levels of Service at intersections near the plan change site.

3 Cont'd

Open Space

40. The site currently includes large areas of open space, including recreation facilities such as a cricket oval, swimming pool, gym, and hall. Advice from Council's reserves planners is that the Council does not need additional facilities in the Templeton area, but that at least 3000 metre square of passive open space should be provided at the plan change site. PC66 provides 1.7 hectare of open space, encompassing the existing sports oval.

Environmental Health Considerations

41. Two land contamination reports have been provided by Pattle Delamore and Partners Ltd (PDP). The first was desk-top only and identified a number of sources of 'potential human health and environmental issues' including fuel storage tanks, landfill and waste disposal stockpiles, and areas previously used for cropping. The second report includes on-site investigation and found minor contamination, such as can be readily remediated.
42. The issue of spray drift from adjoining farming properties was raised during the Hearing for the preceding private Plan Change 23 and again in discussions with the adjoining landowner to the west of the site. Although control of spraying activities is not within the ambit of the City Plan, PC66 proposes a 20 metre buffer area around the perimeter of the site and a rule requiring the retention and improvement of existing shelterbelts within the buffer. These requirements are proposed in order to address a number of issues, including spray drift. Discussions with the owners of the farmland adjoining the site indicate that these measures are sufficient to allay their concerns.

Geotechnical Considerations

43. Subsequent to the significant seismic activity from late 2010, the Council's requirements in terms of geotechnical advice have become more stringent. To avoid rezoning land which is not suitable for the anticipated outcomes, a geotechnical report was commissioned for PC66. A significant number of test pits were excavated and assessed across the site and bore logs kept. The report, from Eliot Sinclair, found that the site contains some minor uncontrolled fill, and that soils in the upper layers have variable bearing strengths. New buildings will require specific design but overall Eliot Sinclair conclude that the site is suited to the proposed zone. The report is attached to the s32 report and is compliant with the requirements of the recent Department of Building and Housing guidelines.

THE OPTIONS

44. A range of options were considered during the preparation of this proposed plan change. This includes options of doing nothing, the 'status quo', as well as various specific methods of amending the Plan provisions. The Section 32 assessment should be referred to for more detail in this regard.

PROCESSING OF COUNCIL INITIATED PLAN CHANGES

45. This is a Council initiated plan change and is subject to the provisions of the First Schedule of the RMA. If the Council decides to notify the plan change then it would be notified in accordance with the provisions of this Schedule. The proposed plan change and Section 32 would be made available for submissions and further submissions. Submitters would then have the right to present their submission at a public hearing. The Council decision must then be notified. A right of appeal to the Environment Court would be available, for any person who made a submission on the proposed plan change.

3 Cont'd

SUMMARY

46. Overall, the proposed change is considered to be the most appropriate in terms of efficiency and effectiveness in achieving the Plan's objectives. PC66 makes efficient use of the existing resources at the site and achieves a balance between economically viable land use and retaining rural character in the area. Officers consider the plan change to be adequately researched and addresses the relevant issues to the extent necessary prior to public notification. This does not preclude the possibility of other matters being raised during the submissions process. It is recommended that the proposed plan change is accepted in its entirety for public notification.

REGULATORY AND PLANNING COMMITTEE 20. 4. 2012

4. PRIVATE PLAN CHANGE 67 – HIGHFIELD

General Manager responsible:	General Manager Strategy and Planning DDI 941-8281
Officer responsible:	Programme Manager District Planning
Author:	Fiona Eunson, Senior Planner, District Planning

PURPOSE OF REPORT

1. The purpose of this report is to provide the information needed for the Committee to make a recommendation to the Council for a decision required by the Resource Management Act 1991 (RMA) under clause 25 of Schedule 1, on whether to accept, adopt or reject the plan change request lodged by Highfield Park Ltd, and then seek approval for notification of the plan change.

EXECUTIVE SUMMARY

2. The plan change request proposes the rezoning of approximately 260 hectares of land between the Styx River and Queen Elizabeth II Drive, to the east of the suburb of Redwood and Northcote, from Rural 3 (Styx - Marshland) to Living G (Highfield). The Living G (Highfield) zone includes a mix of residential densities and other activities together with two discreet areas of Business 1 zone (refer to **Attachment 1** for the plan change locality and **Attachment 2** for the Outline Development Plan (CODP) of proposed land uses).
3. The plan change request was lodged on 23 September 2011. Since this time the request has undergone review and analysis, with the applicant being asked to provide further information on two occasions and to make modifications to the request (cl 23 - 24 of Schedule 1 to the RMA).
4. The plan change request and supporting information now contains sufficient information to enable the Council to continue the processing of the request as required under clause 25 of Schedule 1 to the RMA. This clause gives the Council the option of:
 - (a) accepting the request in whole or in part, then proceeding to publicly notify it for public submissions and hearing at the cost of the applicant; or
 - (b) adopting the request in whole or in part as its own, then proceeding to public notify it for public submissions and a hearing at the cost of the Council; the objectives and policies of the request would have legal effect once publicly notified; or
 - (c) rejecting the request in whole or in part although this can only be done on limited grounds; or
 - (d) dealing with the request as if it were an application for resource consent.
5. At this stage the detailed merits of the plan change request are generally not relevant. In reviewing the request consideration of the merits of the proposal at a high level or coarse scale has been undertaken as part of determining whether sufficient information has been provided. If the Committee decides to accept or adopt the request for public notification the merits of the plan change can be considered in detail if a hearing of submissions is held.
6. The applicant proposes a range of measures to address potential issues associated with development of the site and the proposed Living G (Highfield) zoning.
7. This report concludes with the following recommendation:

That the Regulatory and Planning Committee recommends to the Council that it:

 - (a) accepts the request for Plan Change 67 (rezoning of Rural 3 (Styx – Marshland) to Living G (Highfield) and Business 1 (Local Centre/District Centre Fringe)) in whole in accordance with clause 25(2)(b) of Schedule 1 of the Resource Management Act 1991 and proceed to publicly notify it.

4 Cont'd

FINANCIAL IMPLICATIONS

8. Should the Council decide to accept or adopt the plan change request and then notify the plan change for public submissions there are legal processes which must be followed in accordance with Schedule 1 to the RMA. These are standard processes that all plan changes must follow and if these processes are correctly followed, no particular financial risks are foreseen.
9. Costs arise at the various stages of the plan change process. Following public notification and assuming the plan change attracts public submissions, there will be costs associated with the reporting by staff (and consultant experts) to assist the hearings panel in responding to submissions. The scale of these costs will depend on the number and the level of complexity of the submissions received. As this is a privately initiated plan change request these costs are largely recoverable from the applicant if the request is accepted by the Council. If the Council resolved to adopt the plan change as its own, it will need to absorb all the processing costs.
10. Looking ahead to the completion of a hearing and the notification of the decisions, should the applicant or submitters appeal the decision to the Environment Court then costs incurred by the Council would not be recoverable, except in instances where the Court may award costs.

ALIGNMENT OF REPORT WITH 2009-2019 LTCCP BUDGETS

11. The 2010/11 budget for the District Planning work programme, adopted by the Council and provided for in the Long Term Council Community Plan (LTCCP), includes funding for processing of this plan change request. As this is a private plan change request these costs are largely recoverable.

LEGAL IMPLICATIONS

12. The RMA outlines the legal process which must be followed when processing a plan change request. At this stage were the Council to decide to reject the request or turn it into a resource consent the Council's decision can be appealed by the applicant to the Environment Court.
13. Assuming the Council decides to accept or adopt the request, subsequent stages of the process include the public notification of the plan change followed by the submission and further submission phases, the preparation of a report and the evidence of experts to assist the hearings panel or commissioner, the hearing of submissions, the release of decisions and finally possible appeals to the Environment Court.
14. If this process is followed there is generally no particular legal risk associated with processing a plan change request however there are potential legal implications if the Council's hearings panel does not have the scope it needs to amend the plan change to address matters which the Council may wish to have considered.
15. During the process of evaluating whether sufficient information was supplied with the plan change request there were issues of merit identified. The applicant made amendments to address many of these matters. For those matters for which agreement could not be reached the Council has the opportunity to lodge a submission on the plan change request and the matters will be raised in the officers report to the hearings panel should it decide to accept or adopt the request for public notification.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

16. Processing of the plan change request is a statutory requirement of the Council and is consistent with the LTCCP and Activity Management Plans. The allocation of funding and timing of infrastructure programmes such as those involving the Northern Relief Sewer and roading network improvements such as the Northern Arterial and roading intersections in the vicinity of the plan change site have the potential to impact on development of plan change site.

SUPPORT FOR A LEVEL OF SERVICE OR PROJECT IN THE 2009-2019 LTCCP

17. The proposal is part of the district planning levels of service in the LTCCP.

4 Cont'd

ALIGNMENT WITH STRATEGIES

18. The Council has developed a number of the strategies which the City Plan assists with implementing. The potential for alignment of the plan change request with key strategies is summarised below.
19. The plan change request aligns with the *Greater Christchurch Urban Development Strategy and Action Plan 2007* (UDS) to which the Council is a party. A key priority of this strategy is now reflected in Chapter 12A of the Regional Policy Statement which establishes an urban limit for Christchurch and achieving a density target of 15 households per hectare. The site of the plan change request is located within the urban limit and provides for 2200 households as required by Policies 1 and 6 of Chapter 12A. The request includes an Outline Development Plan and makes some provision for the staging of site development with respect to upgrading of the roading network infrastructure as required under Policy 8.
20. The *Greater Christchurch Travel Demand Management Strategy and Action Plan* (GC TDMS) is a key approach in the UDS that establishes travel demand management policy direction, targets and actions to achieve a more sustainable transport system. The plan change request appears to promote measures that reflect some of the aims of the Strategy by locating the proposal adjacent to existing residential areas, providing for high density residential areas within close proximity to trip generating activities and planned future public transport routes and by providing a permeable movement network within the proposed urban form to decrease trip distances and enhancing opportunities to walk and cycle within the area.
21. The *Climate Smart Strategy 2010-2025* provides a vision for Christchurch that is resilient to the impacts of climate change. The plan change request appears to contribute to achieving objectives 4-5, 8-10 of the *Strategy* which aim to grow community capacity and foster partnerships that respond to climate change, encourage sustainable households and communities, encourage green and healthy places and spaces, enhance the resilience of habitats and ecosystems and promoting energy conservation and renewable energy.
22. The Council *Public Open Space Strategy 2010-2040* addresses the provision and maintenance of public open space for Christchurch over the next 30 years. The Strategy's primary focus is public parks, roads, waterways and coastline managed by the Council. The *Strategy* divides public open space into green, blue and grey spaces where green space is largely covered in vegetation, including parks and margins of water bodies; blue space is the surface water bodies or waterways; and grey spaces primarily refers to the street network which also provides for passive recreation, amenity and elements of the green space, such as grass berms and plantings.
23. The Public Open Space Strategy's *Priority Initiatives to 2040* includes as a priority the enhancement of recreation opportunities and active transport around the Styx River where linkages to the coast and to Queen Elizabeth II Drive are proposed. The plan change request appears to recognise this priority through the proposed open space reserve status of land adjoining the Styx River, the connection between the Styx River and Queen Elizabeth II Drive by the Central Boulevard, realigned Horners Drain and three neighbourhood parks.

CONSULTATION FULFILMENT

24. The plan change request covers land owned by approximately 45 individuals or groups including the Crown and the Council. The applicant indicates it holds land purchase options with up to 80% of the privately owned land and through these negotiations there has been on-going liaison with these landowners. Little contact has been made with the other landowners.
25. Approximately 50 hectares of land along the western boundary of the site is owned by NZTA and designated for the Northern Arterial road corridor. A site of around 11 hectares adjoining Queen Elizabeth II Drive is owned by the Council for the purpose of stormwater and flooding management. Consultation has been undertaken with NZTA and the Council.

REGULATORY AND PLANNING COMMITTEE 20. 4. 2012

4 Cont'd

26. Ngai Tahu is the tangata whenua with ancestral and traditional relationships with the land and waters within the area of the Christchurch City Council. The applicant reports being unsuccessful in consulting with Ngai Tahu. A request by Council staff for consideration of tangata whenua issues was sought from Mahaanui Kurataiao Limited (MKT) which acts for Ngai Tahu. This request was directed to the applicant and a response has since been received to the satisfaction of Council staff.
27. A memorandum to the Mayor and Councillors from the Programme Manager District Planning dated 10 February 2012 provided information on the status of processing the plan change request.
28. The Council's Regulatory and Planning Committee will consider the plan change request before referring their recommendation to the Council meeting in April 2012.

STAFF RECOMMENDATION

That the Regulatory and Planning Committee recommends to the Council that it accepts the request for Plan Change 67 and Section 32 evaluation (rezoning of Rural 3 (Styx – Marshland) to Living G (Highfield) and Business 1 (Local Centre/District Centre Fringe)) in whole in accordance with clause 25(2)(b) of Schedule 1 of the Resource Management Act 1991 and proceed to publicly notify it.

BACKGROUND

THE PLAN CHANGE REQUEST

29. The request for Plan Change 67 (Highfield) proposes rezoning approximately 260 hectares of land adjoining the eastern boundary of the suburbs of Redwood and Northcote in northern Christchurch from Rural 3 (Styx – Marshland) to a new Living G (Highfield) zone, which includes two Business 1 zoned areas. This location is within the urban limits for Christchurch City as identified in Chapter 12A of the Canterbury Regional Council's Regional Policy Statement (RPS) which became operative in 2011.
30. The northern, eastern, southern and western boundaries of the plan change site are formed respectively by the Styx River, Hawkins and Hills roads, Queen Elizabeth II Drive and land designated for the proposed Northern Arterial road corridor. Much of the site is presently in pasture with rural residential properties adjoining parts of the eastern boundary which aligns with Hawkins and Hills roads.
31. The proposed Living G (Highfield) zone is a mixed use, multiple residential density zone modelled on other Living G zones within Christchurch (i.e. Awatea, East Belfast, Halswell West, Prestons, Wigram and Yaldhurst). This zoning proposes 2200 residential allotments across approximately 50% of the plan change site. The four residential densities proposed are similar to those used for Living G (Prestons).
32. Within the Living G (Highfield) zone are two areas of Business 1 (Local Centre/District Centre Fringe) zone covering approximately 6000m² in Gross Floor Area. These Business zones are located in two discreet areas within the northern and southern portions of the site that lie north and south of Prestons Road.
33. The proposed Northern Arterial road corridor designation occupies approximately 50 hectares along the western boundary and south-western corner of the plan change site with a large portion of the west and south of the site dedicated as to future stormwater management. Development of approximately one third of the allotments located in the southern portion of the plan change site adjoining Queen Elizabeth II Drive is deferred until stormwater management issues for this area are resolved.
34. The plan change request proposes realigning Horners Drain to become a central feature of a linear park that adjoins the Central Boulevard which runs north to south through the site linking Business 1 zone areas. Three neighbourhood parks are located across the site.

4 Cont'd

RELEVANT RMA PROVISIONS

35. The processing of plan change requests is covered by clauses 21 - 29 of Schedule 1 to the RMA. Those aspects of these clauses relevant to this request are:
- who may request a change to a district plan (clause (cl) 21);
 - that the request be in writing, explain its purpose and reasons, include an evaluation under s32 of the RMA and an assessment of potential environmental effects under Schedule 4 (cl 22);
 - further information may be required to better understand the potential environmental effects of the plan change (and may include the commissioning of reports); ways in which effects may be mitigated; the benefits and costs, efficiency and effectiveness, possible alternatives; and the consultation undertaken or required; timeframes applying; applicant's ability to decline to provide the further information and the Council ability to reject the request or not to approve it if there is insufficient information (cl 23);
 - with the agreement of the applicant the Council may modify the proposal (cl 24);
 - the Council must make a decision to either "adopt" the plan change request as if it were its own proposal and proceed to publicly notify it; "accept" it and proceed to public notification; reject the plan or treat it as if it were a resource consent (cl 25);
 - where the Council "accepts" the plan change it must publicly notify it within four months (cl 26);
 - the applicant may appeal the Council's decision made under clause 25 (cl 27).
 - applications may be withdrawn (cl 28).
 - unless rejected, the application is put through the standard process of public notification, submission, hearing, decision, and appeal (cl 29).

STATUTORY TIMEFRAMES

36. The plan change request was lodged by Highfield Park Ltd on 23 September 2011. Analysis of the plan change request was undertaken to determine whether sufficient information had been provided to enable the Council to make its decision required under clause 25 of Schedule 1 to the RMA, i.e. to adopt, accept or reject the request. Where there was an absence of expertise or insufficient staff capacity consultants were engaged to undertake the assessments.
37. After completing the initial assessment a request for further information (RFI) was made under clause 23 of the RMA on 25 November 2011. The time constraint imposed under section 37A for making a RFI was exceeded and approval was gained to extend the processing time. The applicant's response to the RFI was received on 14 December 2011.
38. Analysis of the information supplied by the applicant was undertaken and a second RFI was prepared together with a request made to modify aspects of the plan change request under clause 24 of the RMA on 10 February 2012. The time constraint imposed under section 37A for making a RFI was exceeded and approval was gained to extend the processing time. A response to the second RFI was received on 8 March 2012.
39. Following a meeting with the applicant on 14 March 2012 to discuss stormwater and open space matters additional information and a modified version of the plan change request was supplied. Another meeting with the applicant was held on 20 March to discuss sewerage related issues and a modified version of the ODP was received on 23 March.

THE OPTIONS

40. The Council is required to consider the plan change request under the processes outlined under clause 25 of Schedule 1 to the RMA. This clause gives the Council the option of accepting, adopting or rejecting the request or of processing the request as an application for resource consent. The four options are now evaluated in respect of the plan change request.

4 Cont'd

ACCEPT THE PLAN CHANGE

41. The option of accepting the plan change request means that the Council approves the request for public notification after which time the public may make submissions in opposition or support. Under this option the applicant would continue to bear the cost of managing and processing the plan change. In accepting the request for notification the Council would:
 - (i) be taking a neutral position by neither supporting or opposing the request; and
 - (ii) retain the ability to make a submission if it opposes any aspect of the request and wishes to alter the request.
42. The Council may determine it has reasons for making submissions in opposition to the plan change. If a submission is not received seeking an amendment to the plan change, it is unlikely there will be the scope needed by the hearings panel or commissioner to amend the plan change.
43. The assessments undertaken by the Council's staff have determined that there is sufficient information supplied to enable the plan change request to be publicly notified for public submissions. Further analysis of the accuracy and reasonableness of the proposal may raise concerns that the Council determines warrant the making of submissions on the plan change request. Accepting the request enables the Council to maintain its ability to remain neutral and to make a submission.

ADOPT THE PLAN CHANGE

44. The Council may adopt the plan change request and process it as if it were its own. The request is publicly notified and a hearing is held to enable any submitters to present their concerns to the Hearings Panel. By adopting the plan change request the Council:
 - (i) indicates that it supports the plan change request;
 - (ii) can control the request as if it were its own;
 - (iii) may alter parts of the request that it does not support prior to public notification;
 - (iv) takes over the costs associated with managing and processing the request.
45. Were the Council to adopt this plan change request it should have some rationale to justify this approach that has a public benefit, and is a better method for promoting the purpose of the Act or carrying out the Council's functions under section 31 (integrated resource management). Potentially the Council could use a similar justification to that used by the applicant of addressing the housing need created as a result of the 2010 - 2011 earthquakes.
46. Whilst it could be argued that there is justification in terms of earthquake recovery, the remaining parts of the resource management process are unlikely to be any quicker or easier if the Council adopted the Plan Change. Also, the proponent has responded positively to the majority of modifications sought by the Council, so there would be little to gain in terms of securing better outcomes.

REJECT THE PLAN CHANGE

47. Limited opportunities exist under the RMA for rejecting a plan change request. In addition to the grounds under clause 23(6) where the Council may reject or decide not to approve the request if the applicant has declined to provide the further information requested, a plan change may also be rejected if:
 - (i) it is frivolous or vexatious;
 - (ii) the substance of the request has been dealt with by the Council or the Environment Court in the last two years;
 - (iii) it is not in accordance with sound resource management practice;
 - (iv) it would make the District Plan inconsistent with Part 5 of the RMA (other policies or plans, such as Regional Policies or Plans); or
 - (v) the District Plan has not been operative for more than two years.

REGULATORY AND PLANNING COMMITTEE 20. 4. 2012

4 Cont'd

48. The plan change request is not considered to contravene the requirements in (i)-(v) above. The applicant has provided a comprehensive proposal that is modelled on other Living G zones which have been approved by the Council. The analysis undertaken to date does not suggest that the plan change request is not in accordance with sound resource management practice therefore rejection of the plan change request at this stage cannot be supported.

TREAT AS A RESOURCE CONSENT

49. The plan change request may be converted to an application for resource consent. With this option the applicant bears all of the associated costs. It is suggested that the nature and scale of this proposal counts against it being processed as a resource consent. The plan change site covers an area of approximately 260 hectares and is currently zoned Rural 3.
50. The land use and subdivision consent applications for the scale of urban residential and commercial development proposed by the request would be a Non-complying Activity under the Rural 3 zoning contrary to the objectives and policies of the City Plan and highly unlikely to gain approval. It is therefore concluded that this rezoning proposal for such a large area of Rural zoned land is more appropriately tested through the plan change process.

ISSUES

51. The principal issues associated with the plan change request are summarised below. These and other issues, including those of potential interest to Ngai Tahu, and the means by which the applicant proposes addressing all issues, will be considered by the Council's hearings commissioner or panel should the request be accepted or adopted by the Council for public notification.

GEOTECHNICAL

52. The *Preliminary Geotechnical Assessment Report Highfield Park* (Sept 2011) concludes that the site is geotechnically viable for residential development expected under the New Zealand's Department of Building and Housing (DBH) design criteria on liquefaction susceptible soils subject to engineering preparatory works. As the DBH *Guidelines for the geotechnical investigation and assessment of subdivisions in the Canterbury region* (Nov 2011) was finalised two months after the *Report* was completed, the applicant has since provided confirmation that the *Report* complies with the *Guidelines*. This confirmation is sufficient to enable the Plan Change to be notified.

STORMWATER AND FLOODING

53. The *Three Water Servicing* report indicates that the stormwater management system proposed for the site is based on discharging stormwater into Horners Drain and then into the Styx River while flood management involves realigning and increasing the capacity of Horners Drain. As this re-configuration is unlikely to completely address the extent of flooding in the south of the site, the applicant proposes deferring development in the southern part of the site until a full investigation is undertaken. The Council's stormwater engineers are comfortable with the mitigation concepts in terms of area and treatment for the part of the development north of the proposed deferment area, and there are safeguards in the Plan Change to enable the Council to address mitigation issues for the deferred area at the subdivision stage.
54. Approval of the stormwater management system proposed for the site is dependent in part on the Council obtaining resource consent approval from Environment Canterbury (ECan) to discharge stormwater to the Styx River (this is required under the Waimakariri River Regional Plan). The anticipated discharge is addressed in the draft Stormwater Management Plan (SMP) for the Styx River which is to be finalised in May 2012 for lodgement as part of the Council's application for resource consent approval from ECan. The Styx catchment is currently covered by the Waimakariri River Regional Plan (ECan has requested that CERA transfer the Styx catchment to coverage under the Natural Resources Regional Plan. This would enable Council to treat the Styx SMP consent as operative once it's been lodged as a

REGULATORY AND PLANNING COMMITTEE 20. 4. 2012

4 Cont'd

complete application, thereby creating greater certainty over the outcomes and timing for the applicant and Council.)

WASTEWATER AND WATER SUPPLY

55. The report *Three Water Servicing for Proposed Plan Change for Highfield Park* (Dec 2011) submitted in support of the plan change request proposes to either rely on a combination of the existing water supply system and new bore or to establish a completely new bore to service the site. Resource consent approval would be needed from ECan to take water.
56. The site is located in an area serviced by the Northern Relief Sewer. This Sewer was fragile prior to the 2010-2011 earthquakes but damage sustained due to these events has exacerbated infiltration and sewage overflow issues. The Council is working with Stronger Christchurch Infrastructure Rebuild Team (SCIRT) to determine repair concepts for the sewer and appropriate upgrades. Repairs and upgrades to this sewer are currently programmed in the LTCCP between 2012/13 and 2015/16.
57. Some sewage overflows are permitted under resource consents held by the Council with ECan but these have been exceeded due to earthquake damage. Options to address this non-compliance are being explored with ECan who have indicated their preference that a new resource consent be obtained by the Council to accommodate any additional non-compliances associated with the plan change site. Obtaining resource consent approval could take up to two years to complete (and longer to resolve appeals). In the interim, there is a risk of a minor increase in wastewater discharging into the Avon River in periods of heavy rain, but advice from the Team Leader Network Planning is that this is not of such a concern to warrant the Plan Change not being notified.

TRANSPORT

58. The plan change request is supported by an *Integrated Transport Assessment* (ITA) (Dec 2011) that assesses the effects of traffic generated by the proposed development on the receiving transport environment including key intersections in the vicinity of the site. This area of the City has been affected by changes in traffic movements following the 2010 and 2011 earthquakes. The Council's transport consultants have expressed concerns at the level of development that could occur prior to completion of improvement works in northern Christchurch, and the construction of the Northern Arterial. These effects have not been quantified and it would be unreasonable to expect the proponent to have done this in the absence of detailed traffic modelling. The UDS partners are currently completing a modelling exercise which will help identify effects of this and other developments on the road network. It is anticipated that the results will be available to be used by the Council's hearing commissioner or panel.

LANDSCAPE

59. The key issues for landscape are those concerning the interface between the proposed development and the proposed Northern Arterial, and implications for the eastern end of Styx River corridor, western link of the Source to Sea walkway to Redwood Springs subdivision, and the celebration of Styx River Reserve. The *Preliminary Landscape Assessment* (Sept, 2011) assists in the understanding of the landscape and visual values associated with the site and the potential effects on these values from development under the proposed plan change. The Assessment suggests there will be environmental benefits for native plant communities, enhanced amenities and recreational opportunities. The Council's Senior Landscape Architect, after receiving additional information relating to the assessment, is satisfied that the assessment has adequately addressed the key issues.

OPEN SPACE AND ECOLOGY

60. The *Preliminary Landscape Assessment* (Sept 2011) and the *Outline Development Plan Background Report* (Mar 2012) both inform the provision of open space shown on the ODP. The major structuring element proposed for the site is the realigned Horners Drain within the centralised linear park adjacent to the Central Boulevard. The applicant promotes this corridor as providing identity and legibility, an attractive outlook to adjoining higher density housing and an area of public open space. Advice from the Council's Senior Park's Planner is that the Plan

4 Cont'd

Change more than adequately provides for open space requirements, with the amount proposed to be invested exceeding what the development contribution requires. This additional land will be gifted to the Council, with only a relatively minor increase in associated operational costs.

61. The *Ecology Assessment* (Sept, 2011) evaluates the existing aquatic ecological values at the plan change site, discusses potential effects of the construction phase and resultant effects of urbanisation on streams. Recommendations are made on how to enhance the ecology of the site. The Assessment concludes that the ecological values of Horners Drain and tributaries are generally poor although a number of fish taxa are present with good habitat and a healthy fish community in the reach between the development site and the confluence with the Styx River. Council. The Council's Waterways Planner Ecologist is satisfied with the overall assessment and, although the information is pitched at a high level, she considers that the proposed enhancements will have a positive effect on the overall local surface water environment.

URBAN DESIGN

62. The urban design component of the plan change request is largely considered in the *Outline Development Plan Background Report* (Mar 2012). The *Report* describes the context of the site, at the sub-regional, city and local scales, and includes analysis of the site and provides a platform for the ODP and its underlying design principles. The proposal has also been assessed against the criteria of the Urban Design Protocol and advice from the Council's urban design consultant is that the general principles of the Protocol have been applied.
63. The *Retail /Commercial Assessment and Recommendations* (Sept 2011) addresses activities within the proposed Business 1 zone and details the design philosophy and possible concepts for the neighbourhood centres. The conceptual urban design components of the request are largely represented in the ODP and in the rules in the Plan Change. Advice was sought from Property Economics Limited regarding distributional effects on other centres, and their advice is that there are unlikely to be any.

PLANNING

64. The plan change request is modelled on other Living G zones within the Christchurch City Plan. All have a slightly different approach. Much of the text of the request reflects aspects of Living G (Halswell West) but its location, scale and the constraints to site development in this area make it also similar to Living G (Prestons). It is considered that the Plan Change gives effect to Chapter 12A of the RPS including its key objectives and policies.
65. After processing the plan change request under clauses 23 and 24 of Schedule 1 to the RMA it is now concluded that there is sufficient information for the Council to make its decision under Clause 25 of Schedule 1 to the RMA on how it should continue to process the plan change request. It is not appropriate to consider the detailed merits of the request at this stage. If there are issues of merit that the Council considers important to address these can be raised in a submission by the Council to the plan change once it is publicly notified.

SUMMARY

66. In order for the Committee to decide on how to continue with processing the plan change request the Committee is directed to clauses 25(2), (3) and (4) of Schedule 1 to the RMA. The options provided under these clauses were discussed in detail in earlier sections of this report. In summary these options are:

Option 1: accept Plan Change 67 request for public notification (and supporting Section 32 evaluation) in accordance with clause 25(2)(b) of Schedule 1 to the Resource Management Act 1991;

Option 2: adopt Plan Change 67 request and publicly notify it as if it were the Council's own plan change in accordance with clause 25(2)(a) of Schedule 1 to the Resource Management Act 1991;

REGULATORY AND PLANNING COMMITTEE 20. 4. 2012

4 Cont'd

Option 3: deal with Plan Change 67 request as if it were an application for resource consent in accordance with clause 25(3) of Schedule 1 to the Resource Management Act 1991; or

Option 4: reject Plan Change 67 request in accordance with Clause 25(4) of Schedule 1 to the Resource Management Act 1991.

THE PREFERRED OPTION

67. The preferred option is **Option 1**, i.e. accept the request for Plan Change 67 and supporting Section 32 evaluation (rezoning of Rural 3 (Styx – Marshland) to Living G (Highfield) and Business 1 (Local Centre/District Centre Fringe) in whole in accordance with clause 25(2)(b) of Schedule 1 of the Resource Management Act 1991 and proceed to publicly notify it.

**REGULATORY AND
PLANNING COMMITTEE**

20 APRIL 2012


SEPARATELY CIRCULATED ITEMS

**REGULATORY AND PLANNING COMMITTEE 20 APRIL 2012
SEPARATELY CIRCULATED ATTACHMENTS**

INDEX

ITEM NO	DESCRIPTION	PAGE NO
3.	PROPOSED PLAN CHANGE 66 – TEMPLETON SPECIAL RURAL ZONE Attachment 1: Proposed Changes to the Christchurch City Plan and Section 32 Report (including appendices) Attachment 2: Location Plan	
4.	PRIVATE PLAN CHANGE 67 – HIGHFIELD Attachment 1: Locality Map for Plan Change Site Attachment 2: Outline Development Plan (ODP) Showing Proposed Land Use Attachment 3: Highfield Plan Change Report (including analysis under s32 of RMA and text of plan change	

CLAUSE 3

	<p>Resource Management Act 1991</p> <p>Christchurch City Council</p> <p>Christchurch City Plan</p> <p>Proposed Plan Change</p> <p>Section 32 Assessment</p>	<p>66</p>
---	--	-----------

REZONING OF LAND CURRENTLY ZONED SPECIAL PURPOSE (HOSPITAL) ZONE AND RURAL 2

PART 1 INTRODUCTION

1. This report summarises the evaluation undertaken by the Council of proposed Plan Change 66 ('PC66') to the Christchurch City Plan in terms of section 32 of the Resource Management Act 1991 (RMA). PC66 is at **Attachment 1** to this report. The report is to be read in conjunction with a copy of the Plan Change.

Purpose and reasons for the Plan Change

2. In July 2011, the Council initiated a plan change to facilitate the redevelopment of the site (as shown at **Attachment 2**), for rural or rural business purposes. The report noted that the existing Special Purpose (Hospital) (SP(H) and 'underlying' Rural 2 (Templeton-Halswell) (Ru2) zones are not likely to facilitate development at the site and that there is a risk that the existing buildings and infrastructure will fall into disrepair and that resource lost. The report also noted that the site is located outside the urban limit defined in the RPS, presenting a significant barrier to use of the site for urban activities.
3. PC66 therefore aims to rezone the site to facilitate the redevelopment of the site while retaining some of the existing buildings and infrastructure.

The site and the wider physical environment

4. The site contains the former Templeton Hospital and is located at the Kirk/Maddisons Road intersection, one kilometre north of Templeton. It is 66 hectares in total, although the plan change applies to an area of 60ha only. The hospital closed in March 2000 and was sold by the Canterbury District Health Board to Rookwood Holdings Ltd. The site is currently used for the Westmount School (established in 2006, and the subject of temporary resource consents valid until April 2016) and driver training, and also contains a significant number of buildings and internal roads related to the former hospital, including a pool/gym and hall.
5. The site has vehicle access to both Maddisons and Kirk Roads, and State Highways 1 and 73 are close to the site. Stage 2 of the Christchurch Southern Motorway (CSM2) is likely to bypass Templeton, however, the New Zealand Transport Authority (NZTA) have yet to determine it's actual route. In the event that CSM2 did bypass Templeton, it is likely that the site would continue to have good vehicular access to State Highway 1.

6. The site is also close to the Christchurch Men's and Women's Prisons, Nova Trust (drug and alcohol rehabilitation centre) Brackenridge Residential Estate (residential health care facility), Waitaha Learning Centre, and a chapel.
7. Air traffic associated with the international airport is significant. Airport noise contours (55dBA) cover the bulk of the site. Activity at Ruapuna Motorsport Park is also audible at the site.

Existing City Plan Zoning

8. The land subject to the Plan Change is currently zoned SP(H) except for non-healthcare uses which are subject to Ru2 provisions.
9. The SP(H) zone was created during the preparation of the City Plan in 1995, replacing a designation in favour of the Minister of Health. The SP(H) zoning as it relates to the former Templeton Hospital provides for low density healthcare uses, in line with the historical use of the site and with the surrounding zoning pattern. About 6ha of SP(H) zoning is to be retained at the south of the site adjoining Brackenridge.
10. For other uses, the Ru2 zone is applicable. The primary purpose of the Ru2 Zone is to provide for the continued primary production of land to the south and west of the City. To achieve this, the Ru2 Zone provisions seek the maintenance and continuation of primary production activities and the protection and enhancement of the rural amenities associated with the zone.
11. Surrounding land is zoned Ru2, Rural 5 (Airport Influences), SP(H), with a small area of Cultural 3 (Schools). A designation in favour of the Minister of Corrections exists for the men's and women's prisons. Further afield, there are areas of Rural Quarry, and Living 1 in Templeton. The Territorial Local Authority boundary is about 1 kilometre west of the site and 2 kilometres to the south.

Statutory Context

12. Section 74 includes the 'Matters to be considered by territorial authority' and sets out that a territorial authority shall prepare and change its district plan in accordance with its functions under section 31, the provisions of Part 2, a direction given under section 25A(2), its duty under section 32, and any regulations.
13. Section 31 of the Act prescribes the functions of territorial authorities, including (section 31(1)(d)):
"The control of the emission of noise and the mitigation of the effects of noise"
14. This section 32 assessment considers the issue of whether the existing City Plan provisions adequately address the duty imposed on the Christchurch City Council by section 31(1)(d) of the Act.
15. Before adopting any objective, policy, rule or other method within a proposed Plan Change, section 32(3) and (4) of the Act require the Council to prepare an evaluation of the Plan Change. Section 32(3) states that the evaluation must examine:

- (a) *the extent to which each objective is the most appropriate way to achieve the purpose of the Act; and*
- (b) *whether, having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives.*

16. Further, section 32(4) states that the for the purposes of the examination, the evaluation must take into account:

- (a) *the benefits and costs of policies, rules, or other methods; and*
- (b) *the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods.*

17. This is reflected in *Eldamos Investments Ltd v Gisborne District Council*. In addition, in *Suburban Estates Ltd v Christchurch CC* the Courts stated that settled objectives will be able to be assumed to meet the provisions of Part 2. Because PC66 does not seek to amend the objectives and policies, except to the extent of amending explanation and reasons, they are considered to meet the provisions of Part 2.

PART 2 BACKGROUND REPORTS AND STUDIES

18. As part of the overall assessment and evaluation process, a number of specific background studies were undertaken, and investigative and technical reports prepared. Some of these were prepared for PC23 and were reviewed as part of the plan change process. Where possible, this report uses this existing information and advice. Additional reports from Traffic Design Group, Eliot Sinclair, Pattle Delamore Partners, and Council's stormwater engineers are at **Attachment 3**.

Stormwater

19. PC23 was accompanied by a report from Barnett and MacMurray Ltd which was reviewed for the Council by e2 Environmental Engineers Ltd. The site was considered to be suitable for on-site stormwater disposal, but the details of how this might best be achieved were not resolved prior to or at the hearing for PC23. A rule and guidance in the Outline Development Plan based on that work has been prepared in conjunction with Roy Eastman (Council's stormwater engineer).

Sewerage Infrastructure

20. PC23 was accompanied by a report from Eliot Sinclair Ltd which was reviewed by Mr Eoghan O'Neill (Council's Water and Wastewater Engineer). The report finds that some upgrade would have been required for PC23 as proposed, and Mr O'Neill concurred, noting that the site is located on the periphery of the Council's system. This plan change promotes a much less intensive use of the site, but advice from Mr O'Neill is that some upgrade will still be required at the landowner's cost. Existing rules in Volume 3 Part 14 (Subdivision) will ensure this occurs in a timely and appropriate manner.

Potable Water Supply

21. PC23 was accompanied by a report from Eliot Sinclair Ltd which was reviewed by Mr Eoghan O'Neill (Council's Water and Wastewater Engineer). The report finds that some upgrade would have been required for PC23 as proposed, and Mr O'Neill concurred. This plan change promotes a much less intensive use of the site, but advice from Mr O'Neill is that some upgrade will still be required. Existing rules in Volume 3 Part 14 (Subdivision) will ensure this occurs in a timely and appropriate manner.

Transport

22. A range of transport matters were covered in the report supporting PC23 from Traffic Design Group Ltd, as reviewed by Abley Transport Engineers Ltd. These include effects on the road network, modes of transport, and trip length / generation. There was a great deal of disagreement between the two consultants. A further report has been commissioned from TDG specifically relating to PC66 and finds that due to identified road upgrade projects (Christchurch Southern Motorway Stage 2 in particular) and the reduction in density at the site, there are no significant road safety or road network issues.

23. It is noted, however, that the site is not readily accessible by public transport, or by cyclists or pedestrians other than from Templeton.

Open Space

24. The site currently includes large areas of open space, including recreation facilities such as a cricket oval, swimming pool, gym, and hall. No need additional facilities are required in this area but Council's reserves planners have advised of the need for approximately 3000m² of passive open space. This is proposed to be provided at the existing cricket oval and zoned Open Space 1 (Neighbourhood Recreation and Open Space).

Environmental Health Considerations

25. PC23 included an assessment of noise (prepared by Marshall Day Acoustics), a Social Impact Assessment (prepared by Taylor Baines and Associates) and a report on potential land contamination (prepared by Pattle Delamore and Partners Ltd). These were reviewed by MWH Ltd. There was general agreement, however, three issues were discussed further at the Hearing.
26. Firstly, the report from Pattle Delamore and Partners Ltd (PDP) for PC23 was desk-top only. The report from PDP identified a number of potential sources of ‘potential human health and environmental issues’ including fuel storage tanks, landfill and waste disposal stockpiles, and areas previously used for cropping. A further report from PDP has been received and includes on-site investigation. The report found no impediment to development.
27. Secondly, MWH Ltd considered that on-site activities, particularly those adjoining sensitive land uses (e.g. Brackenridge Residential Estate) required protection beyond that provided by noise controls already in the City Plan. PC66 includes a 20m buffer with shelterbelt around the zone boundary.
28. Thirdly, the issue of spray-drift from adjoining farming properties was raised, particularly in relation to the land west of the plan change site. Although control of spraying activities is not within the ambit of the City Plan, a 20m buffer area is proposed around the boundary of the proposed zone to address a number of issues, including spray drift. The requirement to retain and improve shelterbelts is also useful in this regard.

Geotech

29. The site has been investigated by Eliot Sinclair to determine it’s suitability for the uses likely under the proposed zoning regime. The investigations were undertaken in accordance with recent Department of Building and Housing requirements. It is noted that the land has not been assessed by CERA but is classified by them as Green zone (unmapped) for foundation design. The green zone is the most suitable for building/rebuilding.
30. Eliot Sinclair calculated the design parameters in accordance with New Zealand standard NZS1170 (Structural Design Actions) and also with the Guidelines for the geotechnical investigations and assessment of subdivisions in the Canterbury Region (14 November 2011) prepared by the Department of Building and Housing. The parameters are peak ground acceleration measures in ‘g’s (gravitational force) and have two design levels as below:
- Ultimate Limit State (ULS) - in a seismic event with an annual probability of exceedence of 1 in 500 year return period, people are not to be endangered and collapse of the structure is to be avoided.
 - Serviceability Limit State (SLS) - in a seismic event with an annual probability of exceedence of 1 in 25 year return period, damage to the building is to be avoided.
31. Information contained in the Eliot Sinclair report is summarised in the table below.

Peak Ground Acceleration	
Department of Building and Housing requirements	Serviceability Limit State: 0.11g Ultimate Limit State: 0.34g

Recorded at Templeton School	4 September 2010: 0.29g 22 February 2011: 0.12g
------------------------------	--

32. The report concludes that the site will not be subject to liquefaction at the levels set by DBH. Eliot Sinclair go on to note that due to areas of fill, foundations will require specific engineering investigation, design and construction observations to ensure building foundations are not located on uncontrolled fill.
33. A rule is included in PC66 requiring specific design. This would be submitted and approved through the building consent process.

Other Issues

Existing Buildings and Infrastructure

34. The site currently contains a large number of former hospital buildings and associated infrastructure. Many of the buildings are in reasonable condition, although the layout of these buildings may not suit re-use without a refit. The existing infrastructure is old and may not meet current Council standards. Internal roads are more likely to be re-used, although they may need to be widened and strengthened depending on the final road layout. It is unlikely that the buildings and infrastructure would be re-used under the current zoning regime and their gradual decline in condition is anticipated. This sentiment is also expressed by the PC1 Commissioners in their decision.

Airport Noise Contours

35. The site is largely under the 55dBA contour for the Christchurch International Airport. The City Plan requires residential buildings to be constructed to specific standards to limit the effect of noise on residents. The CIAL has historically opposed residential development under the noise contours, although rural and rural-residential development is seen as less of an issue.
36. PC66 includes provisions limiting residential activity to a similar density to that allowed under Rural 2 zone provisions – i.e. 15 residential units over the 60ha (1 per 4ha). The rule also limits residential activity within the zone to custodial purposes, and not more than one within each site.
37. Acoustic insulation would be required for these units (under the contour). Further comment on this matter as relating to the Regional Policy Statement is below.

Transpower Assets

38. The site has large power pylons and lines crossing it east-west towards the Islington substation. PC66 amends the existing rule to restrict development in close proximity to the lines. The rule is generally in accordance with Transpower guidelines.

Sewer Infrastructure

39. The site contains a significant amount of private infrastructure including a large sewer lines servicing Department of Corrections facilities. This is a separate matter being addressed by RHL, although it may impact on the final location of internal roads (i.e. the pipe may be retained and included in a new road reserve), and this is part of the reason the ODP does not show an internal road layout.

PART 3 EVALUATION OF PROPOSED PLAN CHANGE 66

Evaluation of the Canterbury Regional Policy Statement

40. Ch12A of the Regional Policy Statement, previously Proposed Change 1 (PC1), was made operative by the Canterbury Earthquake Recovery Authority (CERA). The bulk of the text from PC1 is now part of the operative Ch12A.
41. The site is currently outside the urban limit defined in Ch12A and given that the site is outside the urban limit, it is considered that development may only occur provided it is consistent with the definition of rural activity contained in Ch12A:
- Rural Activities: means*
- *Rural land use activities such as agriculture, aquaculture, horticulture and forestry*
 - *Businesses that support rural land use activities*
 - *Large-footprint parks, reserves, conservation parks and recreation facilities*
 - *Residential activity on lots of 4 ha or more*
 - *Quarrying and associated activities*
 - *Strategic Infrastructure outside the urban limits.*
42. The proposed rules promote selected rural activities; considering quarrying, for example, to be inappropriate.
43. Further to Ch12A, CERA introduced and made operative Ch22 (Response to Canterbury Earthquakes) which is essentially about noise contours around the Christchurch International Airport and, relevantly to PC66, the requirement to avoid noise sensitive activities under the new 50dBA contour.
44. In terms of noise sensitive activities, the City Plan describes these as including the following buildings or parts thereof:
- Residential units and elderly persons housing;*
(a) Traveller's accommodation, resort hotels, hospitals and healthcare facilities; and
(b) Retail activities commercial services and offices.
45. The RPS at Chapter 22 (as revised by CERA) describes noise sensitive activities as including:
- residential activities other than those in conjunction with rural activities that comply with the rules in the relevant district plan as at 23 August 2008;*
education activities including pre-school places or premises, but not including flight training, trade training or other industry related training facilities located within Special Purpose (Airport) Zone in the Christchurch District Plan or on other land used or available for business activities;
travellers accommodation except that which is designed, constructed and operated to a standard that mitigates the effects of noise on occupants;
hospitals, healthcare facilities and elderly persons housing or complex.
46. As a result of Chapter 22, PC66 restricts noise sensitive activities, except that custodial residences are permitted at a density consistent with the definition of rural activities and equivalent to that permitted under Ru2 zone provisions. Other noise sensitive activities are not provided for. This means that the existing school will have to rely on resource consents if it wishes to stay. The school currently has consent to operate until 19 April 2016.

47. As part of giving effect to the RPS noise contours, Plan Changes 74 and 75 have been initiated by the Council. These will need to address the differences in noise contour shape and in approach between the RPS and the City Plan. As PC 74 and 75 are not significantly advanced at the time of writing, PC66 follows the existing City Plan method.

Evaluation of proposed plan change against the objectives of the City Plan

48. Plan Change 66 proposes to insert one new policy into the City Plan, relating to re-use of the site and its resources. The proposed plan change would also amend or insert several rules.

49. The effectiveness of the proposed plan change in achieving the relevant objectives is evaluated below in a table. Also evaluated is the efficiency of the rules and other methods, and the risk of acting or not acting if there is uncertain or insufficient information.

Effectiveness

50. The table below assesses the policies and rules proposed to be amended or included plan change in terms of their effectiveness in achieving identified relevant objectives, as directed by s32(3)(b). Where relevant to the plan change, those policies associated with each objective are included as they often provide clarity to the intent of the broad objectives.

Key City Plan Objectives	Evaluation of Plan Change provisions
<p>Section 2 Natural Environment</p> <p>2.1 Objective : Land and soil To maintain and enhance those physical, chemical and biological characteristics of land and soils, and the ecosystems they contain, in a way that best enables them to support life and provide for community needs.</p> <p>2.1.1 Policy : Versatile Soils Where consideration is being given to the use, development or protection of land comprising versatile soils, in circumstances where such use development or protection is necessary to achieve the purpose of the RM Act, particular regard shall be had, in the circumstances of the case, to any need to protect such land from irreversible effects that may foreclose some future land use options that benefit from being located on such land. Provided that where a proposed activity will irreversibly affect land comprising versatile soils and there is a choice in the locality between such activity occurring on that land or on less versatile land, the preference shall be to protect versatile land from such activity, unless the proposed activity would better achieve the purpose of the RM Act.</p> <p>Objective 2.2 : Water</p>	<p>The plan change site has predominantly silty or sandy soils with a gravel underlay. This soil type is common across the Canterbury Plains and can be utilised for a range of rural activities. There is no particular need to protect these soils and the site comprises only a small part of the soil resource for Greater Christchurch. The existing built environment precludes viable economic use of much of the soil resource. The cost of removing the buildings to allow use of the soils on a small site is unlikely to be offset by traditional rural activities, meaning that the soil resource is only partly available currently. The increase in built environment as could be expected if the site were developed as provided for in PC66 would not therefore have a significant additional impact on the soil resource of Greater Christchurch.</p> <p>The site contains no permanent watercourse and is not directly over an unconfined aquifer. The site consists of free draining soils and has a low water table. Appropriate stormwater management is achievable at the site and PC66 contains standards in this regard.</p> <p>On the basis of the above evaluation, the plan</p>

<p>Maintenance and enhancement of the quality and availability of the City's water resources, and of the natural and cultural values and public accessibility of waterways and their margins.</p> <p>Policy : Surface waters To manage the location and scale of land use activities and the disposal of stormwater, in a manner which avoids, remedies or mitigates the pollution of surface waters and adverse effects on aquatic ecosystems.</p> <p>Policy : Waterway margins To enhance the margins of waterways in terms of their natural, amenity and access values.</p>	<p>change is considered effective in achieving the relevant objectives at Volume 2 Part 2 of the City Plan, as well as supporting policies.</p>
<p>Section 3 Energy</p> <p>3.1 Objective : Energy conservation The efficient use of energy, in both supply and consumption, whilst promoting the development of alternative renewable energy sources.</p> <p>3.1.3 - 3.1.5 Policies : Energy efficiency 3.1.3 To promote energy efficiency through urban consolidation; and waste minimisation. 3.1.4 To encourage energy efficiency in transportation. 3.1.5 To minimise energy use through improved building design.</p>	<p>The site is outside the urban limit and not ideally located in terms of energy conservation, particularly in relation to transport. It is, however, near Rolleston (largely a dormitory suburb at present) and Hornby. It is also near State Highways 1 and 73, and the airport, providing good links to strategic networks.</p> <p>PC66 includes rules limiting the amount of development which can occur, as well as limiting the traffic volume/car parking per site. The focus of PC66 is to provide for rural activities at a low density and as such few activities are expected to generate significant volumes of traffic. The promotion of renewable energy sources is occurring through another plan change and not specifically addressed in PC66.</p> <p>Although compromised to a degree by the location of the site, PC66 provisions are considered appropriate in achieving the objective and policies at Section 3.</p>
<p>Section 4 City Identity</p> <p>4.1 Objective : Form The maintenance and enhancement of natural and physical features and characteristics contributing to the distinctive form of the City.</p> <p>4.1.6 Policy : The plains To maintain and enhance the important elements which comprise the dominant open space character of the rural plains.</p>	<p>As a site outside the urban limit and the 'City' as referred to in this section of the City Plan, care needs to be taken to ensure that the site helps maintain the rural - urban contrast and retains the rural character of the area it is in.</p> <p>PC66 requires a low density built environment and a large landscaping component, as well as retention of existing shelterbelts and other trees. The rules are designed to maintain the rural character of the area but not stifle redevelopment of the site.</p> <p>The site is remote from the rural/urban boundary and will not have a significant influence on what is already a poorly defined boundary at Hornby.</p> <p>On the basis of the above evaluation, the plan</p>

	<p>change is considered effective in achieving the relevant objectives and supporting policies at Volume 2 Part 4 of the City Plan.</p>
<p>Section 6 Urban Growth</p> <p>6.2 Objective : Business activity and urban growth Patterns of land use that promote and reinforce a close proximity and good accessibility between living, business and other employment areas.</p> <p>6.2.3 Policy : Industrial activity To promote industrial activities within the existing urban area, through development of vacant land and re-use of existing vacant premises, whilst ensuring that such activities requiring a rural location are of a scale compatible with the dominant rural character.</p> <p>6.3A Objective : Peripheral urban growth Peripheral urban development of a scale and character consistent with a primary emphasis on urban consolidation; which avoids, remedies or mitigates adverse impacts on water, versatile soils, significant amenity values and other natural resources; and which makes efficient use of physical infrastructure.</p> <p>6.3A.2 Policy : Infrastructure costs To encourage growth in areas (and in a manner), that ensures that any adverse effects on the roading network can be avoided or mitigated, and the costs of providing public infrastructure are minimised; and that costs attributable to particular developments are met by the developer.</p> <p>6.3A.8 Policy : Incompatible rural activities To have regard to the presence of any incompatible activities in the rural area in assessing urban growth proposals.</p>	<p>As noted above, the plan change site is not within the urban limit and therefore does not promote urban activities. Section 6 of the Plan is, on that basis, not relevant. There are, however, some matters worth raising.</p> <p>Firstly, the site does not enjoy optimal accessibility to residential areas. This issue is addressed through the high traffic generator rule, and building density provisions.</p> <p>The site is, however, well located in terms of proximity to the Rolleston I-zone and Hornby industrial areas. It is also close to State Highways 1 and 73 and the airport, as noted above.</p> <p>Policies 6.2.3 and 6.3A.8 refer to activities in a rural location needing to be at a scale compatible with the dominant rural character, and PC66 seeks to achieve this through landscaping and building density requirements.</p> <p>Policy 6.3A.2 is of significance because the site is on the periphery of Council's water and wastewater infrastructure. Some upgrade would be required and existing rules in Volume 3 Part 14 (subdivision) capture this aspect. Although there is some inefficiency because the site is on the periphery of the Council's system, it is likely that redeveloping the site will address issues with the existing sewer line for the prison and other sites being located on the subject site, rather than in Council land.</p> <p>On balance, the proposed plan change is considered effective.</p>
<p>Section 7 Transport</p> <p>7.1 Objective : A sustainable transport system A safe, efficient and sustainable transport system</p> <p>7.1.1 - 7.1.5 Policies : Minimising adverse effects</p> <p>7.1.1 To remedy, mitigate or avoid the adverse effects of the use of the transport system 7.1.2 To promote integration of transport and land use planning</p> <p>7.2 Objective : Road network An efficient and effective road network that allows the City to function and develop with minimal conflict between land uses, traffic and</p>	<p>The Outline Development Plan proposed as part of PC66 allow Council to have discretion over the design and layout of the road/access network at the time of subdivision. This is to ensure that best practice urban design and sustainable transport planning principles are central to the assessment of any proposal at that critical time.</p> <p>Outside the site, PC66 relies on the high traffic generator rule and a low density built environment to limit the impact on the road network. The attached traffic impact assessment finds that at levels of development which could be expected as a result of PC66 being implemented, the safety and efficiency of the road network would not be affected</p>

<p>people.</p> <p>7.2.5 Policy : Land use control To control the establishment of land use activities to achieve compatibility with the roads they front by avoiding, remedying or mitigating the effects which each has on the other.</p> <p>7.3 Objective : Public transport Recognition of the public transport needs of people throughout the City and provision for meeting those needs.</p> <p>7.4 Objective : Cyclists Provision for the safe movement of cyclists and actively encouraging cycling as a means of transport.</p> <p>7.5 Objective : Pedestrians The safe movement of pedestrians in a pleasant environment.</p> <p>7.7 Objective : Transport safety The maintenance and improvement of transport safety throughout the City.</p> <p>7.8 Objective : Access to the City Recognition of the need for regional, national and international links with the City and provision for those links.</p>	<p>significantly.</p> <p>In terms of access to the site by non-car modes of transport, the site is accessible by bus currently, and also by bike from Templeton and possibly Hornby (though preferably not via the State Highway network).</p> <p>On balance, it is considered that the plan change is effective in achieving objectives and policies at Section 7.</p>
<p>Section 8: Utilities</p> <p>8.1 Objective : Provision of utilities Co-ordination of the provision of utilities with development in the City.</p> <p>8.2 Objective : Efficient Utilities Efficient use of the City's utilities.</p> <p>8.3 Objective : Adverse environmental effects</p> <p>Avoid remedy or mitigate the adverse effects of utilities on their surrounding environments, particularly those in living areas or areas of high landscape value; and</p> <p>Avoid, remedy or mitigate the adverse effects of utilities that generate significant levels of low frequency magnetic fields or radio frequency radiation.</p> <p>Avoid, remedy, or mitigate adverse effects in the Business 7, Business 8, Open Space 3 Carrs Road, and Living G (Awatea) Zones in instances where new development occurs near existing electricity transmission line utilities.</p>	<p>As noted previously, the site is on the periphery of the Council's water and wastewater infrastructure and upgrades will be required. These can be addressed at the time of subdivision.</p> <p>No adverse effects are likely to result, including in relation to electricity transmission lines crossing the site.</p> <p>The outline development plan includes guiding statements in relation to stormwater to ensure appropriate on-site management is provided.</p> <p>The plan change is considered highly effective in achieving the objectives and policies in Section 8.</p>
<p>Section 9 Local Community Facilities</p> <p>9.1 Objective : Local community facilities Provision for accessible community facilities to</p>	<p>Advice to inform the plan change is that the area is well serviced in terms of community</p>

<p>meet educational, spiritual, health, and other local needs.</p>	<p>facilities. No additional facilities are proposed, however, the site contains a number of existing facilities including a pool/gym, hall, and sports field. These would be retained as described in the zone description and Outline Development Plan.</p> <p>It is considered that PC66 is highly effective in achieving the objectives and policies in Section 9, and similarly those relevant in Section 14 (Recreation and Open Space).</p>
<p>Section 10 Subdivision and Development</p> <p>10.3 Objective : Amenity values That the amenities of the built environment be maintained or enhanced through the subdivision process, and that the operation of physical infrastructure, and the cost of its provision, not be adversely affected by subdivision proposals.</p> <p>10.3.1 Policy : Allotments That allotment sizes and dimensions created through the subdivision process be determined with regard to the likely anticipated land uses upon those allotments, and the effects on amenity values and the environment of the pattern of subdivision.</p> <p>10.3.3 Policy : Significant trees To encourage the protection of significant trees upon the subdivision of land.</p>	<p>The site is in a rural area and the subdivision design is important to the amenity of the zone and the wider area. The proposed plan change includes minimum lot size requirements and a rule requiring retention of a large number of existing established trees.</p> <p>The Outline Development Plan also provides guidance when considering subdivision design.</p> <p>It is considered that the methods proposed by the plan change are highly effective at achieving these objectives and policies.</p>
<p>Section 13 Rural</p> <p>13.1 Objective : The rural land and soil resource That the rural land and soil resource be managed to:</p> <ul style="list-style-type: none"> • enable rural resources to continue to be used for a variety of rural activities while recognising their operational needs and the potential environmental effects of such activities; • provide scope for the appropriate establishment or extension of urban activities; and • retain the stability and character of rural soils, and the life supporting capacity of the soil resource, including the potential for primary production, and to safeguard natural values. <p>(b) That the open space character and low density of built form which distinguish the rural area be maintained and enhanced.</p> <p>13.2 Objective : Water resources Management of land use activities to protect the quality and availability of both surface and ground water in the rural area of the City.</p> <p>13.3 Objective : Rural infrastructure That infrastructure in the rural area be:</p>	<p>Objective 13.1 significantly overlaps with Objective 2.1 as assessed previously in this table. I rely on the conclusion reached in that instance. Similarly with Objective 13.2 and Objective 13.3 which overlap with the assessment of Section 8 above.</p> <p>Objective 13.4 overlaps to a degree with objectives and policies at Section 4, but it is worth commenting further.</p> <p>Maintaining rural amenity is critical to the proposed plan change and this is reflected in the rules as notified.</p> <p>The plan change site itself has significant rural amenity - including typical shelterbelt planting, some open paddocks, and numerous established trees. Against this is the remnant hospital buildings and above ground infrastructure. PC66 includes rules relating to landscaping, retention of trees and shelterbelts, density of development, and amount of outdoor storage to address amenity within the site. The Outline Development Plan contributes by providing guidance on landscaping and by identifying three precincts which help manage density, in particular.</p>

<ul style="list-style-type: none"> maintained to provide for the safe and efficient operation of activities in rural areas; and established or improved which enables soil, water and air qualities to be maintained and enhanced, and impacts on amenity values to be minimised. <p>13.4 Objective : Rural amenity values That over the rural area as a whole, rural amenity values, including visual character, heritage values, cultural and recreational opportunities are maintained and whenever possible enhanced, and adverse effects of activities are recognised and controlled.</p>	<p>To address amenity issues as from outside the site, PC66 proposes provisions relating to retention and maintenance of the shelterbelts and established trees, landscaping requirements, building height limits, and the 20m buffer shown on the Outline Development Plan.</p> <p>It is important to note that although the site is surrounded by Rural 2 and 5 zones, the land-uses are not all traditional agriculture or horticulture. These uses are described previously in this report and are significant when considering the rural character and amenity in the area.</p> <p>Although PC66 would increase the density of development from the maximum of 10% allowed under the Special Purpose (Hospital) zone to between 20-30% (critical standard), the rules proposed are considered to achieve the objectives and policies in Section 13.</p>
---	--

Summary – Effectiveness

51. The proposed Templeton Special Rural Zone rules package and Outline Development Plan have been demonstrated in the above table to be effective in implementing the plan’s objectives.

Evaluation of the Cost and Benefits (Efficiency) of the proposed plan change

52. The table below assesses the policies and rules proposed to be amended or included plan change in terms of their efficiency, as directed by s32(4)(a).

Benefits	Costs
<p>Environmental</p> <p>Development of the land will promote/enable the remediation of this brownfields site.</p> <p>Will not foreclose significant additional rural land use options that benefit from being located on productive soil.</p> <p>Does not pose a risk to Christchurch City’s water supply.</p> <p>The site performs well in terms of geotechnical and seismic hazard.</p> <p>The site has good access to major transport corridors.</p>	<p>Environmental</p> <p>The potential to affect the rural character of the area exists, although there is significant development on the site and adjacent sites already.</p> <p>The Plan Change will result in increased traffic generation / movements in the area.</p>

<p>Economic</p> <p>The Plan Change provides opportunity for additional rural business choice for Greater Christchurch.</p> <p>Rezoning the site will avoid consenting costs and compliance costs involved with obtaining consents for individual uses.</p>	<p>Economic</p> <p>The cost of extending and upgrading potable water and sewerage infrastructure.</p> <p>The site is on the periphery of the Council's reticulated infrastructure, making provision of services less efficient than at other sites.</p>
<p>Social</p> <p>The plan change addresses the sensitive uses adjoining the site and the potential for reverse sensitivity.</p> <p>Development of the site will provide employment opportunities for local residents and potentially reduce the volumes of traffic travelling to work in Christchurch.</p>	<p>Social</p> <p>Potential for an increase in noise emission from the site and an increase in the number of people subject to noise in the general area (e.g. Ruapuna Motorsport Park, the airport, and traffic).</p>

Summary - Efficiency

53. The above evaluation of the benefits and costs of the proposed plan change in respect to environmental, economic, and social perspectives demonstrates that it is efficient. It is considered that benefits outweigh the costs over time.
54. Several rules have been introduced to deal with specific resource management issues, along with an Outline Development Plan to guide the pattern of development in the area.

Risk of Uncertainty (acting or not acting) or Insufficient Information


55. Section 32(4)(b) directs the Council to consider the risk of acting or not acting if there is uncertainty and if there is insufficient information. There are two possible areas where there is some uncertainty or there may be insufficient information relating to the Plan Change.
56. Firstly, the internal road layout is not shown on the Outline Development Plan. This has been done to allow the landowner / developer a greater degree of flexibility given the types of land uses which may establish and their potential need for large parts of the site. The existing roads need to be investigated for re-use and the sewer line under the site may also be relocated. With these matters not yet resolved, and the tendency for internal road layouts on Outline Development Plan to be amended through subdivision consent, it is considered reasonable to show only access and egress points. The location of the internal roadways is considered unlikely to have a significant adverse impact on the anticipated environmental outcomes.
57. Secondly, resource consent will be required from Environment Canterbury for the management of stormwater associated with new residential development. The reserving of an area at the north of the site is not certain until further investigation and until more is known about whether the land uses which establish require such. In this situation any risks of acting are very low as subdivision consents will not be approved unless effective stormwater management system is proposed. The area is shown on the ODP.

Conclusion on the evaluation of the proposed plan change against the objectives of the City Plan

58. Based on the assessment undertaken, the overall conclusion is that the proposed rezoning and associated rules better achieve the objectives of the City Plan than the existing City Plan provisions. The effectiveness test is therefore passed.
59. With regard to efficiency, the proposed methods (rules, an Outline Development Plan, and assessment matters), are considered to have a range of benefits that outweigh the costs. Following the consideration of the benefits and costs of the Plan Change provisions relating to Policy framework and the overall zoning pattern, it is the judgement that these are of medium - high efficiency. The potential for rehabilitation of the site is recognised as a significant benefit and a significant part of the rationale for the Change.

Conclusion

60. Based on the assessment undertaken, the overall conclusion is that the proposed plan change is the most appropriate way to achieve the objectives of the City Plan. It is further concluded that the benefits of the rezoning outweigh the costs.
61. While the City Plan is only operative in part, the objectives and policies relevant to the Plan Change are beyond challenge. Therefore, the overarching purpose of the Act is presumed to be met by the objectives, policies, and methods contained in the City Plan. It is therefore concluded that the Plan Change will achieve the principle and purpose of the Act.
62. The Plan Change accords with the Council's functions under the Act. In particular, its provisions achieve the integrated management of the effects of the use, development and protection of land, control the actual and potential effects of the use, development and protection of land.

 <p>Christchurch City Council</p>	<p>Resource Management Act 1991</p> <p>Christchurch City Council</p> <p>Christchurch City Plan</p> <p>Proposed Plan Change</p>	<p>66</p>
<p style="text-align: center;">Templeton Special Rural Zone</p> <p>Explanation</p> <p>Christchurch City Council has initiated Plan Change 66 - Templeton Special Rural Zone, to facilitate the redevelopment of the site at 185 Kirk Road (Lot 2 DP 315110), containing the former Templeton Hospital, for rural or rural business purposes.</p> <p>Purpose and reasons</p> <p>In July 2011, the Council initiated Plan Change 66 aims to rezone the site in accordance with district and regional planning policies while retaining the existing uses and re-using some of the existing buildings and infrastructure. The existing Special Purpose (Hospital) and ‘underlying’ Rural 2 (Templeton-Halswell) zones are not likely to facilitate significant healthcare or traditional rural activities at the site and there is a risk that the existing buildings and infrastructure will fall into disrepair and that resource lost.</p> <p>Changes to the City Plan</p> <ul style="list-style-type: none"> • Amend Explanations to Objectives and Policies and include a new policy in Volume 2 Section 13 Rural • Amend or insert rules, assessment matters, reasons for rules and new appendix 6 (Outline Development Plan for Templeton Special Rural Zone) in Volume 3 Part 4 Rural Zones. • Amend rules in Volume 3 Part 9 – General Rules. • Amend rules in Volume 3 Part 11 – Health and Safety. • Amend rules in Volume 3 Part 13 – Transport. • Amend rules in Volume 3 Part 14 – Subdivision. • Amend planning maps 35A and 42A to show the Templeton Special Rural Zone. 		
<p>Date Publicly Notified: 25 May 2012</p>		<p>Date Operative:</p>
<p>Plan Details:</p>		<p>File No: PL/CPO/3/66</p>

City Plan Amendments

Note: For the purposes of this plan change, any text amended as a result of other decisions is shown as “normal text”. Any text proposed to be added by the plan change is shown as **bold underlined** and text to be deleted as ~~**bold strikethrough**~~.

Volume 2 Section 13 - Rural

13.1.1 Policy : Building development

To provide for a pattern of subdivision and density of building development in the rural area which reflects the character of the locality and potential constraints.

Explanation and reasons

(...)

Within the rural area (and in some cases covered by other sections of the Plan) are a number of activities and features which collectively occupy a significant area and which substantially impact on the surrounding rural area. These include:

- Detached urban developments in the rural area, (Belfast, Templeton, Kennedy's Bush, Westmorland and Halswell).
- Small rural villages or settlements, (e.g. Spencerville, Brooklands, Stewarts Gully, Marshlands, Ouruhia and Yaldhurst).
- Rural industrial areas (e.g. Chaneys and Johns Road).
- The City landfill area adjacent to the coast (north of Parklands), the Styx Mill Transfer Station, and an identified waste disposal area at Chaneys.
- The resort community at Clearwater.
- Christchurch International Airport.
- The McLeans Island recreation area, Isaac Conservation Park and other recreation areas adjacent to the Waimakariri, Styx and Otukaikino Rivers.
- The wide gravel bed of the Waimakariri River and its adjacent banks (shared with Waimakariri District).
- Quarry areas, (Miners Road, parts of the Isaac Conservation Park and Pound Road).
- Motor sport recreation areas (Ruapuna and Carrs Road).
- Templeton Golf Club area.
- "Institutional" activities (Paparua Prison ~~and Templeton Hospital~~).
- Open space and recreation areas on the Port Hills.
- The use of New Zealand Defence Force land at Wigram for defence purposes including aviation and for education and recreational activity related to the Air Force Museum.

(...)

13.4 Objective : Rural amenity values

That over the rural area as a whole, rural amenity values, including visual character, heritage values, cultural and recreational opportunities are maintained and whenever possible enhanced, and adverse effects of activities are recognised and controlled.

Reasons

The rural area has a distinctive character because of the generally low density of settlement and its relative predominance of open space. Within the rural area itself there are substantial variations in landscape character ranging from the highly visible and generally open landscape of the Port Hills, more intensively settled areas in the western and north-western parts of Christchurch, and large tracts of open plains such as in the area west of the International Airport. Large parts of the rural area are also adjacent to, or contain, important recreational facilities and river corridors.

Rural amenities include a sense of open space, a low density (albeit variable) character, high levels of privacy, trees and forests, and a clear dominance of open space over the built environment. Rural character is however of variable quality.

Rural amenities are valued not only by residents of the rural area itself, but are of wider benefit to the people of the City and beyond. Consistent with the need to recognise demands to use resources, the Plan contains provisions to ensure that rural amenity values are maintained and enhanced. Some activities have the potential to detract from the quality of rural amenity values and the Plan contains measures to avoid or mitigate any adverse effects that may occur. However, this does not mean that the present character of the rural area will not change in any way. Scope is provided for change in the rural area, but in a manner that seeks to enhance the overall quality of rural amenities.

The Templeton Special Rural Zone is a response to the closure and abandonment of Templeton Hospital, and the need to rehabilitate the site and to make efficient use of the existing assets. The zone provides for rural activities with a low density built environment, in a manner which does not significantly affect the rural character and amenity of the area.

The Council will encourage a continuing improvement in the standard of rural amenities and retention of areas or features of heritage value, as this reinforces positive elements in the character of the rural area.

13.4.7 Policy – Templeton Special Rural Zone

To provide for the remediation of the former Templeton Hospital site while avoiding adverse effects on the surrounding rural land, and for the efficient re-use of the existing resources in a manner which does not significantly detract from the character of the area.

Reasons

When the use of the site for the Templeton Hospital was discontinued, many buildings and a significant amount of private infrastructure remained in situ. These are likely to become further dilapidated, potentially resulting in adverse visual effects in particular. Outside the urban limit, the range of activities which could establish is restricted, including by the Regional Policy Statement and this Plan. Consequently, re-development of the land is difficult. To achieve remediation and efficient use of resources, it is necessary for the Plan to

specifically provide for the re-development of the site.

Specifically the zone enables rural activity, including agriculture and horticulture; businesses that support agriculture and horticulture activities; food outlets and similar activities such as provide for the zone; parks, reserves, and facilities such the hall, gym, pool, and sports oval reserve; and small scale facilities associated with strategic infrastructure.

The level of development allowed by the rules accompanying this policy is greater than for traditional rural land, to enable remediation of the site as an economically viable proposition. To help achieve remediation and integrated re-use in a manner consistent with the rural character of the area, an Outline Development Plan is included in Volume 3 of the City Plan. It provides guidance for subdivision, development and use of the site, particularly with regard to transport matters, stormwater, and landscaping. Landscaping is particularly important in terms of maintaining rural character of the site and surrounds.

Volume 3 Part 4 – Rural Zone

1.1 General description and purpose

Within the overall area of about 31,000 ha of rural land within the city boundary, there are a variety of different activities ranging from those which directly utilise rural resources, to others primarily concerned with residential, recreational, industrial, or institutional uses. Primarily urban activities are catered for by separate zones and rule provisions in the Plan. A range of rural zones is provided to cater for those activities primarily reliant upon utilising rural resources. The distinction between each rural zone reflects the physical location, environmental influences and environmental results anticipated in these areas. **Nine Ten** rural zones have been identified as follows:

- Rural 1 (Coastal) Zone
- Rural 2 (Templeton-Halswell) Zone
- Rural 3 (Styx/Marshland) Zone
- Rural 4 (Waimakariri) Zone
- Rural 5 (Airport influences) Zone
- Rural 6 (Grasslands) Zone
- Rural 7 (Port Hills Intensive Farming) Zone
- Rural Hills Zone
- Rural Q (Quarry) Zone
- **Templeton Special Rural Zone**

The Styx/Marshland and Templeton/Halswell zones include extensive areas of highly versatile soils, capable of a wide range of potential horticultural uses. Localised pockets of such soils also occur elsewhere in other rural zones. A small intensive farming zone comprising parts of two Port Hills valleys has been recognised. A specific rural zone has been provided to cater for dry land quarrying.

The maintenance of primary production and of rural amenities is a desired outcome in the rural zones generally, although a limited degree of urbanisation is expected which will alter the location of the rural/urban interface.

Important areas for landscape and ecological heritage purposes comprise much of the Rural Hills and Rural 6 Zone and also occur on some identified sites outside these zones. These are identified in Appendix 2 to the rules.

1.11 Templeton Special Rural Zone

Zone description and purpose

The Templeton Special Rural Zone applies to the former Templeton Hospital site, situated north of Templeton and bordered by Kirk and Maddisons Roads. The hospital closed in 2000 but numerous buildings and items of infrastructure remain on the site. The site is surrounded by Rural 2 and Rural 5 land and a number of uses which are not traditional rural activities, including residential health-care, drug and alcohol rehabilitation, corrections facilities, and small scale education facilities.

The use of the site for a hospital involved a significant number of buildings and internal road network and servicing infrastructure, much of which remains. The site was formerly zoned Special Purpose (Hospital) and Rural 2 (Templeton - Halswell) to enable its use as a hospital and, in the event a non-healthcare use is proposed, for general rural activities. Large scale healthcare facilities are considered unlikely to re-establish at the site, and the remaining buildings and infrastructure make the site unsuitable for agricultural or horticultural activities generally anticipated in rural zones.

While the site was zoned SP(H) / Ru2, some temporary activities established, including driver training, a school, and rural research. Of these uses only rural research is promoted within the zone, as it is considered to fit well with the Templeton Special Rural Zone.

The location of the site outside the urban limit and under the airport noise contours as defined in the operative Regional Policy Statement (particularly chapters 12A and 22) effectively precludes it from being used for urban or noise sensitive activities. Some residential use (custodial) is provided for by the zone within strict parameters.

The zone seeks the remediation of the site and efficient re-use of existing resources through re-development, including the removal of buildings and infrastructure which cannot be re-used and which could potentially lead to adverse visual effects and servicing issues.

At a finer scale, the zone provisions seek to achieve a high standard of visual amenity through building setbacks, outdoor storage area limits, and landscaping requirements in recognition of the rural character and amenity of the site and the surrounding land. The zone also seeks to enable the efficient re-use of existing buildings, facilities, and infrastructure.

The zone is divided into three precincts to help achieve the expected environmental results, as described below. The Rural Business 1 precinct is key in delivering these outcomes. It provides for a low density built environment with a significant landscaping component, but also with a focus on achieving sufficient returns to facilitate remediation of the site.

Anticipated land uses in this precinct might include plant for processing agricultural or horticultural produce, rural research facilities; farm machinery sales or hire, rural contracting business, warehousing of rural produce or supplies, rural-based light engineering and mechanical repairs, and similar uses.

The Rural Business 2 Precinct provides for activities which require larger areas of open space relative to building footprint. Uses might include vet clinic, equestrian centre, small scale horticulture or agriculture, rural research facilities; landscape supplies, depots for strategic infrastructure, and similar uses.

The Facilities Precinct includes the existing pool/gym, and hall. Other facilities might include a small diary or café servicing the zone. Otherwise uses similar to those expected for the Rural Business 1 precinct are likely to be predominant.

For the purposes of applying City Plan rules to the Templeton Special Purpose Zone, rural activity is defined as;

- agriculture and horticulture;
- businesses, research facilities and laboratories that support agriculture and horticulture activities through processing, producing, or providing goods or services directly necessary to agriculture and horticulture;
- food outlets and similar such as service activities within the zone;
- private parks, reserves and facilities such as service activities within the zone;
- small scale facilities associated with strategic infrastructure, such as associated with the provision of electricity, telecommunications and reticulated services.

Environmental results expected

- (a) Retention of the rural character and amenity to ensure compatibility with the existing activities on the site and surrounds, including through the identification and protection of a significant number of existing trees.
- (b) Rural activities or those which support rural activities, and which occur within a relatively low density built environment, including rural research facilities.
- (c) Maintenance of the relatively quiet environment in keeping with the surrounding rural area and to ensure compatibility with current activities on and adjoining the site.
- (d) Development which generates low volumes of traffic to minimise effects on residential and other activities in the area.
- (e) Re-use of existing infrastructure, facilities, and buildings when and where appropriate.
- (f) Limitations on discharges of trade wastes and the storage and handling of hazardous substances in recognition of the location of the site on the periphery of the City's reticulated services, and the need to protect aquifer recharge areas from contamination.
- (g) Residential occupation confined to on-site management or security in recognition of air noise contours surrounding Christchurch Internal Airport and the potential for reverse sensitivity.
- (h) Minimised risk of reverse sensitivity which could potentially arise from development within the zone adjoining rural land and sensitive land-use activities.

2.2.1 Rural 1-7, Templeton Special Rural Zone, and Rural Hills Zones

- (a) Any rural activity or other activity which complies with:

- all of the development standards under Clause 2.3;
- all of the community standards under Clause 2.4; and
- all of the critical standards under Clause 2.5

shall be a **permitted activity** .

(b) Any rural or other activity which complies with all of the community standards and critical standards, but does not comply with any one or more of the development standards under Clause 2.3, shall be a **discretionary activity** with the exercise of the Council's discretion limited to the matter(s) subject to that standard.

(c) Any rural or other activity which complies with all of the critical standards, but does not comply with any one or more of the community standards under Clause 2.4, shall be a **discretionary activity**.

(d) Any rural or other activity which does not comply with any one or more of the critical standards under Clause 2.5, shall be a **non complying activity, except** where specified as a **prohibited activity** .

(e) Clarification of categories of activities:

The standards may also specify that an activity is discretionary (community or development standards) or non-complying (critical standards). In the case of non-compliance with a development standard, the exercise of the Council's discretion is limited to the matter subject to that standard.

Note - Prohibited activities relate only to buildings subject to aircraft noise within the 65dBA Ldn / 95 SEL dBA air noise boundary marked on the planning maps.

2.3 Development Standards

2.3.1 Road scene

The minimum building setback from road boundaries shall be 15 metres **except that**;

- (a) for sites of less than 0.4 hectares in area, the minimum building setback shall be 6 metres;
- (b) for rural selling places or sites with frontage to a major or minor arterial road listed in Part 8, Appendix 3, the minimum building setback shall be 30m;
- (c) for the Templeton Special Rural Zone - Rural Business 1 Precinct, the minimum building setback from internal road boundaries shall be 10 metres;**
- (d) for the Templeton Special Rural Zone, the minimum building setback from the zone boundary, including to Kirk and Maddisons Roads, shall be 5m in addition to the 20m buffer shown on the Outline Development Plan in Appendix 6 (Volume 3 Part 4).**

2.3.2 Separation from neighbours

- (a) The minimum building setback from internal boundaries shall be 10 metres **except that** for sites of less than 0.4 hectares in area, the minimum building setback shall be 3 metres.
- (b) For a residential unit in the Rural 2, 3 and 7 Zones; Rural 5 Zone (that part south or east of the Special Purpose (Airport) Zone as shown in Part 4 Appendix 4); Rural Hills Zones; the minimum setback from a building, compound or part of a site used for intensive livestock management, shall be 200 metres.

(c) for the Templeton Special Rural Zone:

- (i) in the Rural Business 1 Precinct - the minimum building setback from internal or precinct boundaries shall be 5 metres; and
- (ii) in the Rural Business 2 and Facilities Precincts, the minimum building setback from internal or precinct boundaries shall be 10 metres.
- (d) for the Templeton Special Rural Zone, the minimum building setback from zone boundaries shall be 5 metres, in addition to the 20 metre buffer shown on the Outline Development Plan in Appendix 6 (Volume 3 Part 4).

2.3.5 Land use - Templeton Special Rural Zone

Impervious Surfaces:

- (a) Within the Facilities and Rural Business 1 Precincts, a maximum net area of any site covered by impervious surfaces, excluding buildings and outdoor storage shall be 10% or 1000m², whichever is the lesser.
- (b) Within the Rural Business 2 Precinct, a maximum net area of any site covered by impervious surfaces, excluding buildings and outdoor storage shall be 20% or 2000m², whichever is the lesser.

Strategic Infrastructure

- (c) Use of the land for strategic infrastructure shall occur only where it is a depot or storage facility, and where associated outdoor storage does not exceed a total of 20000m² within the zone.

(Refer also to Community Standard 2.4.9 Site Coverage – Rural Activities)

2.4 Community Standards

2.4.9 Site coverage - Rural activities

Maximum percentage of the net area of any site covered by buildings and impervious surfaces shall be as follows:

- | | |
|--|---|
| <ul style="list-style-type: none"> (a) Rural 1 and 4 Zones, Rural 5 Zone (that part north or west of the Special Purpose (Airport) Zone) as shown in Part 4 Appendix 4 | <p>3% of net site area or 6000m², whichever is the lesser</p> |
| <ul style="list-style-type: none"> (b) Rural 2 and 3 Zones, Rural 5 Zone (except that part north or west of the Special Purpose (Airport) Zone) as shown in Part 4 Appendix 4 | <p>5% of net site area or 2000m², whichever is the lesser</p> |
| <ul style="list-style-type: none"> (c) Rural 7 Zone | <p>10% of net site area or 2000m², whichever is the lesser</p> |
| <ul style="list-style-type: none"> (d) <u>Templeton Special Rural Zone</u> | |

Rural Business 1 and Facilities Precincts
Rural Business 2 Precinct

20% of net site area
10% of net site area

except for:

- (i) existing lots in the above zones less than 4ha in area, but greater than 0.4ha in area, where the maximum coverage shall be 10% of the net area of the site or 2000m², whichever is the lesser;
- (ii) existing lots of less than 0.4 ha in area in the above zones where up to 35% of net area of the site may be covered;
- (iii) ecological heritage sites 3.13, 8.10, 15.21 and 15.06 identified in Part 4, Appendix 2 (refer 2.4.5(c));
- (iv) shade houses, tunnel houses and glass houses which are excluded from site coverage calculations provided that they are not located over an impervious surface.

(Refer also to critical standard clause 2.5.5 - Site coverage - Other activities, **and Development Standard 2.3.5 Land use – Templeton Special Rural Zone**)

24.11 Landscape character - Templeton Special Rural Zone

- (a) Landscaping for each allotment shall cover a minimum of 20% of the site, up to 2000m².**
- (b) Buildings shall be painted or powder coated such that reflectivity is less than 35%.**
- (c) No building, sign, or car park shall be established in the 20m buffer shown at Appendix 6 (Volume 3 Part 4).**

2.5 Critical Standards

2.5.4 Site coverage - Rural activities

Rural Hills Zone

Any building above the 160m height contour shall be a non-complying activity.

(Refer also to community standard 2.4.4(c) and critical standard 2.5.2.)

Templeton Special Rural Zone

Site coverage shall not exceed:

Rural Business 1 and Facilities Precincts

30% of net site area

Rural Business 2 Precinct

20% of net site area

2.5.6 Retailing

- (a) Retail activities shall be restricted to rural selling places of not more than 75m² in area.
- (b) The retail sale of goods shall be restricted to rural produce grown, or grown and processed, on that site and ancillary quantities of rural produce grown off the site to a maximum of 30% of the floor area of the rural selling place.
- (c) The access point to any rural selling place shall be laid out in accordance with the provisions of Part 13, Clause 2.3.7 and Appendix 7.

- (d) Rural selling places shall not be located on any site where vehicular access is from a state highway, limited access road or major arterial road listed in Appendices 3, 4, and 5, Part 8.
- (e) For the Templeton Special Rural Zone, retail activity shall only consist of the display and sale of goods where:**
 - i. It is a rural activity as defined in the zone description;**
 - ii. The gross leasable floor area for retail activities shall not exceed 250m² per site;**
 - iii. Any outdoor display area shall not exceed 250m² per site; and**
 - iv. The total gross leasable floor area and outdoor display area for retail activities within the zone shall not exceed 5000m².**

2.5.7 Aircraft noise exposure

- (a) Rural 2, 4, 5, ~~and 6~~ Zones **and Templeton Special Rural Zone** ~~only:~~
 - (i) Subject to subclause (a) (iii) below, any new residential unit, or any building or part of a building described in Part 4 Appendix 1, and which is between the 55 dBA Ldn noise contour and the 65 dBA Ldn/95 SEL dBA air noise boundary shown on the planning maps, shall be insulated from aircraft noise so as to comply with the provisions of that appendix.
 - (ii) Subject to subclause (a) (iii) below, any additions to existing residential units, or to any buildings or parts of a building described in Part 4, Appendix 1, and which is within the 55 dBA Ldn noise contour shown on the planning maps, shall be insulated from aircraft noise so as to comply with the provisions of that appendix.
 - (iii) Subject to subclause (b) below, any proposed residential unit, or any building or part of a building described in Part 4, Appendix 1, which is within 800m of the engine testing area (located in the Special Purpose (Airport) Zone and shown on Planning Map 23) shall be a non-complying activity.

- (b) Rural 4 and 5 Zones

Construction of residential units, education facilities including pre-school places or premises, travellers' accommodation, hospitals, healthcare facilities, elderly persons housing or complexes (excluding in all cases accessory buildings, outdoor storage or car parking) on land that is within the 65 dBA Ldn/95 SEL dBA air noise boundary as shown on the Planning Maps, shall be a prohibited activity, and no resource consent shall be granted;

except that one residential unit may be erected on each of Lot 5, DP 18488; Lot 6, DP 23538; Lot 9, DP 23538; Lot 3, DP 58380 and Lot 3, DP 67673 as a discretionary activity, provided that:

- (i) the lots remain above the minimum size specified in the Rural 5 Zone under Part 4, Rule 2.5.2, and
- (ii) the dwelling is insulated from aircraft noise so as to comply with the provisions of Appendix 1, and
- (iii) that the owner enters into a covenant, registered against the title, that the use of any building on the property for any of the purposes specified in Part 4, Appendix I shall endure only for so long as no complaint relating to the noise of aircraft using Christchurch International Airport (or any operation arising thereto) is made; and that upon registration the covenant shall be binding on the owner and the owner's successors in title.

2.5.11 Land use – Templeton Special Rural Zone

- (a) New buildings shall have specific foundation design prepared in accordance with the Department for Buildings and Housing “Guidelines for the geotechnical investigation and assessment of subdivisions in the Canterbury region 2011.”**
- (b) Research facilities and laboratories shall not have an education or healthcare**

component within the zone. Any residential activity shall be for custodial purposes and must comply with the criteria at (d).

- (c) No more than one residential unit shall be established per site. Any residential unit must be for the purposes of security or management of the business activity on the site only. No residential unit shall have a floor area greater than 65m² and no more than 15 such units shall be established within the zone.
- (d) Gravel extraction, other than for the creation of stormwater management basins or building foundations, where it exceeds a maximum volume of 150m³ /ha and a maximum depth of 0.5m.
- (e) Outdoor storage shall not:

 - i occur between the primary building and any street frontage, including to Kirk and Maddisons Roads;
 - ii have an area greater than:

 - 15% of a site in the RB1 and Facilities precincts;
 - 20% of a site in the RB2 precinct.

2.5.12 Landscape character - Templeton Special Rural Zone

- (a) Shelterbelt planting shall be retained, maintained or provided along the zone boundary.
- (b) A minimum of 80 existing established trees shall be retained within the zone, excluding shelterbelts and excluding trees within the 20m buffer shown on the Outline Development Plan at Appendix 6 to Volume 3 Part 4. A plan identifying the trees shall be submitted prior to the issue of any subdivision or land-use consent.

2.5.13 Servicing – Templeton Special Rural Zone

- (a) Trade waste disposal is constrained to a daily average sewage flow not exceeding 0.09 litres/second/hectare. Provision shall be made for the disposal of wastewater via the Christchurch City Council reticulated wastewater system.
- (b) There shall be no creation of waterbodies except for those used in managing the disposal and/or treatment of stormwater. Any non-reticulated stormwater facilities must be designed, operated and managed (including the margins and plantings) in described in the Outline Development Plan at volume 3 Part 4 Appendix 6.

Any proposal that does not comply with (b) shall be limited notified to Christchurch International Airport Limited.

2.5.14 Outline Development Plan - Templeton Special Rural Zone

In the Templeton Special Rural Zone, subdivision, development and use of land shall be consistent with the Outline Development Plan at Volume 3 Part 4 Appendix 6.

4.0 Assessment matters

4.2.22 Landscape Character – Templeton Special Rural Zone

- (a) The impact of the activities on the rural character of the zone and surrounding land;
- (b) The visibility of the buildings from roads, parks, public places and the surrounding land, both internal and external to the zone;
- (c) The appropriateness of the selected 80 established trees in terms of location, condition, type and proximity to roads or services where the health of the tree or driver visibility may be affected;
- (d) The number of identified trees proposed to be removed, the health and significance of the tree(s) and whether appropriate replacements are provided and the impact on the character of the site and locality.

4.2.23 Land use - Templeton Special Rural Zone

Impervious surfaces:

- (a) The extent to which an increase in impervious surfaces increases stormwater run-off and the capacity of the stormwater management system to accept any additional stormwater without breaching the requirements of Volume 3 Part 4 Rule 2.5.12 (Servicing – Templeton Special Rural Zone).
- (b) The impact which an increase in impervious surfaces would have on the visual amenity of the site and the area, including as viewed from outside the zone, particularly in relation to certain land uses in the facilities precinct including the pool/gym, sports field and hall.

Strategic Infrastructure Facilities:

- (a) The amount of traffic generated and the effect of the development on the road network in terms of safety, efficiency and capacity.
- (b) The scale and dimensions of buildings and the impact on the surrounding area, taking into account the extent of landscaping and the degree to which it screens or softens the buildings.
- (c) The storage of materials, taking into account the type and volume of material.
- (d) The significance of the facility in regional or local terms, including whether it has a function in ensuring the supply of essential services during an emergency.
- (e) The impact such a facility would have on the visual amenity of the site and the area, including as viewed from outside the zone, particularly in relation to certain land uses in the facilities precinct including the pool/gym, sports field and hall.

5.0 Reasons for Rules

5.1 Rural 1-7, Templeton Special Rural Zone, and Rural Hills Zone

5.1.16 Retailing

The type of goods able to be offered for sale and the maximum floor area specified, are intended to ensure that rural resources are sustainably managed in support of rural activities, rather than being able to develop or expand as of right into predominantly commercial activities which have little relationship to the limited rural land and soil resources.

The ability to sell produce grown on the site, and also limited produce from outside the property,

recognises the importance of this type of retailing to the economic viability of some rural activities.

The rule restricting access from major arterial roads or limited access roads is designed to protect the function of these roads and is imposed in terms of traffic safety, and enabling vehicles to enter/exit without disturbing traffic flows on rural roads.

At the Templeton Special Rural Zone, a more substantial amount of retail is provided for, where it aligns with the definition of rural activity in the Regional Policy Statement and as reflected in the City Plan in relation to this zone. A significant number of buildings and infrastructure assets remained on the site following the closure of the Templeton Hospital and in order to facilitate remediation, the Council has created a special zone. The zone allows for a limited amount of retail, in keeping with the character of the area and the nature of the existing and proposed road network

5.1.19 Landscape Character – Templeton Special Rural Zone

The Canterbury Plains are a largely rural area with a distinctive pattern formed by road layout and shelterbelts is. Care needs to be taken to ensure that the rural aspect is maintained with the Templeton Special Rural Zone. The rule therefore requires retention of the existing shelterbelts and landscaping internal to each site within the zone, which is expected to result in a pattern similar to the wider Canterbury Plains. The rule also requires a significant percentage of the site to be landscaped to assist with retention of the rural aspect.

5.1.20 Outline Development Plan - Templeton Special Rural Zone

The Outline Development Plan for the Templeton Special Rural Zone has been included to ensure that the development proceeds in a manner which achieves the objectives and policies relating to the rural zones and transport in particular. The Outline Development Plan provides a general indication of where vehicle access to the site will be provided and where the three precincts are located.

5.1.21 Servicing – Templeton Special Rural Zone

The zone is on the periphery of the City's reticulated water and sewer systems, and there is no reticulated stormwater in the area. The rule seeks to limit trade waste because of capacity at the Bromley Treatment Plant. The rule also reflects the ability of the site to manage stormwater without connection to Council infrastructure and limits the time water ponds at the site due to the need to avoid bird habitat near the airport.

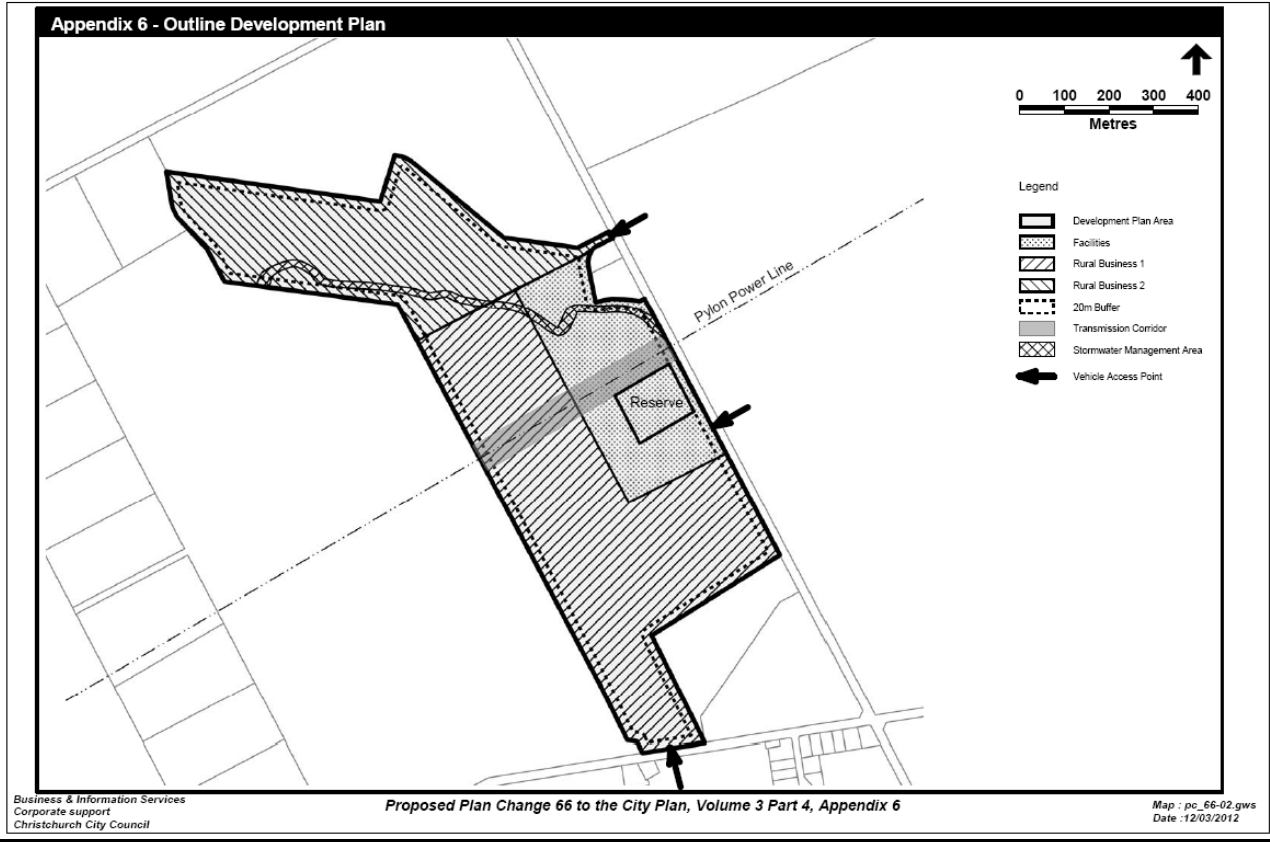
5.1.22 Land use - Templeton Special Rural Zone

The rule addresses a range of issues and activities as may occur within the zone. Firstly, a limit is set on the amount of impervious surfaces. This forms part of the stormwater management package, but also seeks to minimise the adverse visual effects of large hardstand areas, and the loss of rural soils as sought by objectives and policies in Volume 2 Part 13 of this Plan.

Secondly, the rule sets limits on the amount of outdoor storage and where it can be located. This is to minimise the adverse visual effects of large or cumulatively large areas of outdoor storage and is an essential part of maintaining the character of the area.

Thirdly, the rule sets parameters around the use of the site for specific activities as referenced in the zone description, including strategic infrastructure facilities. The rule provides criteria in order to manage adverse effects, particularly relating to the road network and visual effects, and to help maintain the character of the site and surrounds.

Volume 3 Part 4 Appendix 6 – Outline Development Plan Templeton Special Rural Zone



Outline Development Plan -Templeton Special Rural Zone

The Outline Development Plan seeks to guide subdivision and development of the site, particularly with regard to stormwater management, landscaping and buffers, and the internal road network. The diagram also shows the Rural Business 1, 2 and Facilities precincts.

Stormwater

The site has been assessed as being suitable for on-site stormwater management. Each allotment will have individual on-site stormwater management systems in line with the requirements outlined below, and there will be communal stormwater management to handle stormwater from the public realm. The Communal system will include a contingency amount for unusually heavy rainfall events.

The diagram shows a stormwater management area in the north of the site, in an existing natural swale, but communal detention and management will need to occur elsewhere within the site also. The transmission corridor mid-site provides an opportunity for this.

Stormwater management at the site should be designed in general accordance with the following:

- Roof water should be put directly to ground via sealed pipework and soakage pits;
- Stormwater from individual allotments shall be retained on-site and put to ground via first flush soil absorption basins and rapid soakage. A 2% Annual Exceedance Probability design is required.
- In addition, a minimum volume of stormwater storage per allotment of 10% AEP (Annual Exceedance Probability) design storm event of 18 hours with rainfall depth of 85mm.
- First flush volume shall be the stormwater runoff volume from the first 25mm of rainfall depth of any storm event.
- A system of first flush basins, detention and rapid soakage shall be provided at the time of subdivision for all public roads and public hardstand areas within the zone. An additional amount of detention shall be provided on public land within the zone equivalent to 10% of the estimated run-off volume from private land with a 2% AEP (Annual Exceedance Probability) level of service;
- The design, operation and management of the stormwater system shall avoid attracting bird species which constitute a hazard to aircraft; and
- Stormwater infiltration basins are designed to fully drain within 48 hours of the cessation of a 2% AEP (Annual Exceedance Probability) storm event.

Landscaping and the 20m buffer

The diagram shows a 20 metre buffer on the perimeter of the Templeton Special Rural zone. This is designed to protect adjoining landowners from adverse effects, and vice versa. The zone is adjoined by the Brackenridge Residential Estate, Nova Trust Rehabilitation Centre, Waitaha Learning Centre, a chapel, and farmland, making it particularly important to manage adverse effects. The buffer should not contain hard stand, outdoor storage or buildings. It may count towards the landscaping component.

The existing shelterbelt is largely within the buffer and is to be retained and maintained. It is an integral part of the buffering effect and is also important for the retention of rural character and visual amenity at the site.

The site also contains numerous established trees, identified through previous subdivision. The rules provide that 80 trees must be selected for retention. The shelterbelt and any other tree within the buffer cannot be included in the list of 80 trees.

Road network

The diagram shows access and egress points from the site to Kirk and Maddisons Roads. The final internal road layout is dependant on various factors and flexibility is afforded the developer to reflect this. The developer will need to consider the re-use of the existing internal road network and the relocation of a large private sewer line which traverses the site (serving the prison and other land) amongst other things.

The internal roadway will include footpath/cycleway provision, landscaping, underground services (where appropriate) and stormwater management facilities. Provision shall be made for a bus stop also, even if just making space available to create a bus stop if the service to the hospital and prison is restored.

Internal roads shall also be designed in accordance with Council requirements and should have a clear hierarchy and layout.

Volume 3 Part 9

4.4.7 Electricity Transmission Line Corridor - Restricted Discretionary Activity - ~~Corridor applicable to the area shown on Part 2, Appendix 3T - Outline Development Plan (Awatea)~~

For the transmission lines shown on Part 2, Appendix 3T - Outline Development Plan (Awatea) and Part 3, Appendix 18, Outline Development Plan Business 8 Zone – Islington; and Part 4 Appendix 6 Outline Development Plan (Templeton Special Rural Zone), the

- Erection of a building; or
- Planting of vegetation that can exceed a height of 3m when mature; or
- Erection of any other structure that exceeds 3m in height.

shall be a restricted discretionary activity where located between 12 and 32 metres from the centre line at ground level of the transmission corridor.

Except that:

This rule shall not apply to buildings or structures erected for the purposes of electricity transmission by a Network Utility Operator.

For the purpose of this rule the 12 and 32 metres shall be measured horizontally from the centre point at ground level.

Advice note:

The Electricity Transmission Line network utility owner or operator shall be considered an affected party for any activity requiring consent.

Any application within the transmission line corridor in the Business 8 Zone need not be publicly notified and need not be served on any affected party other than Transpower New Zealand Limited.

4.4.8 Electricity Transmission Line Corridor - Non Complying Activity - ~~applicable to the area shown on Part 2, Appendix 3S - Outline Development Plan (Awatea)~~

Within 12 metres either side of the centre line of the transmission lines shown on Part 2, Appendix 3T - Outline Development Plan (Awatea) and Part 3, Appendix 18 Outline Development Plan Business 8 Zone (Islington), and Part 4 Appendix 6 Outline Development Plan (Templeton Special Rural Zone), there shall be no:

- Erection of a building; or
- Planting of vegetation that can exceed a height of 3m when mature (except in the Business 8 Zone); or
- Erection of any other structure that exceeds 3m in height.

Except that:

This rule shall not apply to buildings or structures erected for the purposes of electricity transmission by a Network Utility Operator.

For the purpose of this rule the 12m shall be measured horizontally from the centre point of the transmission line at ground level.

Volume 3 Part 11 Health and Safety

1.3.2 Noise standards - Zone groupings and sites containing scheduled activities

(a) Group 1 Zones (most noise sensitive zones) include:

- All living zones except the Living 5 Zone
- All rural zones (except Rural Quarry Zone and [Templeton Special Rural Zone](#))
- Business 4T Zone
- All conservation zones, **except that** part of the Conservation 3 zone within the "Entertainment Precinct" shown in Part 11, Appendix 1
- All open space zones, **except** the Open Space 3 and 3B Zones and that part of Open Space 3D (Isaac Conservation Park) Zone where quarrying is provided for in the Plan (ICP/Q Activity Area)
- All cultural zones, **except** the Cultural 4 zone (Christchurch Polytechnic - Central City Site only)
- Special Purpose (Hospitals) Zone
- Special Purpose (Ferrymead) Zone - Areas A, B and C
- All scheduled activities except scheduled service stations and fire stations
- All parts of the Special Purpose (Road) or Special Purpose (Rail) Zones within 50m of a living or rural zone boundary

(b) Group 2 Zones (moderately noise sensitive zones) include:

(...)

Volume 3 Part 13 2.3.8 High traffic generators

(a) Any activity on a site which is not in the Central City Zone which generates more than 250 vehicle trips per day and/or provides more than 25 parking spaces (with the exception of the land within the Living 3 and Business 1 zone bounded by Madras Street, Canon Street, Packe Street and Purchas Street which is subject to the development plan contained in Part 3, Appendix 14) shall be a **discretionary activity** with the Council's discretion limited as follows:

- retail activities in B3, B3B, B4, BRP, Central City Edge, and Special Purpose (Wigram) (Area B) zones: matters associated with any traffic effects of the activity.
- other activities and other zones: matters associated with vehicular access.

(b) Any activity on a site in the Central City Zone which generates more than 250 vehicle trips per day and/or provides more than 25 parking spaces shall be a **controlled activity** with the exercise of the Council's discretion limited to vehicular access.

(c) Special Purpose (Landfill) Zone

Any activity which generates more than 250 vehicle trips per day shall be a non-notified controlled activity, with the exercise of the Council's control limited to vehicular access and any traffic effects:

- on the function and/or safety of the surrounding road network, and properties along the designated access routes illustrated in Appendix 7 of Volume 3 Part 8 Special Purpose (Landfill) Zone;
- on the surrounding activities in terms of noise, vibration and fumes of vehicles using the access; and
- of extra traffic generated by the activity on the amenity and safety of surrounding residential streets.

(d) Any activity on a site in the Templeton Special Rural Zone which generates more than 250 vehicle trips per day and/or provides more than 25 parking spaces shall be a controlled activity with the Council's discretion limited to consideration of vehicle access, impact on traffic safety internal and external to the zone, and visual amenity.

Volume 3 Part 14 Subdivision

4.3.1 Minimum standards - Rural zones


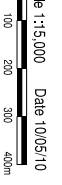
Every allotment to be created by a subdivision shall comply with the minimum standards specified for each zone below, **except**

- (i) as provided for in Clauses 4.3.9 - 4.3.13 below; and
- (ii) that three additional lots may be created from Lot 1 DP 79425 provided that these lots are in general accordance with the outline development plan in Part 4, Appendix 5. Note: Environment Court Decision C22/2005 requires that covenants preventing further subdivision are to be attached to each of the new lots.

Zone	Minimum net area
Rural 1, 4 and that part of the Rural 5 Zone west or north of Christchurch International Airport as shown in Part 4, Appendix 4	20ha
Rural H and 6	100ha
Rural 2, 3 and that part of the Rural 5 Zone east or south of Christchurch International Airport as shown in Part 4, Appendix 4	4ha
Rural Q	4ha
Rural 7	2ha
<u>Templeton Special Rural Zone - Rural Business 2 Precinct</u>	<u>1ha</u>
<u>Templeton Special Rural Zone - Rural Business 1 and Facilities Precincts</u>	<u>2500m²</u>

28	
35A	36
42	

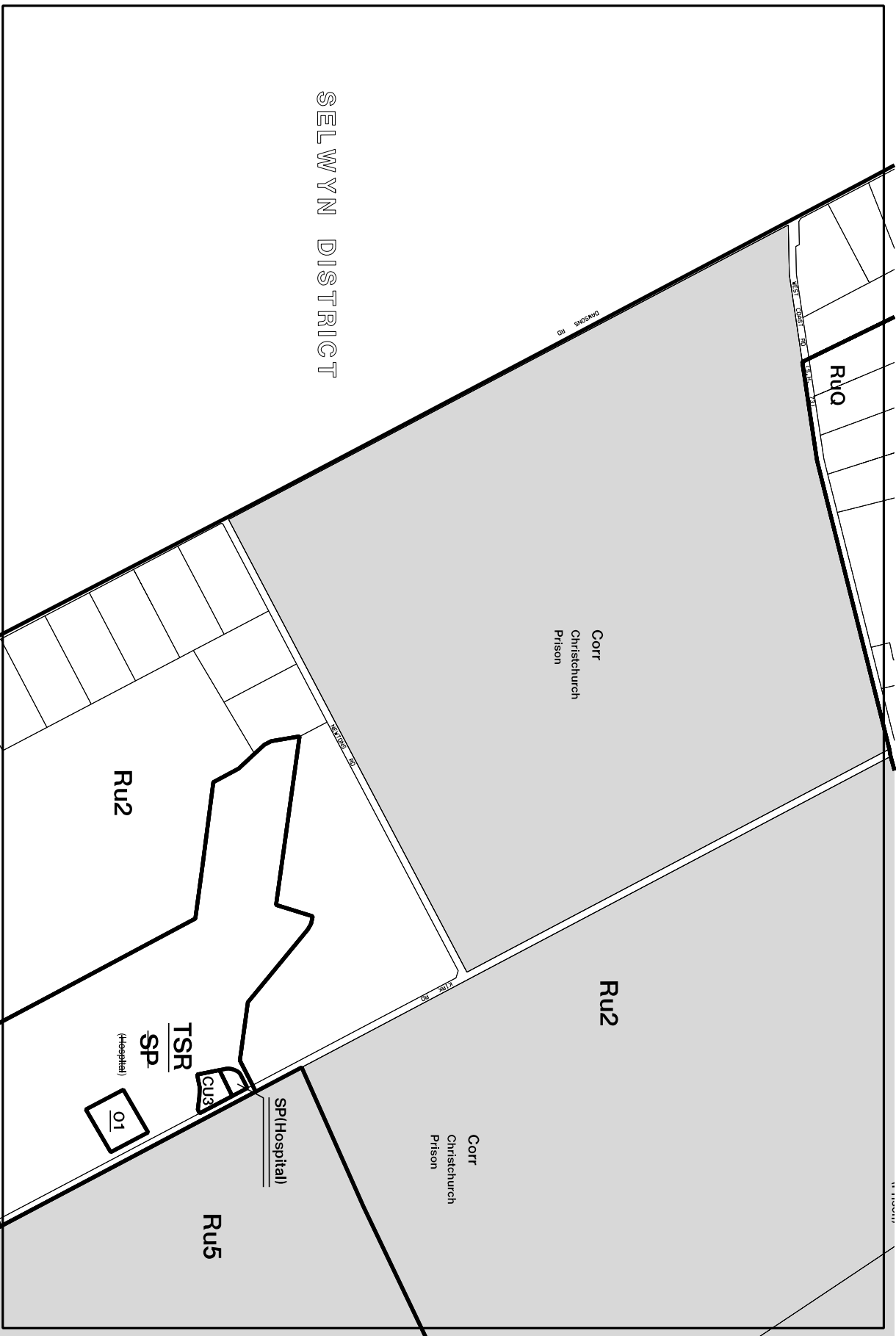
 **City of Christchurch**
City Planning Maps

Scale 1:15,000 Date 10/05/10
 NORTH 


Key

-  City Boundary
-  Zone Boundary
-  160m Contour
-  Designated Land
-  Non-Operative Area
-  Coastal Marine Area
-  Mean High Water Springs
-  Major Road Works
-  Local Road to be Widened

All spiritual facilities (see Part 1) existing as at 24/6/95 and located in living or rural zones are deemed to be Class 2 scheduled activities (see Part 9).



Proposed Plan Change 66 - New Templeton Special Rural Zone

35	
42A	43
-	-

City of Christchurch
City Planning Maps

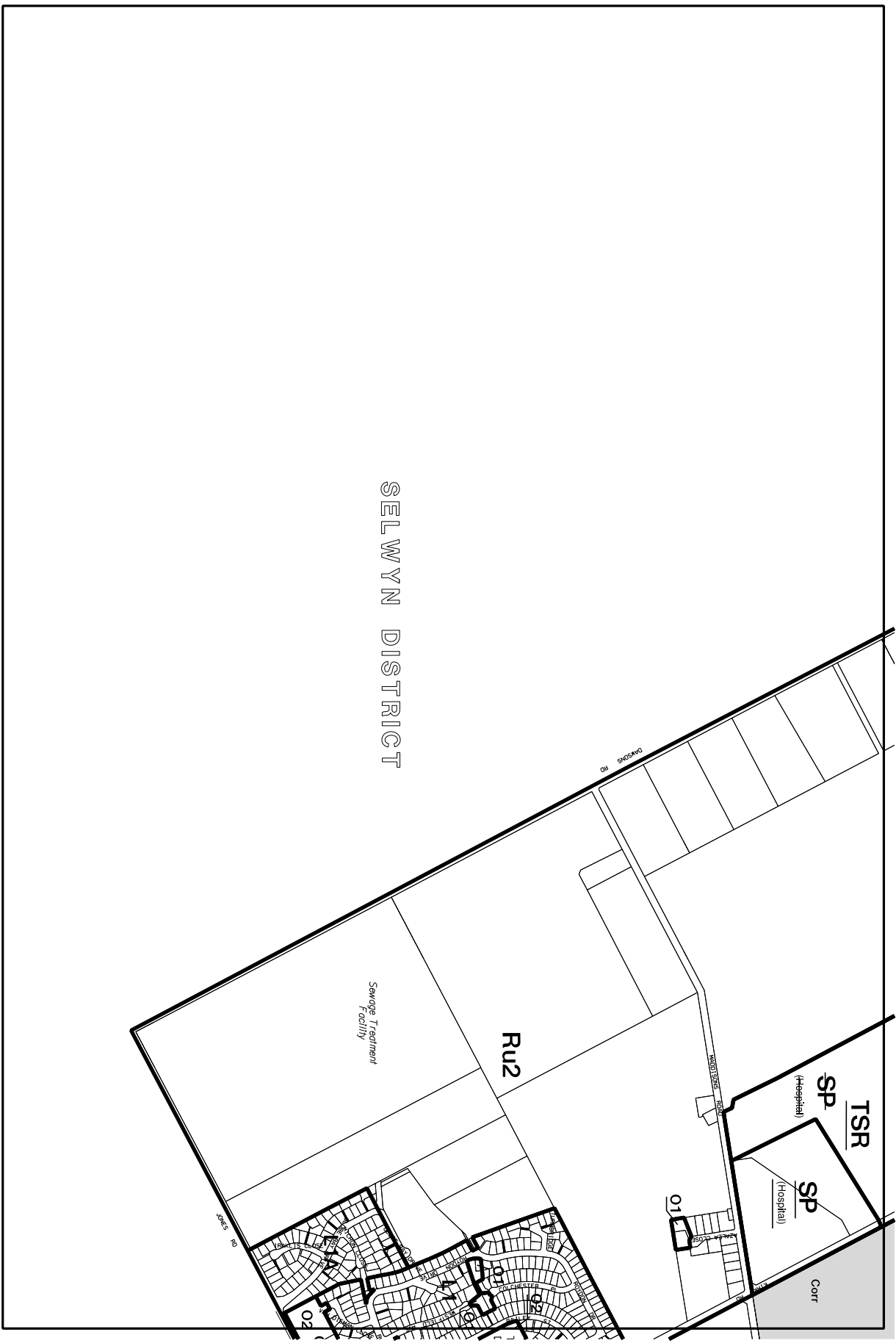
Scale 1:15,000 Date 14/11/05

Key

- City Boundary
- Zone Boundary
- 160m Contour
- Designated Land
- Non-Operative Area

- Coastal Marine Area
- Mean High Water Springs
- Major Road Works
- Local Road to Be Widened

All spiritual facilities (see Part 1) existing as at 24/6/95 and located in living or rural zones are deemed to be Class 2 scheduled activities (see Part 9).



Proposed Plan Change 66 - New Templeton Special Rural Zone

GEOTECHNICAL REPORT FOR PLAN CHANGE 66

Kirk Road, Templeton

for Rookwood Holdings Ltd.

GEOTECHNICAL REPORT FOR PLAN CHANGE 66

Kirk Road, Templeton

QUALITY CONTROL CERTIFICATE		
All relevant information is identified, has been reviewed, and is approved for release.		
Prepared by:	 Sarah Harding Geotechnical Assistant	BSc (Earth Science)
Reviewed and approved for release by:	 John Aramowicz Associate, Civil/Geotechnical Engineer	BE(Hons), MIPENZ, CPEng, IntPE(NZ)
Date: Reference: Status:	30 January 2012 346209_Geotech Report_smh FINAL	
Distribution:	2 x copies 1 x file copy	Rookwood Holdings Ltd. Eliot Sinclair

Limitations

This report has been prepared for Rookwood Holdings Ltd. according to their instructions, for the particular objectives described in the report. The information contained in the report should not be used by anyone else or for any other purposes.

Table of Contents

1	Introduction.....	1
2	Scope of Work.....	1
3	Disclaimer	1
4	Engineering Geology	2
	4.1 Existing bore hole data	2
5	Site Description.....	2
6	Proposed Plan Change.....	3
7	Canterbury Earthquake	3
	7.1 Damage mapping.....	3
8	Site Investigation	3
	8.1 Machine Excavated Test Pits.....	3
	8.2 Scala penetrometer testing	4
	8.3 Groundwater	4
	8.4 Land Classification	4
	8.5 Surrounding Streets.....	5
	8.6 Survey benchmarks	5
	8.7 Site investigation density.....	5
9	Estimated Ground Motion Parameters	6
	9.1 Seismic hazard for Christchurch.....	6
	9.2 Current design peak horizontal ground acceleration	6
	9.3 Proposed design peak horizontal ground acceleration	7
10	Liquefaction Assessment	7
	10.1 Liquefaction Potential	7
11	RMA (1991) Section 106.....	8
	11.1 Erosion.....	8
	11.2 Falling debris.....	8
	11.3 Land slippage.....	8
	11.4 Subsidence	8
	11.5 Inundation from any source	8
	11.6 General	8
12	Summary	9
13	Appendix A – Well Logs	10
14	Appendix B – Post 4 September 2010 Earthquake aerial photo.....	11
15	Appendix C – Post 22 Feb 2011 Earthquake Aerial Photo	12
16	Appendix D – Test location plan	13
17	Appendix E – Test Pit & Scala Penetrometer Data	14
18	Appendix F – Land Classification.....	15

1 INTRODUCTION

Rookwood Holdings Ltd. have engaged Eliot Sinclair to undertake a geotechnical investigation and report for Plan Change 66, and to comment on the hazards outlined by Section 106 of the Resource Management Act (1991).

2 SCOPE OF WORK

The site is located to the west of Kirk Road, Templeton and is legally described as Lot 2, DP 315110. The scope of work included;

- Review published geology, and
- Review Environment Canterbury's well card database for nearby bore log data, and
- Review of GNS Science's strong motion data for 4 September 2010 and 22 February 2011 earthquakes, and
- Undertake 21 x Machine Excavated Test Pits to at least 3m depth, and
- Undertake 21 x Scala penetrometer tests to at least 1.3m depth, and
- Reporting and Recommendations.

3 DISCLAIMER

Comments made in this geotechnical report are based on test records obtained from available well records, geological plans, test pits and Scala penetrometer testing pits undertaken at the locations shown on the test location plan (refer to Appendix E).

Whilst every care was taken during our investigation and interpretation of subsurface conditions, there may well be subsoil strata and features that were not detected. Additionally, on-going seismicity in the general area may lead to deterioration or additional ground settlement that could not have been anticipated at time of writing of this report.

The exposure of such conditions, or occurrence of additional strong seismicity, may require a review of our recommendations.

This report has been prepared for the benefit of Rookwood Holdings Ltd. and the Christchurch City Council. No liability is accepted by this company or any employee of this company with respect to the use of this report by any other party.

4 ENGINEERING GEOLOGY

Templeton is located to the southwest of Christchurch, and across the Canterbury Plains.

'The vast expanse of the Canterbury Plains comprises coalesced floodplains. Large parts of the plains are abandoned braided river floodplains, last occupied during the LGM (last glacial maximum¹).

GNS's geological map notes the site being underlain by '*Grey river alluvium beneath plains or low level terraces*'.

4.1 Existing bore hole data

Bore log records from the Environment Canterbury GIS system were reviewed to determine typical subsoil geology of the general area.

Wells M35/8025 reveals the presence of brown sand to 3.5m depth over grey gravels and sandy claybound gravels, etc. down to 65m depth.

Well M35/1146 reveals the presence of grey gravels down to at least 34m depth.

Well M35/1108 reveals the presence of shallow silt to 0.6m over coarse to fine grey gravel, etc down to 34m depth.

Refer to Appendix A.

5 SITE DESCRIPTION

The site, Lot 2 DP 315110, comprises around 66 hectares of flat land with a very slight fall down to the west.

The site is bounded by Kirk Road to the east, a residential care facility to the south, and rural land to the north and west.

Access to the site is from Kirk Road.

There are a large number of buildings located across the site including a gym, offices, a school, and an indoor pool. These buildings were part of the Templeton Hospital that formerly occupied the site.

Many other buildings have been demolished and removed from the site.

There is a topographical depression at the northwest part of the site, which appears to be a historic shallow river channel of around 2 to 3m depth.

¹ Forsyth, P.J., Barrell, D.J.A., Jongens, R. (compilers) 2008 Geology of the Christchurch area. Scale 1:250 000. Institute of Geological & Nuclear Sciences geological map 16. 1 sheet + 67p. Lower Hutt, New Zealand. GNS Science.

6 PROPOSED PLAN CHANGE

Rookwood Holdings Ltd. proposes to rezone the site from 'Rural' to 'Templeton Special Rural Zone'. The plan change is also referred to as 'Proposed Plan Change 66'.

The plan change outlines the intention of Plan Change 66 is to use the site for rural and commercial business and land uses.

7 CANTERBURY EARTHQUAKE

The M7.1 Darfield earthquake on 04 September 2010 occurred on a previously unknown fault, producing peak horizontal ground accelerations of 0.87g at Templeton School (TPLC). Whilst the earthquake resulted in liquefaction within the soft alluvial soils predominantly across eastern Christchurch and Kaiapoi, there was no evidence of liquefaction or ground damage at the site or surrounding roads.

The subsequent M6.3 aftershock on 22 February 2011, located near Lyttelton/Heathcote, produced much lower peak horizontal ground accelerations of 0.15g at Templeton School (TPLC), and again there was no evidence of liquefaction or ground damage at the site or surrounding roads.

While the M6.3 February 2011 aftershock produced the highest peak ground accelerations in Christchurch, it was the 4 September 2010 earthquake that resulted in the highest peak ground accelerations in the Templeton area.

The subsequent M6.3 aftershock on 13 June 2011, located around Taylors Mistake, produced relatively low peak ground accelerations of around 0.08g at TPLC.

7.1 Damage mapping

Aerial photography taken after both the 4 September 2010 and 22 February 2011 earthquakes does not reveal any visual evidence of liquefaction such as sand boils, ejected silty water, or ground cracking in the general area of the site.

Refer to Appendix B – Post 4 September 2010 Earthquake aerial photo and Appendix C – Post 22 Feb 2011 Earthquake Aerial Photo

8 SITE INVESTIGATION

8.1 Machine Excavated Test Pits

Twenty One (21) machine excavated test pits were undertaken across the site in order to assess the nature of the subsoil materials.

The test pits generally encountered silty topsoil over sand and sandy silt, over sandy gravels, where the test pits were terminated.

Silty topsoil was generally 0.2m to 0.4m depth, over light brown sand or sandy silt, generally becoming coarser with depth. Gravel was generally encountered at between 0.7m and 2.2 below ground level, with test pits terminating at between 3.0m to 3.2m depth below ground level. Refer to Appendix E.

The subsoil materials and depths were, in general, relatively consistent across the site.

8.2 Scala penetrometer testing

Twenty One (21) Scala penetrometer tests were undertaken across the site, each down to 1.3m depth where practicable, or to refusal on shallow gravels.

The penetrometer test results indicate the sands and silty sands in the upper layers are of variable bearing strengths across the site, ranging from 1 to over 8 blows per 75mm. Refer to Appendix E.

Based on this, the subsoil materials do not meet the requirements of 'good ground' to the extent set out by NZBC Clause B1, and therefore, specific engineering design will be required.

8.3 Groundwater

Groundwater was not encountered in any of the 3m deep test pits excavated across the site.

The calculated minimum depth to groundwater is noted on ECan Well M35/8025 as 17.7m below ground level.

Well M35/1146 notes highest groundwater level as 15.5m below ground level.

Refer to Appendix A.

Measurement from an on-site well (unknown) by onsite staff member on 16 January 2012 revealed a depth to groundwater of 14.5m.

8.4 Land Classification

On the 28th October 2011, the Canterbury Earthquake Recovery Authority (CERA) released site-specific classification for Christchurch properties. As part of this, the Department of Building and Housing (DBH) developed three new technical categories for residential foundation design as part of its guidance for repairing and rebuilding earthquake damaged homes in Canterbury. These new categories apply to liquefaction prone flat land in the green zone in the greater Christchurch urban area and surrounding communities.

The site was classified by CERA as 'Green Zone, NA, Rural & Unmapped', at time of issue of this report. Refer to Appendix F.

8.5 Surrounding Streets

The road formation of Newtons Road and Maddisons Road are in good condition and there was no obvious evidence of ground damage from liquefaction such as tension cracking, slumping, heaving, or sand boils.

8.6 Survey benchmarks

On 2 May 2011, LINZ published the results of a comparison of survey benchmark data for the greater Christchurch area. This data indicates total vertical settlement of benchmarks due to the 4 September earthquake and aftershocks. The amount of settlement recorded ranges from 30-50mm in the Templeton area, and around 10-20mm in the Hornby area.

These values are a total vertical movement and it is likely that a component of this value would be an amount of regional settlement that would not necessarily be due to liquefaction.

8.7 Site investigation density

The site investigation program of test pits and shallow Scala penetrometer testing was undertaken in January 2012.

Subsequent to this testing, the Department of Building and Housing released their '*Guidelines for the geotechnical investigation and assessment of subdivisions in the Canterbury region*' on 14 November 2011.

The new guidelines have been prepared to set out typical requirements for geotechnical investigations, assessment and reporting primarily for Plan Change and Subdivision Consent application. The guidelines suggest that 0.25 test/investigation locations be undertaken per lot (residential) for subdivision consent reporting.

The testing undertaken includes:

- Review of geological mapping, and
- Review of nearby well log records, and
- Visual inspection of the site and surrounding road surfaces, and
- Twenty One (21) machine excavated test pits to at least 3.0m depth, and
- Twenty One (21) Scala penetrometer tests down to 0.6m to 1.3m depth.

The site comprises a total area of around 66 hectares, resulting in a site investigation density of around 0.32 tests per hectare. This ratio complies with the DBH guidelines for geotechnical investigations in the Canterbury area.

In summary, we are satisfied that the testing and data obtained provides a good idea of the underlying ground conditions, and no further subsoil testing is necessary to characterise the site for the proposed Plan Change 66.

9 ESTIMATED GROUND MOTION PARAMETERS

9.1 Seismic hazard for Christchurch

Prior to the 22 February 2011 earthquake, the seismic hazard factor for the design of all buildings in Christchurch (and Prebbleton) was $Z=0.22$, however, after the M6.3 Christchurch earthquake this was revised on 19 May 2011 to $Z=0.30$, and is current at time of this report.

The serviceability limit state return period factor, R_s , for Christchurch was revised on 1 August 2011. Table 3.2 of NZS1170.0:2002 notes single-family dwellings as Importance Level 2.

NZS1170.0:2002 Table 3.3 sets out that the annual probability of exceedance for of an Importance Level 2 building is 1/25 for the serviceability limit state, and 1/500 for the ultimate limit state.

$$R_s \text{ (SLS, 1/25)} = 0.33 \text{ (Ref: Amendment 11, 2.2.14c as amended by DBH, 1 August 2011)}$$

$$R_u \text{ (ULS, 1/ 500)} = 1.00$$

The site is underlain by deep alluvial soils, and are considered Type D in terms of NZS1170.5:2004. NZGS guidelines specifies;

$$C=1.12 \text{ for Type D soils.}$$

9.2 Current design peak horizontal ground acceleration

The New Zealand Geotechnical Society's "*Geotechnical earthquake engineering practice – module 1 – Guideline for the identification, assessment and mitigation of liquefaction hazards*" sets out the method of determining the peak ground acceleration;

$$\text{Peak ground acceleration, } a_h = Z R C$$

Where Z = base pga called '*hazard factor*', given by NZS1170.5:2004 Table 3.3 and Figures 3.3 and 3.4

R = Return period factor, given by NZS1170.5:2004, Table 3.5

C = Site response factor called '*spectral shape factor*' in NZS1170.5:2004.

In summary

$$a_h \text{ (SLS)} = 0.30 \times 0.33 \times 1.12 = 0.11g$$

$$a_h \text{ (ULS)} = 0.30 \times 1.00 \times 1.12 = 0.34g$$

Strong motion records from GNS indicate peak horizontal accelerations were higher in the 4 September 2010 earthquake than the 22 February 2011 earthquake. The peak horizontal acceleration recorded at the nearest monitoring stations, Templeton School (TPLC) is summarised in Table 1.

These records indicate that peak horizontal ground accelerations are likely to have been just below the current ULS design level for the 04 September 2010 earthquake, and at the current SLS design level in the 22 February 2011 event.

9.3 Proposed design peak horizontal ground acceleration

We understand that the design SLS and ULS pga's for liquefaction assessment are to be revised upwards by GNS/DBH to 0.15g and 0.49g, respectively, and that these will apply equally to the Christchurch City, Waimakariri and Selwyn Districts, except where pga's calculated in accordance with NZS1170 exceed these values, then the values set out by NZS1170 should be adopted.

On this basis, the accelerations recorded in Templeton were between the proposed SLS and ULS values in the 4 September 2010 event, and slightly below the proposed SLS value in the 22 February 2011 event.

Table 1: Comparison of peak horizontal ground accelerations close to site.

<i>PGA (horizontal)</i>	SLS (1/25, M7.5)	ULS (1/500, M7.5)	04 Sept 2010 ² (M7.1)	22 Feb 2011 ³ (M6.3)
Current design (<i>as of 1 August 2011</i>)	0.11g	0.34g		
Proposed (<i>as of 13 December 2011</i>)	0.15g	0.49g		
Actual (<i>Templeton School, TPLC</i>)			0.29 g	0.12g

10 LIQUEFACTION ASSESSMENT

10.1 Liquefaction Potential

Due to the considerable depth of groundwater, the presence of deep sandy gravels, and the absence of any evidence of ground damage due to liquefaction, we consider that the site is not likely to be subject to liquefaction in either a (proposed) SLS or ULS level earthquake.

² Darfield (Canterbury) earthquake strong motion data, GNS Science, 04 September 2010.

³ Christchurch earthquake strong motion data, GNS Science, 22 February 2011.

11 RMA (1991) SECTION 106

11.1 Erosion

The site is generally flat, and is not subject to regular overland flows of stormwater, and is therefore not likely to be subject to erosion.

11.2 Falling debris

The site is not at risk of falling debris due to rock fall or rock roll.

11.3 Land slippage

The site comprises flat to gentle topography, and is therefore not at risk of land slippage.

11.4 Subsidence

As set out in item 10: *Liquefaction Assessment*, we consider that the site is not likely to be subject to large differential settlements or subsidence due to liquefaction in a proposed SLS or ULS earthquake.

We note that there are a number of earth fill mounds across the southwestern part of the site, at and around test location 16, where uncontrolled fill of silt and sand over insitu topsoil was encountered. Further, it is likely that shallow uncontrolled fill may be encountered across other parts of the site, in areas of former building foundations.

For this reason, all future building foundations will require specific engineering investigation, design and construction observation to ensure that building foundations are not located over uncontrolled fill materials.

11.5 Inundation from any source

There is a small depression across the site in the area of test locations 2 and 13. These may convey flows of surface stormwater from intense or long duration rainfall events, and should be taken into account by any future subdivision stormwater design.

We note that the underlying ground conditions comprise deep sandy gravels, and therefore concentrations of stormwater could be disposed into ground providing they meet the relevant requirements of Environment Canterbury's NRRP.

11.6 General

In summary, providing the requirements of this report are followed, this site is not likely to be subject to matters set out in Section 106 (1a and 1b) of the Resource Management Act 1991.

12 SUMMARY

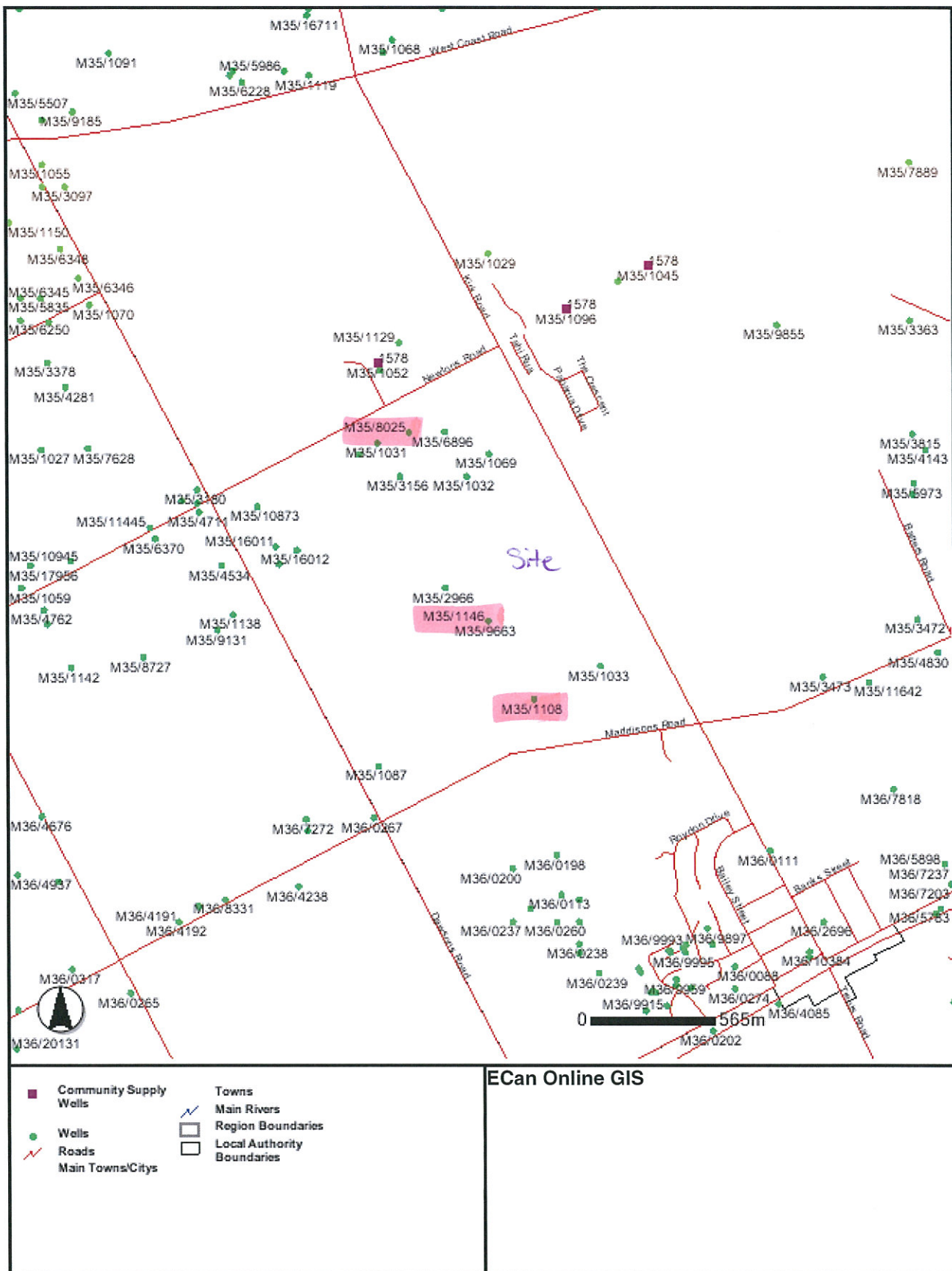
The site investigation indicates the presence of silty topsoil over shallow silty sands and sands, overlying sandy gravels to at least 3.2m depth.

Environment Canterbury Well logs confirm that the site is underlain by deep sandy gravels, with groundwater at between 14 to 17m depth, Based these records, and the results of the twenty-one machine excavated test pits and the scala penetrometers across the site, we consider that the site is not likely to be at risk of liquefaction in a SLS or ULS earthquake.

There are a number of small mounds of shallow uncontrolled fill at the southwest part of the site, and there may well be other unidentified areas of shallow uncontrolled fill where former building foundations have been removed. For this reason, all building foundations should be subject to specific engineering investigation, design and construction observation.

Providing the requirements of this report are followed, and in accordance with the assumptions outlined in this report, we are satisfied that the site will not be subject to the matters outlined by Section 106 (1a and 1b) of the Resource Management Act 1991, and in terms of geotechnical considerations, the site will provide suitable ground conditions for the proposed Plan Change 66.

13 APPENDIX A – WELL LOGS





Community Supply Wells	Region Boundaries
Wells	Local Authority Boundaries
Roads	Detailed Aerial Photos
Main Towns/Citys	
Towns	
Main Rivers	

ECan Online GIS

Bore or Well No: M35/8025

Well Name:

Owner: Nova Trust Board



Street of Well: CNR KIRK ROAD AND
NEWTONS ROAD

File No: CO6C/01467

Locality: TEMPLETON

Allocation Zone: Selwyn-Waimakariri

NZGM Grid Reference: M35:65641-41497 QAR 2

NZGM X-Y: 2465641 - 5741497

Location Description:

Uses: Domestic Supply

ECan Monitoring:

Irrigation

Well Status: Active (exist, present)

Drill Date: 12 Aug 1998

Water Level Count: 0

Well Depth: 64.60m -GL

Strata Layers: 6

Initial Water Depth: -15.90m -MP

Aquifer Tests: 0

Diameter: 200mm

Isotope Data: 0

Yield/Drawdown Tests: 1

Measuring Point Ait: 54.20m MSD QAR 3

Highest GW Level:

GL Around Well: 0.00m -MP

Lowest GW Level:

MP Description:

First Reading:

Last Reading:

Driller: McMillan Water Wells Ltd

Calc. Min. GWL: -17.70m -MP

Drilling Method: Rotary Rig

Last Updated: 20 Feb 2007

Casing Material: UNKNOWN

Last Field Check:

Pump Type:

Yield: 29 l/s

Screens:

Drawdown: 18 m

Screen Type: Stainless steel

Specific Capacity: 1.59 l/s/m

Top GL: 55.60m

Bottom GL: 64.60m

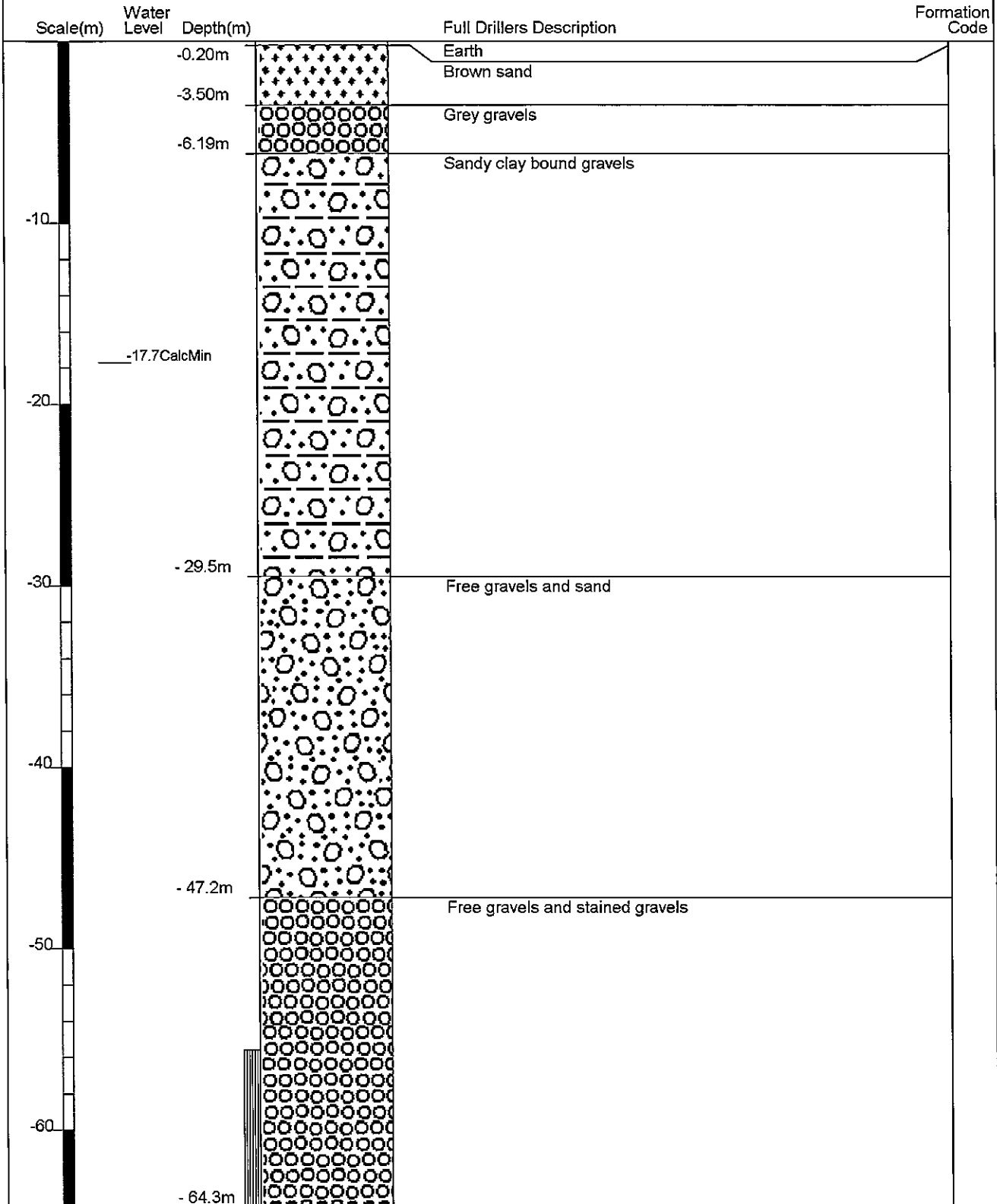
Aquifer Type:

Aquifer Name:

Date	Comments
20 Feb 2007	Routine Monitoring visit undertaken on 25/01/07. Unable to measure flow rate off the Controlotron 1010
20 Feb 2007	Gridref changed from: M35:6562-4141

Borelog for well M35/8025

Gridref: M35:6562-4141 Accuracy : 4 (1=best, 4=worst)
 Ground Level Altitude : 54.2 +MSD
 Driller : McMillan Water Wells Ltd
 Drill Method : Rotary Rig
 Drill Depth : -64.3m Drill Date : 12/08/1998



Bore or Well No: M35/1146

Well Name:

Owner: PIERCE, A



Street of Well: MADDISONS RD

File No: CO6C/18824

Locality: TEMPLETON

Allocation Zone: Selwyn-Waimakariri

NZGM Grid Reference: M35:65994-40651 QAR 2

NZGM X-Y: 2465994 - 5740651

Location Description:

Uses: Domestic and Stockwater

ECan Monitoring:

Irrigation

Well Status: Active (exist, present)

Drill Date: 09 Jun 1980

Water Level Count: 1

Well Depth: 51.50m -GL

Strata Layers: 8

Initial Water Depth: -12.20m -MP

Aquifer Tests: 0

Diameter: 250mm

Isotope Data: 0

Yield/Drawdown Tests: 1

Measuring Point Ait: 48.60m MSD QAR 3

Highest GW Level: 15.55m below MP

GL Around Well: 0.00m -MP

Lowest GW Level: 15.55m below MP

MP Description:

First Reading: 22 Jan 2008

Driller: A M Bisley & Co

Last Reading: 22 Jan 2008

Drilling Method: Cable Tool

Calc. Min. GWL: -17.60m -MP

Last Updated: 27 May 2008

Casing Material:

Last Field Check: 22 Jan 2008

Pump Type: Submersible

Yield: 9 l/s

Screens:

Drawdown: 12 m

Screen Type: Unknown

Specific Capacity: 0.72 l/s/m

Top GL: 27.90m

Bottom GL: 33.90m

Aquifer Type: Unknown

Screen Type: Unknown

Top GL: 45.50m

Aquifer Name: Linwood Gravel

Bottom GL: 51.50m

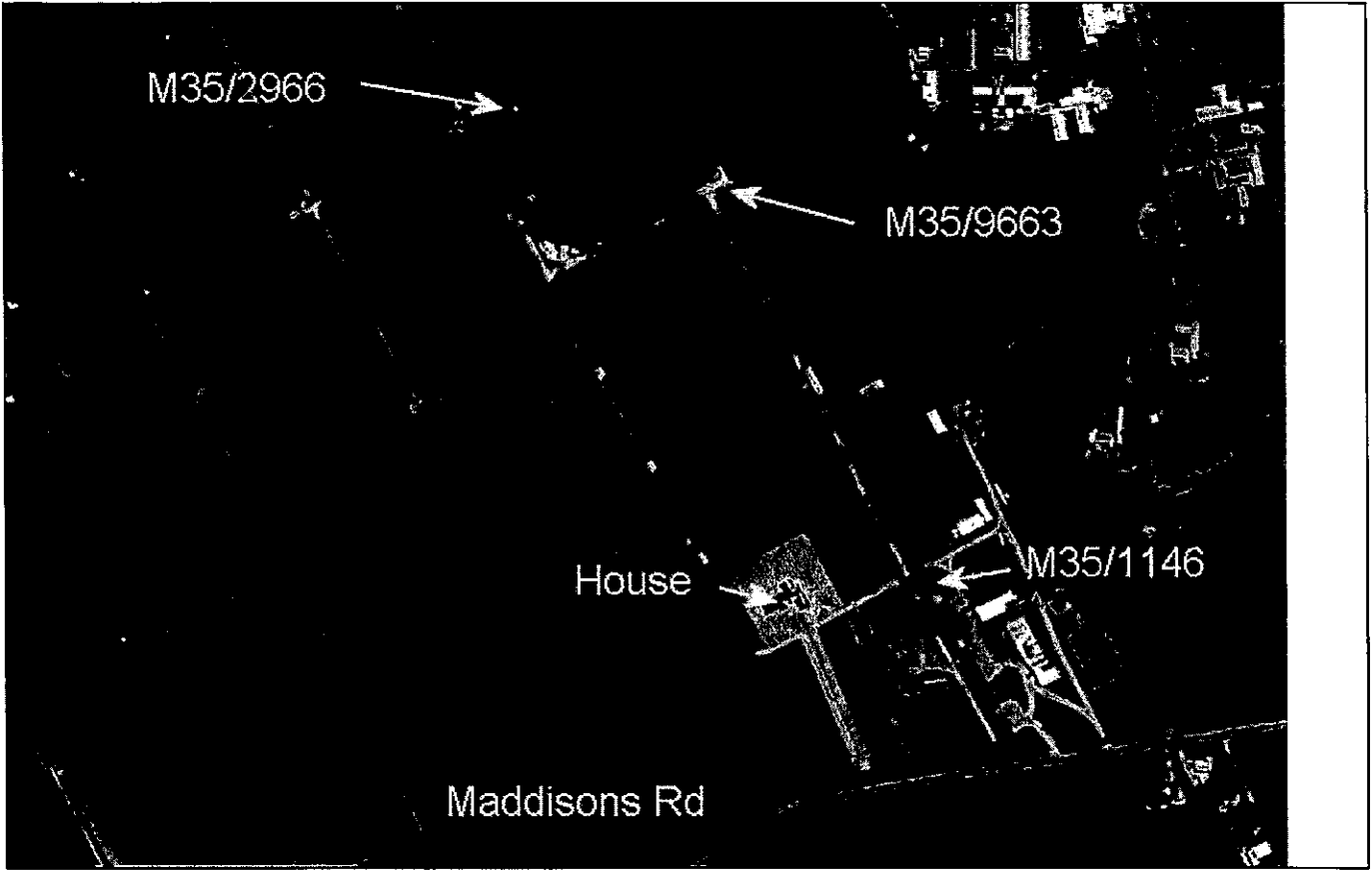
Date

Comments

22 Jan 2008

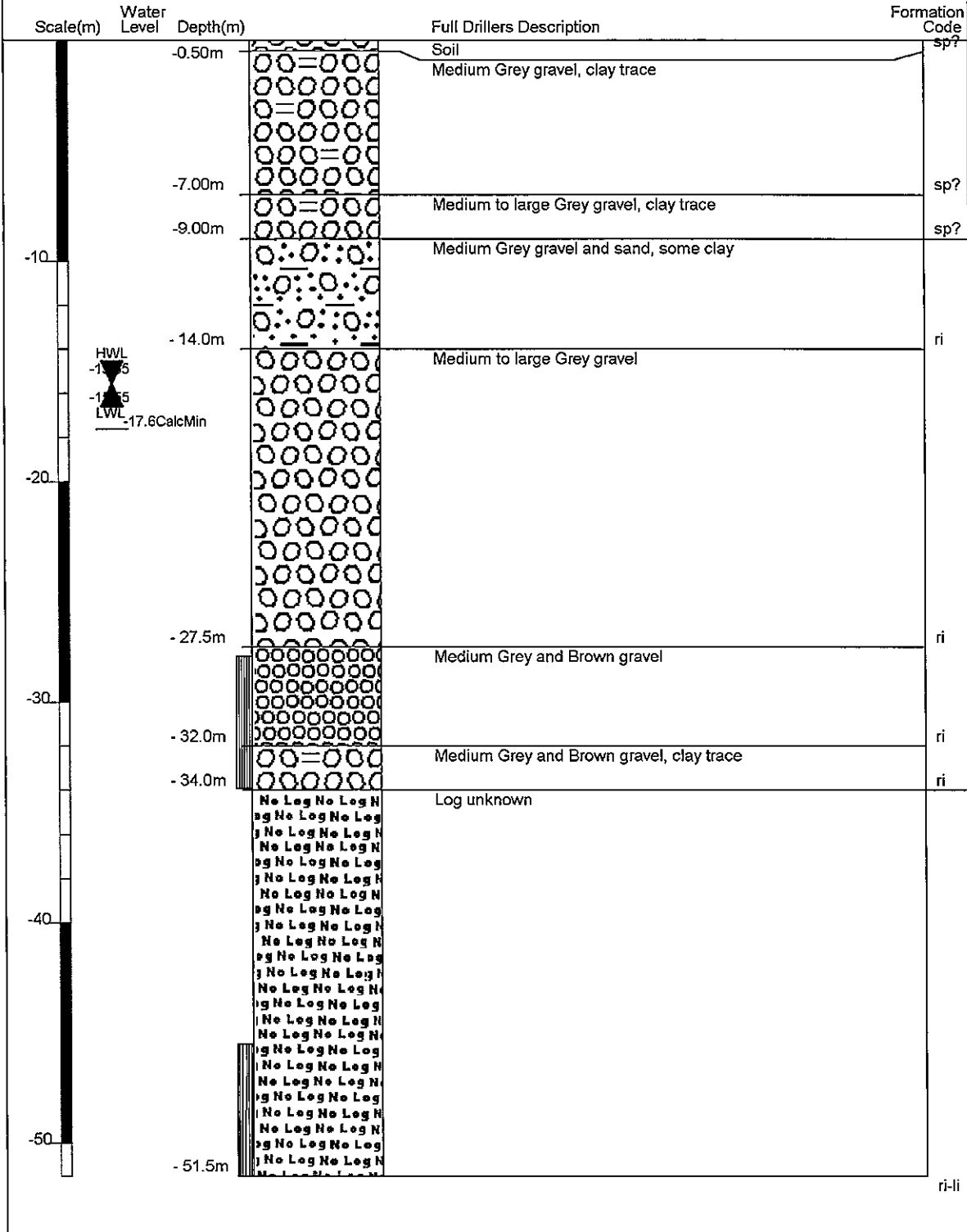
ALSO SCREENED IN RICcarton GRAVEL

Gridref changed from: M35:661-401



Borelog for well M35/1146

Gridref: M35:65994-40651 Accuracy : 2 (1=high, 5=low)
 Ground Level Altitude : 48.6 +MSD
 Driller : A M Bisley & Co
 Drill Method : Cable Tool
 Drill Depth : -51.5m Drill Date : 9/06/1980



Bore or Well No: M35/1108

Well Name:

Owner: M.A.F.



Street of Well: NEAR TO 'THE GRANARY'

File No:

Locality: TEMPLETON

Allocation Zone: Selwyn-Waimakariri

NZGM Grid Reference: M35:662-403 QAR 4

NZGM X-Y: 2466200 - 5740300

Location Description:

Uses:

ECan Monitoring:

Well Status: Not Used

Drill Date: 11 Mar 1980

Water Level Count: 0

Well Depth: 34.00m -GL

Strata Layers: 8

Initial Water Depth:

Aquifer Tests: 0

Diameter: 200mm

Isotope Data: 0

Yield/Drawdown Tests: 0

Measuring Point Ait: 48.30m MSD QAR 3

Highest GW Level:

GL Around Well: 0.00m -MP

Lowest GW Level:

MP Description:

First Reading:

Last Reading:

Driller: A M Bisley & Co

Calc. Min. GWL: -15.00m -MP

Drilling Method: Cable Tool

Last Updated: 24 Jul 1995

Casing Material:

Last Field Check:

Pump Type: Unknown

Yield:

Screens:

Drawdown:

Screen Type:

Specific Capacity:

Top GL:

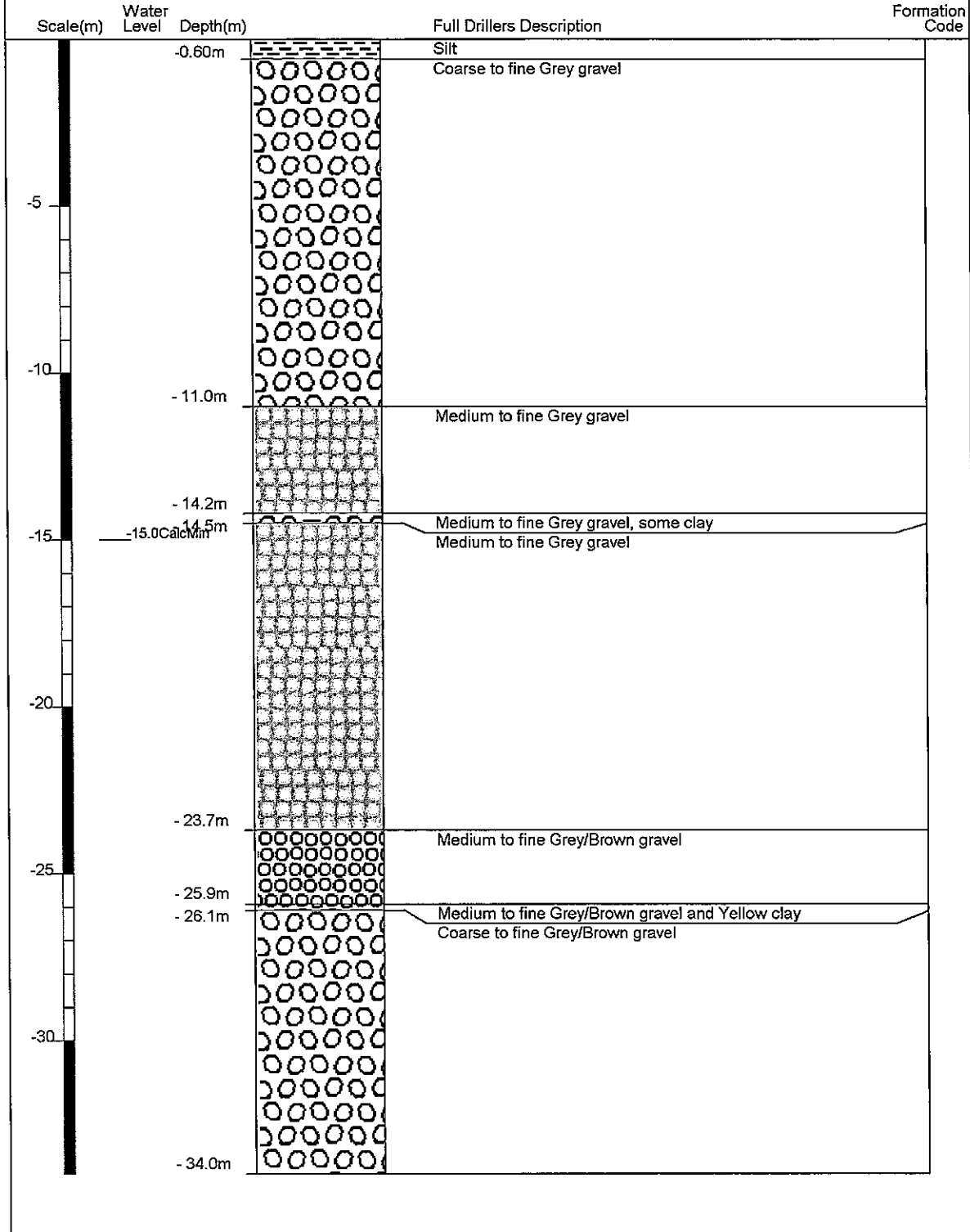
Bottom GL:

Aquifer Type: Unknown

Aquifer Name:

Borelog for well M35/1108

Gridref: M35:662-403 Accuracy : 4 (1=high, 5=low)
 Ground Level Altitude : 48.3 +MSD
 Driller : A M Bisley & Co
 Drill Method : Cable Tool
 Drill Depth : -34m Drill Date : 11/03/1980



14 APPENDIX B – POST 4 SEPTEMBER 2010 EARTHQUAKE AERIAL PHOTO



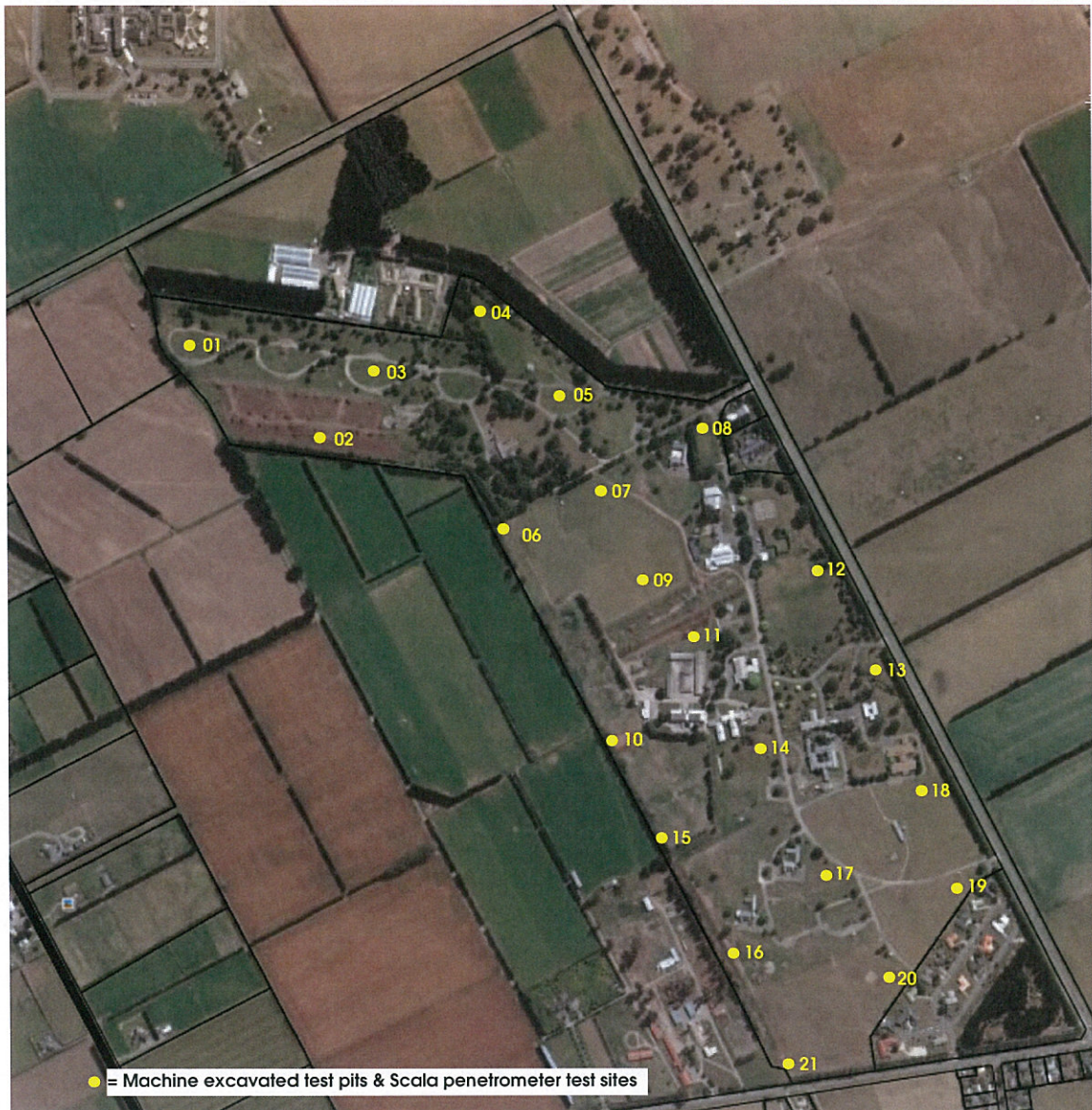
Photo 2: Aerial Photo of Site, 4 September 2010 (source: Orbit website)

15 APPENDIX C – POST 22 FEB 2011 EARTHQUAKE AERIAL PHOTO



Photo 3: Aerial Photo of Site, 26 February 2011 (source: Orbit website)

16 APPENDIX D – TEST LOCATION PLAN



17 APPENDIX E – TEST PIT & SCALA PENETROMETER DATA

SITE INVESTIGATION RECORD

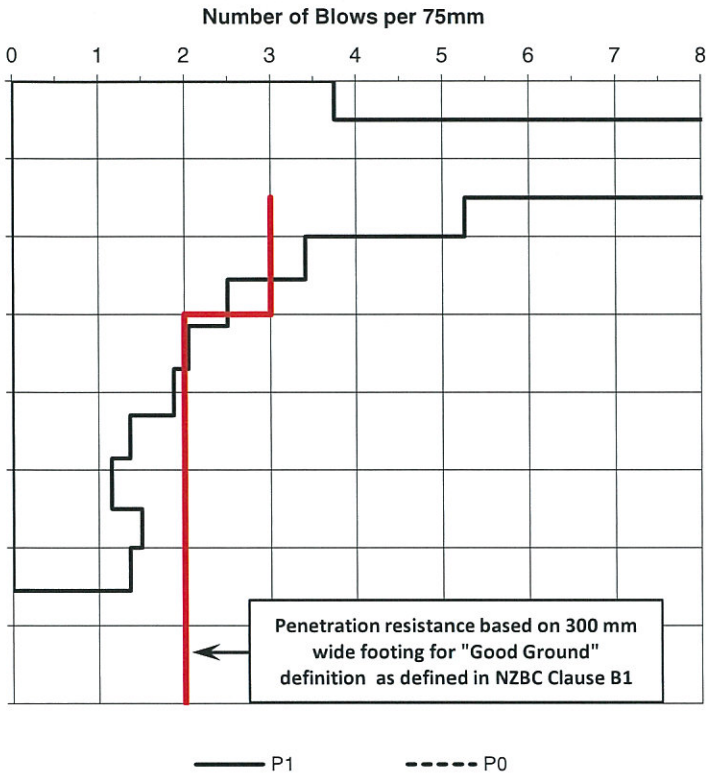
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P.
 Lot

Project No.

SCALA PENETROMETER TESTS



DEPTH

BORE LOGS

DEPTH [m]	Hand Auger <input checked="" type="checkbox"/>	Machine Auger <input type="checkbox"/>	Test Pit <input type="checkbox"/>
GL	(Test Pit @ 1)		
0.2			
0.4	Brown silty TOPSOIL fill with some rubble		
0.6	Light brown sandy SILT fill with some rubble		
0.8	Light yellowish brown silty SAND		
1.0			
1.2			
1.4	Brown SAND with some silt, damp		
1.6			
1.8			
2.0	Brown sandy SILT with iron staining, saturated		
2.2	Brown GRAVEL with cobbles and silt		
2.4			
2.6	Grey sandy GRAVEL with cobbles < 200mmφ, wet		
2.8			
3.0	STOP		
3.2			
3.4			
3.6			
3.8			
4.0			
4.2			

SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer *John Aramowicz* Date: 16/1/12

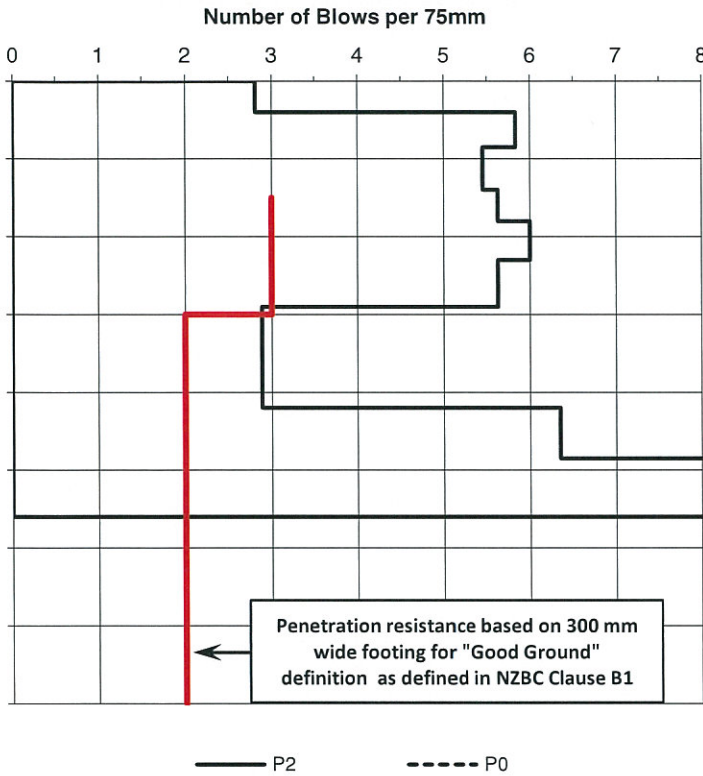
SITE INVESTIGATION RECORD

Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

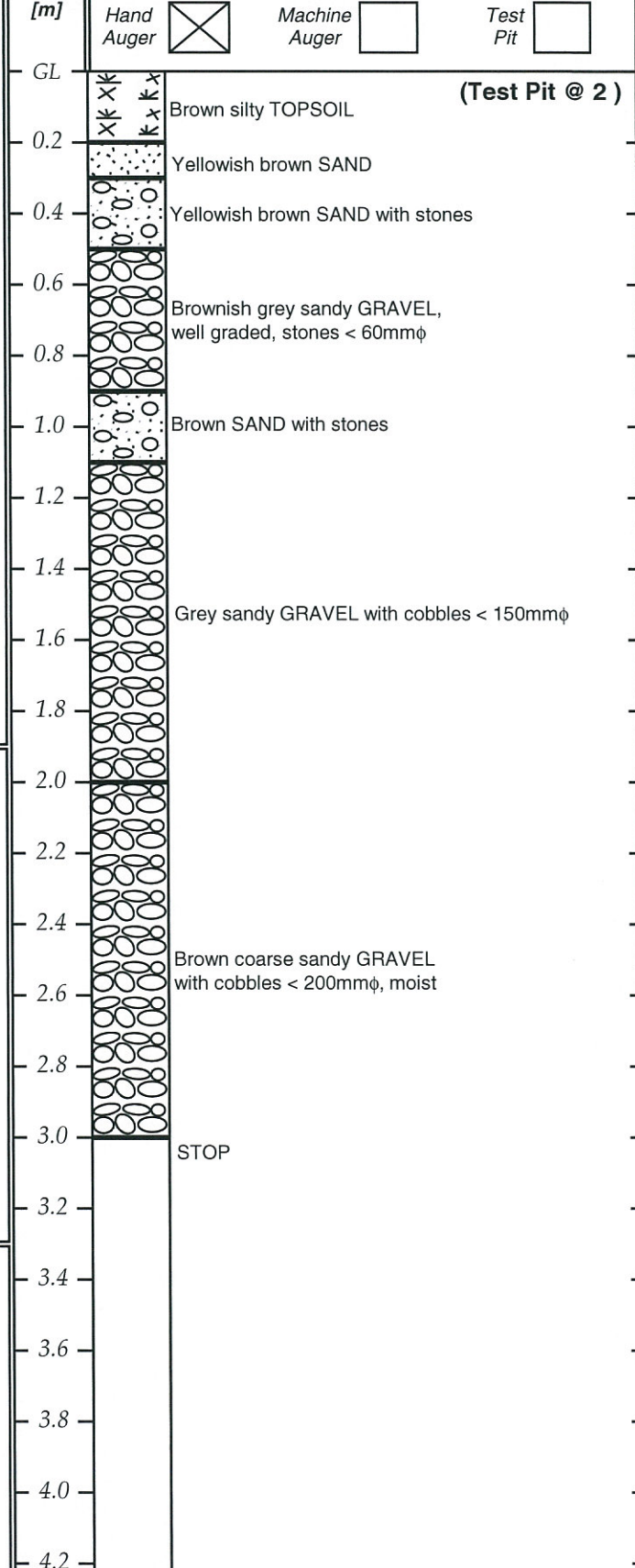
D.P.
 Lot
 Project No.

SCALA PENETROMETER TESTS



DEPTH

BORE LOGS



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer

John Anonony

Date:

16/1/12

SITE INVESTIGATION RECORD

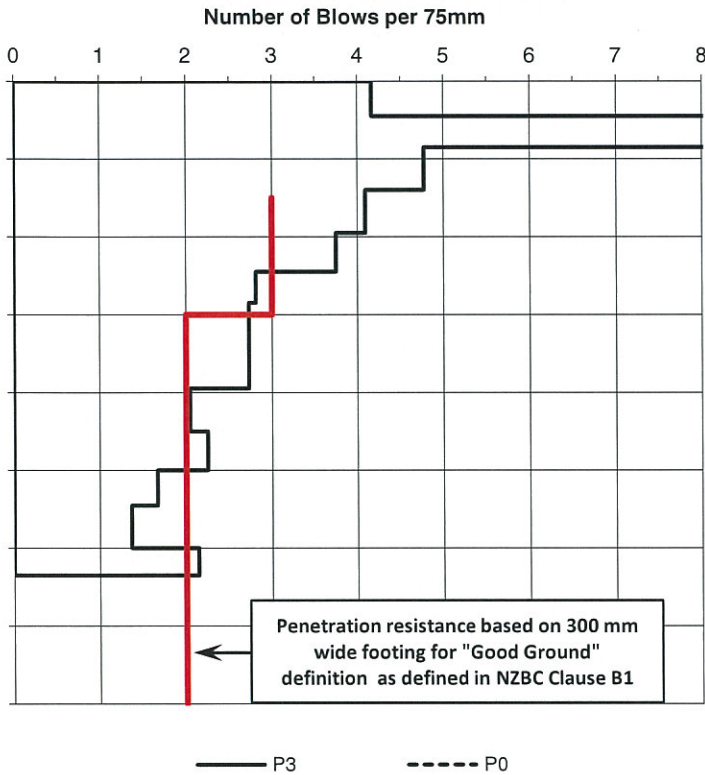
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P.
 Lot

Project No.

SCALA PENETROMETER TESTS



DEPTH

BORE LOGS

DEPTH [m]	Hand Auger <input checked="" type="checkbox"/>	Machine Auger <input type="checkbox"/>	Test Pit <input type="checkbox"/>
GL	(Test Pit @ 3)		
0.2	Dark brown silty TOPSOIL fill with stones and rubble		
0.4	Light yellowish brown silty SAND		
0.8	Light yellowish brown coarse SAND		
1.4	Greyish brown sandy SILT, wet		
2.2	Greyish brown silty sandy GRAVEL with stones < 80mmφ		
2.8	Grey sandy GRAVEL with cobbles < 200mmφ, moist		
3.0	STOP		
3.2			
3.4			
3.6			
3.8			
4.0			
4.2			

SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer *John Chambers* Date: 16/1/12

SITE INVESTIGATION RECORD

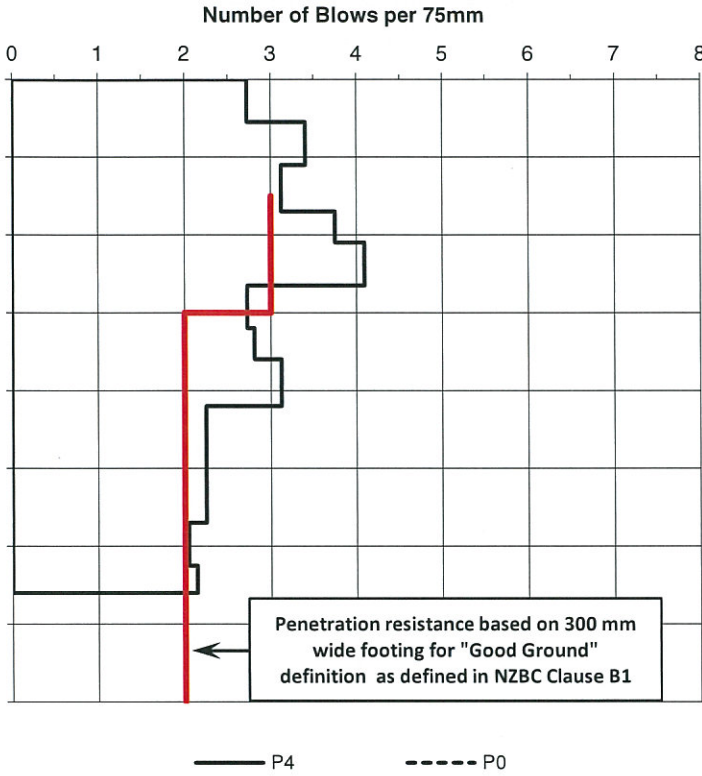
D.P
 Lot

Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

Project No.

SCALA PENETROMETER TESTS



DEPTH

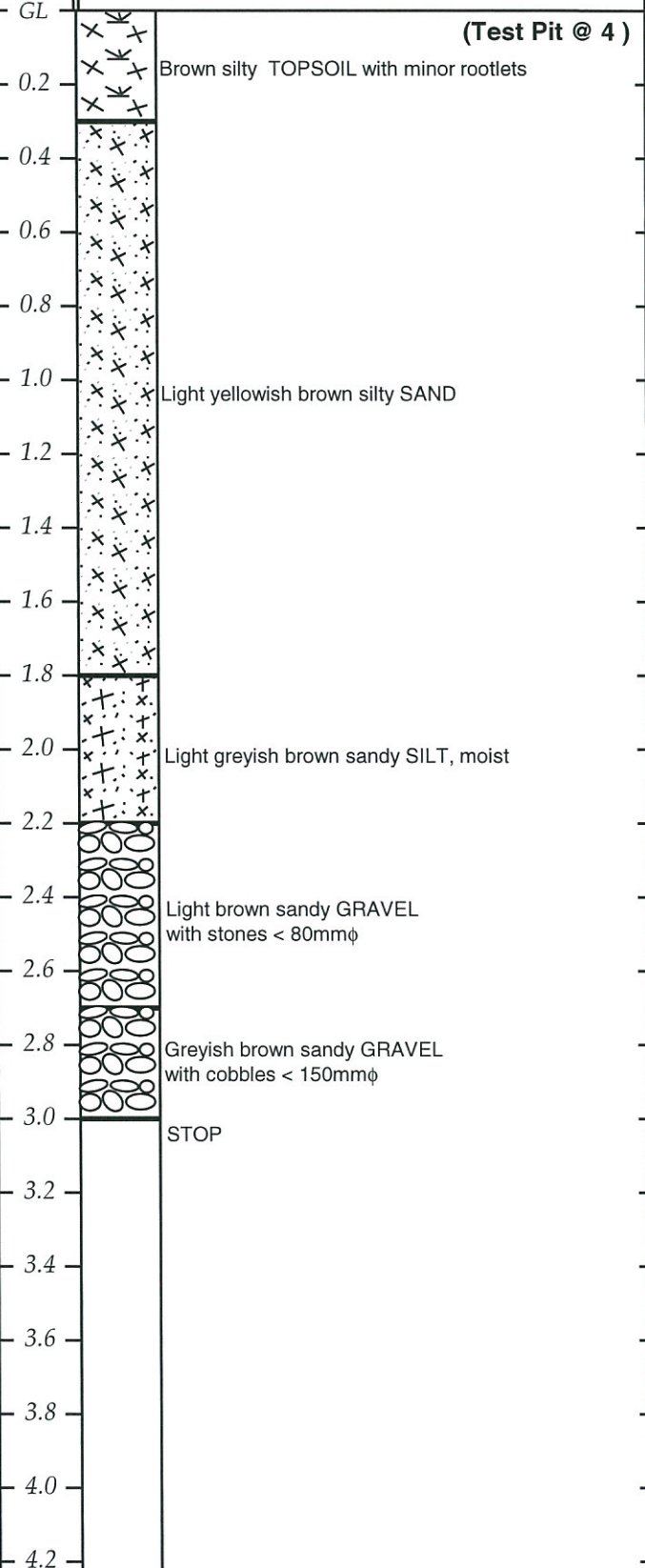
[m]

BORE LOGS

Hand Auger

Machine Auger

Test Pit



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer

John Aramowicz

Date:

16/1/12

SITE INVESTIGATION RECORD

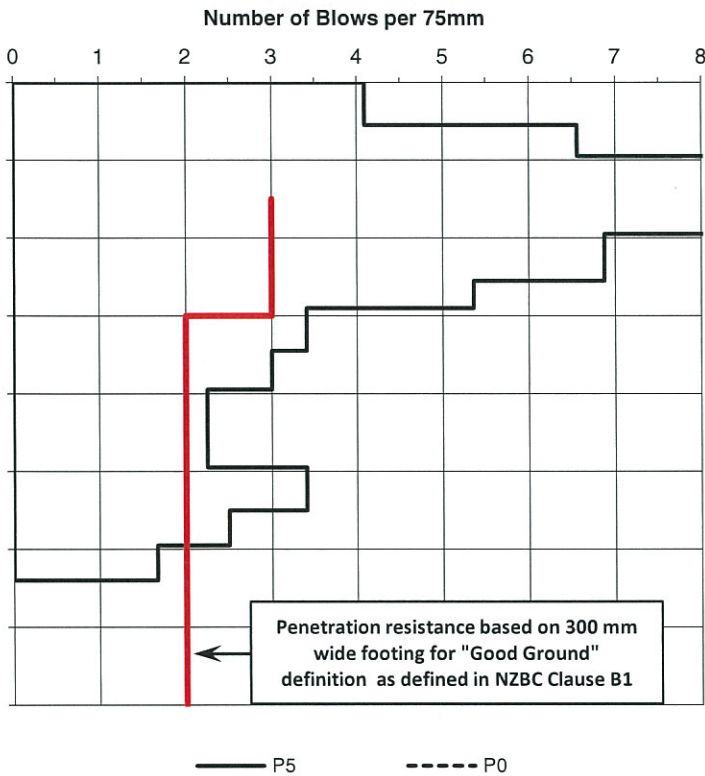
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P.
 Lot

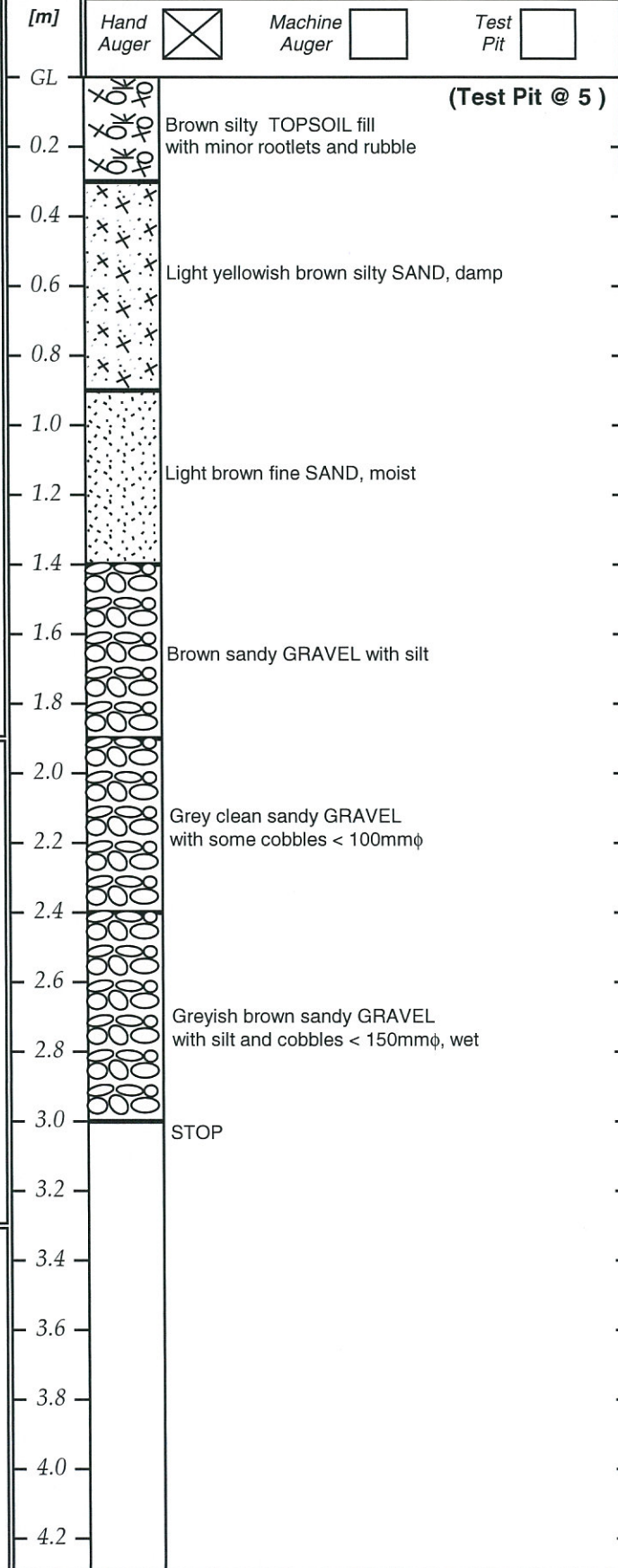
Project No.

SCALA PENETROMETER TESTS



DEPTH

BORE LOGS



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer

John Channing

Date: 16/1/12

SITE INVESTIGATION RECORD

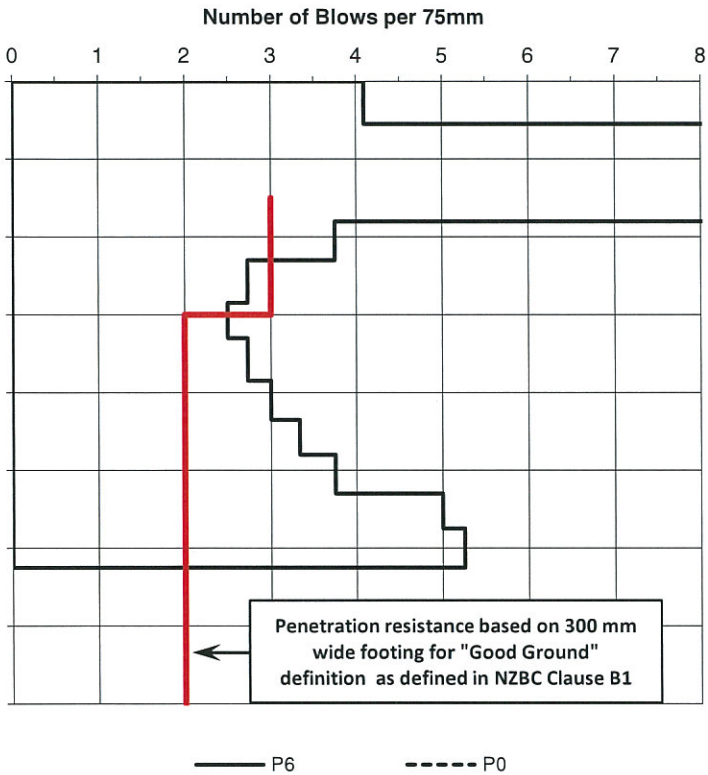
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P.
 Lot

Project No.

SCALA PENETROMETER TESTS



DEPTH

DEPTH [m]	Hand Auger <input checked="" type="checkbox"/>	Machine Auger <input type="checkbox"/>	Test Pit <input type="checkbox"/>
GL	(Test Pit @ 6)		
0.2	Brown silty stoney TOPSOIL fill, side of Farm road		
0.4	Light yellowish brown silty SAND		
0.6	Light brown SAND		
0.8	Light brown sandy SILT with iron staining, moist		
1.0	Light brown SAND		
1.2	Light brown sandy SILT with iron staining, moist		
1.4	Light brown sandy SILT with iron staining, moist		
1.6	Light brown sandy SILT with iron staining, moist		
1.8	Brown sandy GRAVEL with some silt		
2.0	Brown sandy GRAVEL with some silt		
2.2	Brown sandy GRAVEL with some silt		
2.4	Brown sandy GRAVEL with some silt		
2.6	Grey coarse sandy GRAVEL, well graded with some cobbles < 200mmφ		
2.8	Grey coarse sandy GRAVEL, well graded with some cobbles < 200mmφ		
3.0	STOP		
3.2	STOP		
3.4	STOP		
3.6	STOP		
3.8	STOP		
4.0	STOP		
4.2	STOP		

SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer *John Ananowicz* Date: 16/1/2012

SITE INVESTIGATION RECORD

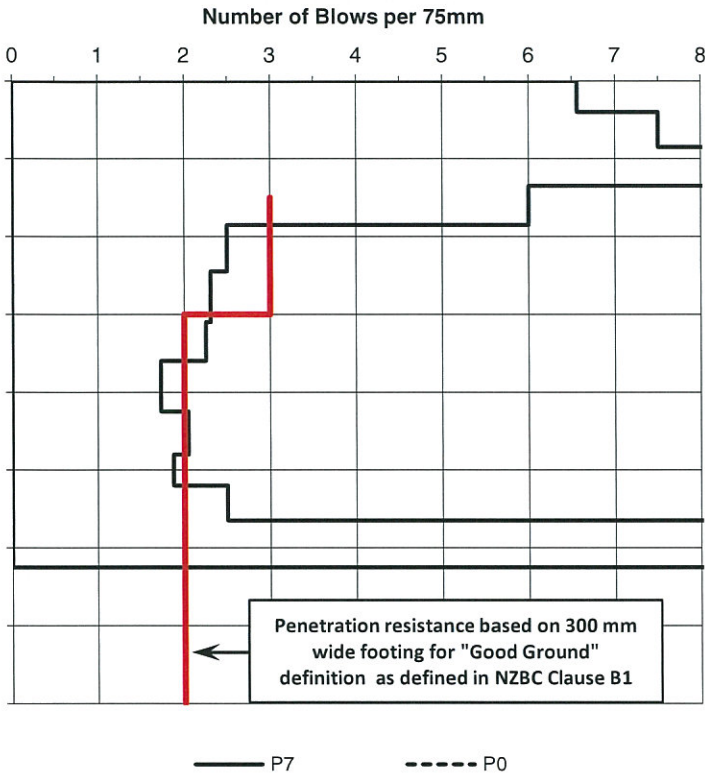
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P
 Lot

Project No.

SCALA PENETROMETER TESTS



DEPTH

BORE LOGS

DEPTH [m]	Hand Auger <input checked="" type="checkbox"/>	Machine Auger <input type="checkbox"/>	Test Pit <input type="checkbox"/>
GL	(Test Pit @ 7)		
0.2			
0.4	Brown silty SANDY TOPSOIL fill with broken stones		
0.6	Brown silty SAND fill with stones		
0.8	Dark brown clean SILT, burried topsoil layer with very minor organics		
1.0	Light brown silty SAND, moist		
1.2	Brown silty sandy GRAVEL		
1.4	Grey coarse sandy GRAVEL with some cobbles < 150mmφ		
1.6			
1.8			
2.0	Brownish grey coarse SAND with iron staining		
2.2			
2.4			
2.6	Grey sandy GRAVEL well graded		
2.8			
3.0	STOP		
3.2			
3.4			
3.6			
3.8			
4.0			
4.2			

SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer

John O'Rourke

Date:

16/1/12

SITE INVESTIGATION RECORD

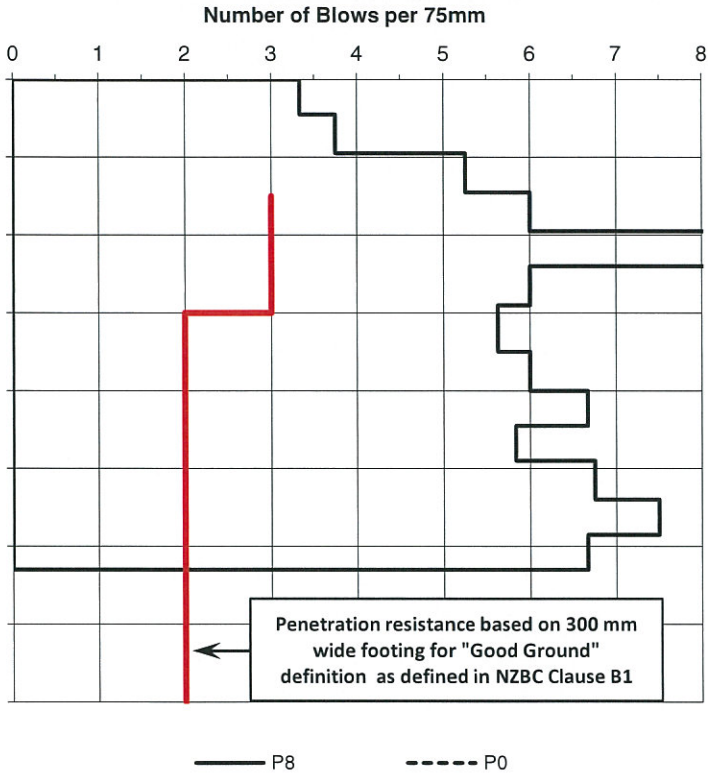
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P.
 Lot

Project No.

SCALA PENETROMETER TESTS

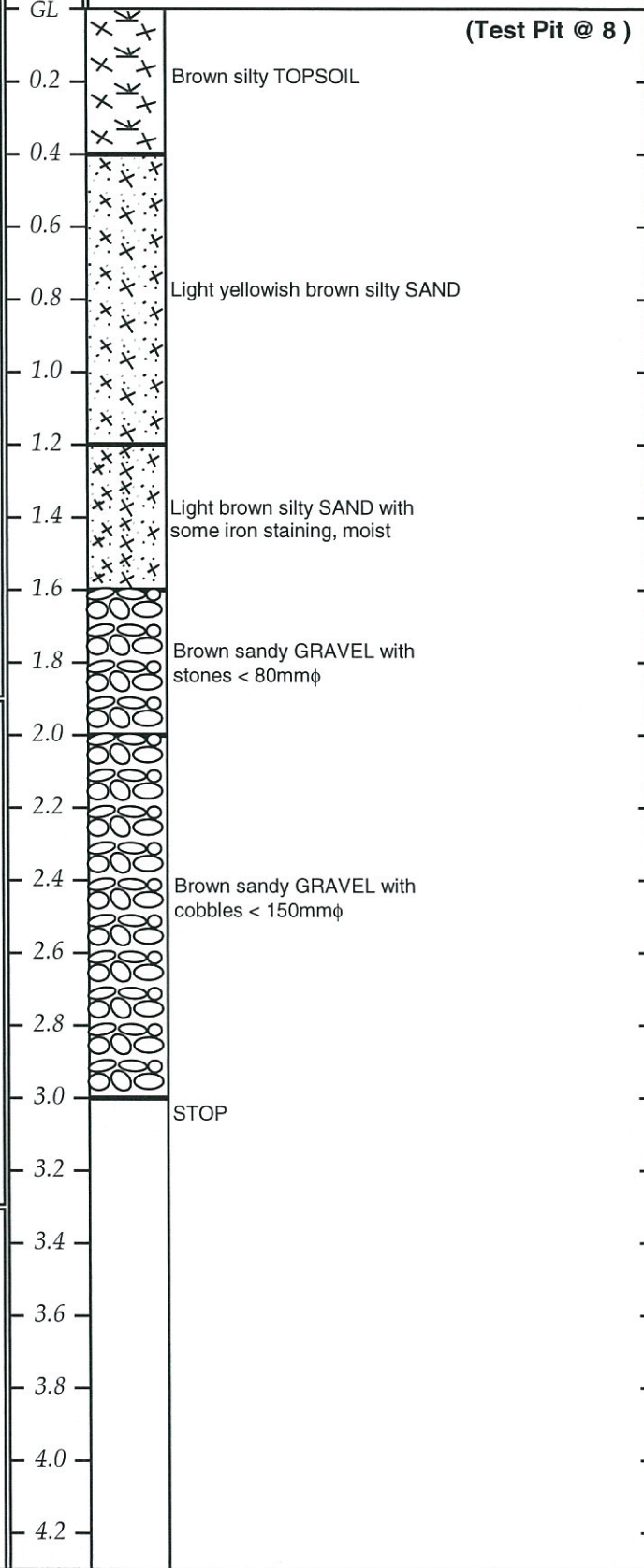


DEPTH

[m]

Hand Auger Machine Auger Test Pit

BORE LOGS



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer *John Armstrong* Date: 16/1/12

SITE INVESTIGATION RECORD

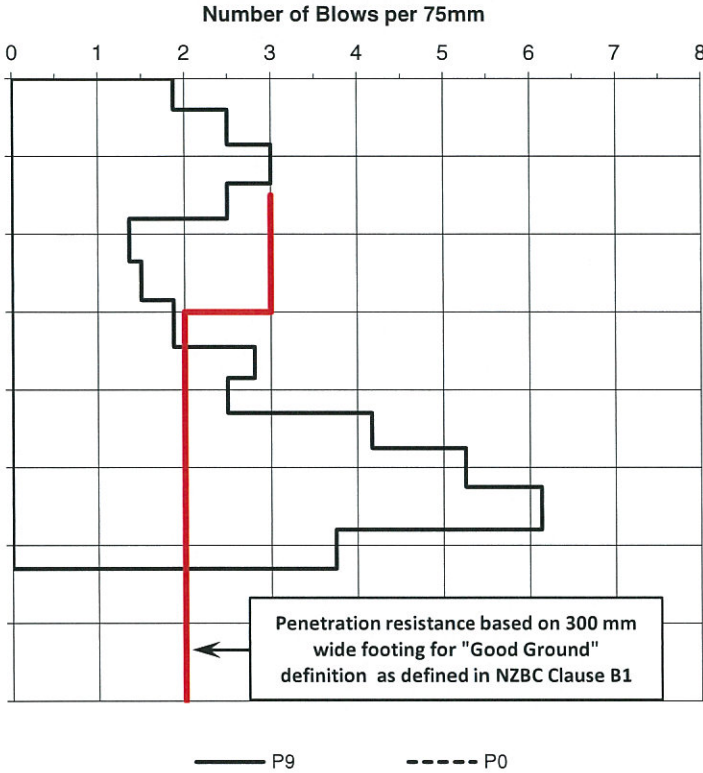
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P
 Lot

Project No.

SCALA PENETROMETER TESTS

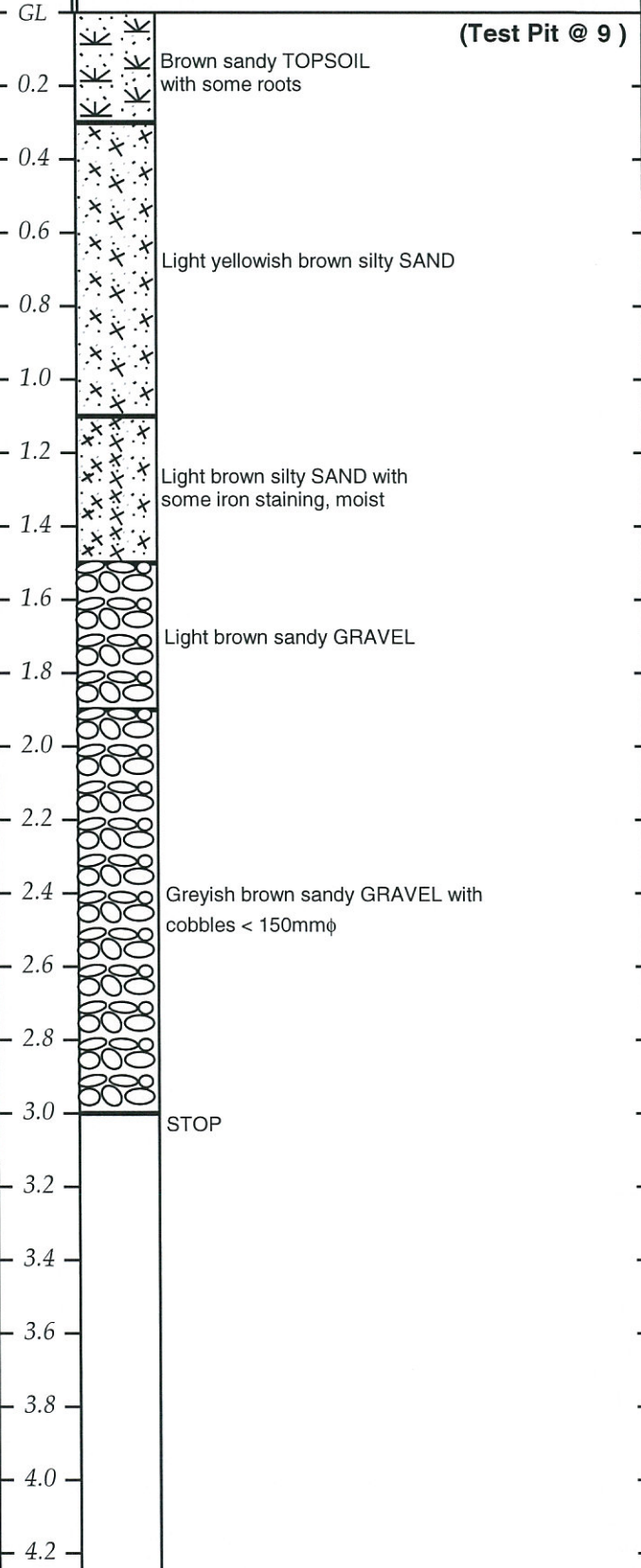


DEPTH

[m]

BORE LOGS

Hand Auger Machine Auger Test Pit



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer

John Aramoway

Date:

16/1/12

SITE INVESTIGATION RECORD

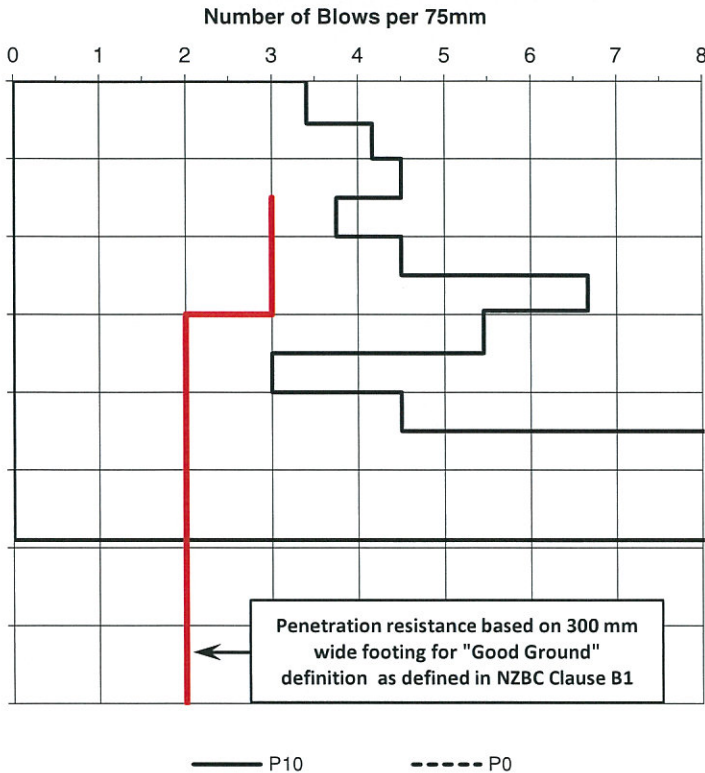
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

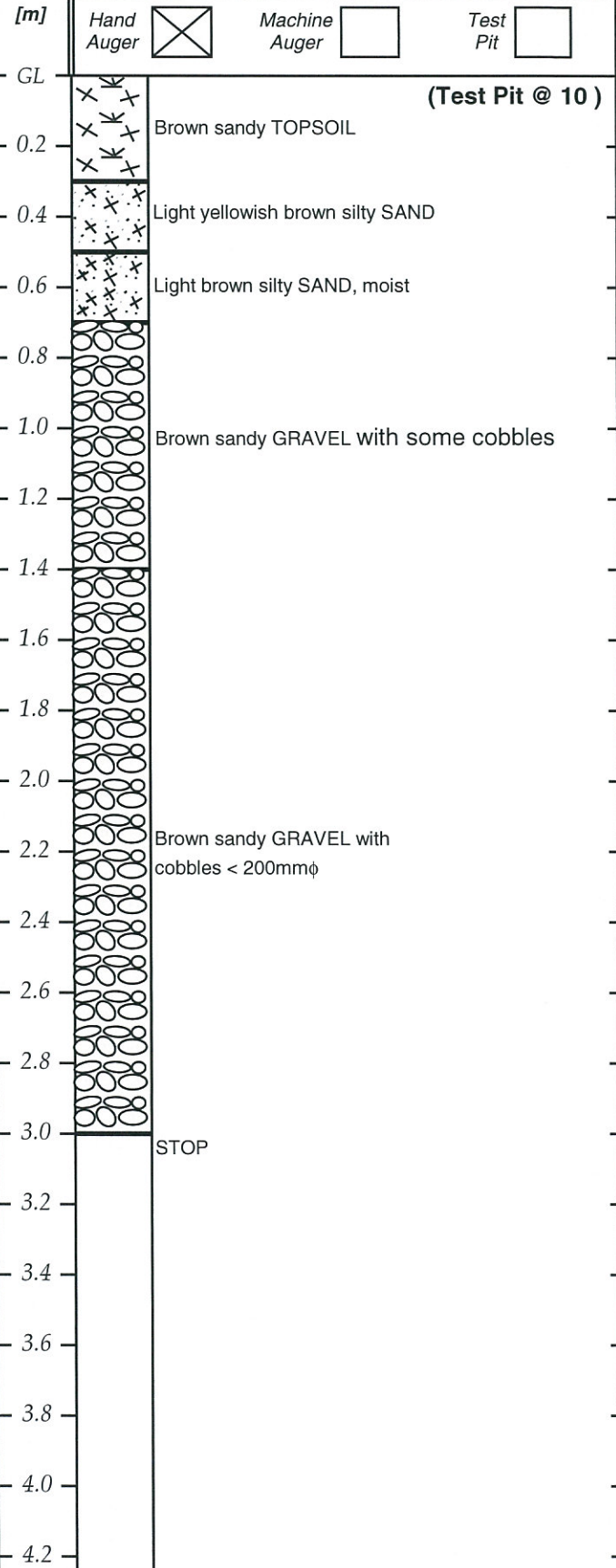
D.P.
 Lot

Project No.

SCALA PENETROMETER TESTS



DEPTH



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer *John Armstrong* Date: *16/1/12*

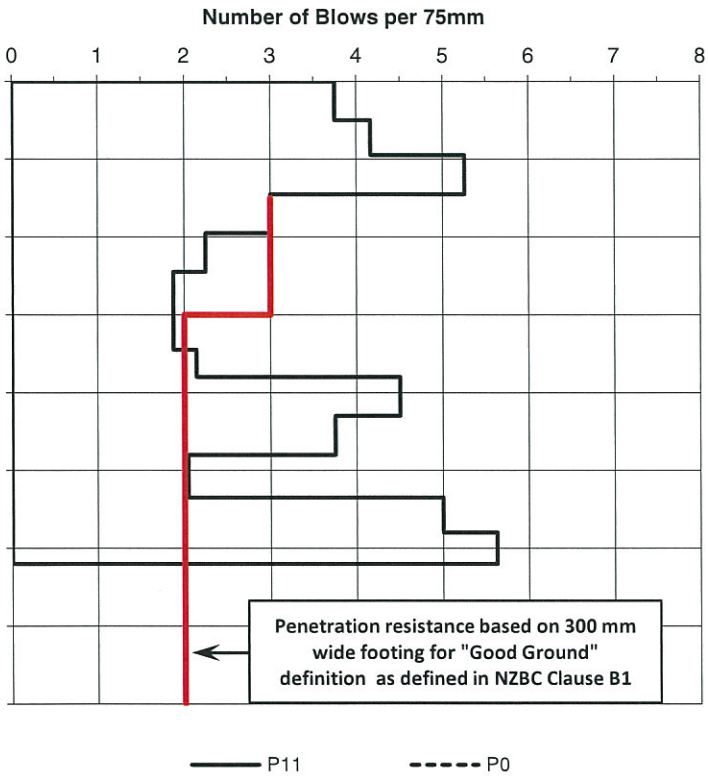
SITE INVESTIGATION RECORD

Client **Rockwood Holdings Ltd.**

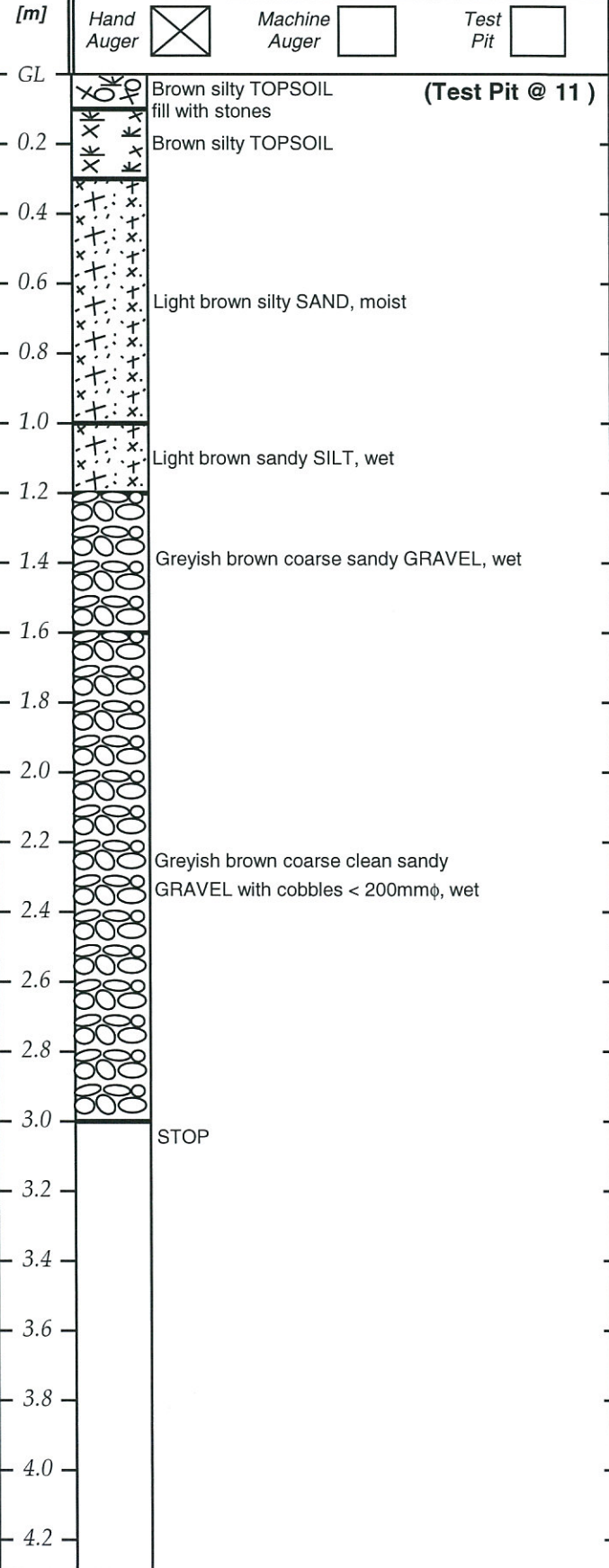
Site **Kirk Road, Templeton**

D.P.
 Lot
 Project No.

SCALA PENETROMETER TESTS



DEPTH



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer *John Oramon* Date: 16/1/12

SITE INVESTIGATION RECORD

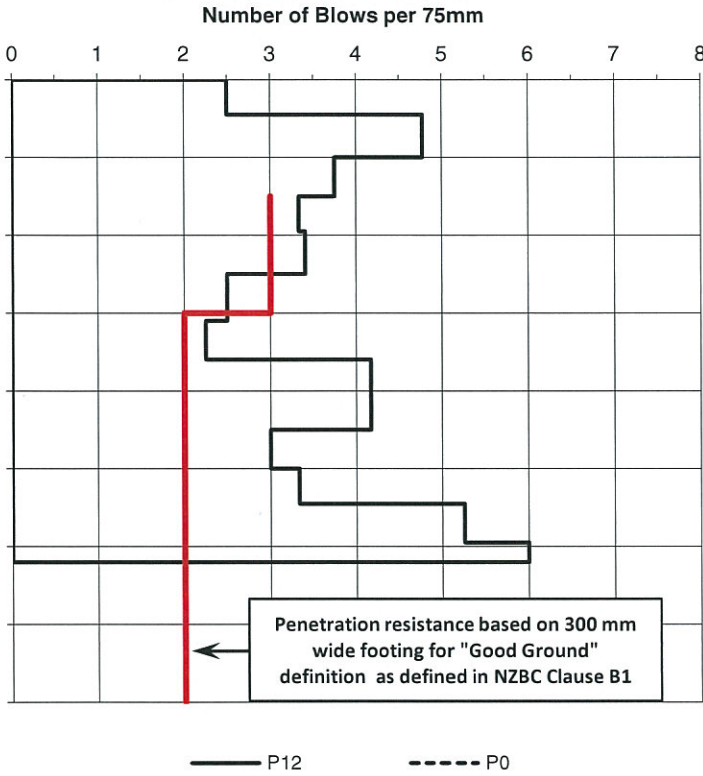
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P.
 Lot

Project No.

SCALA PENETROMETER TESTS



DEPTH

[m]

BORE LOGS

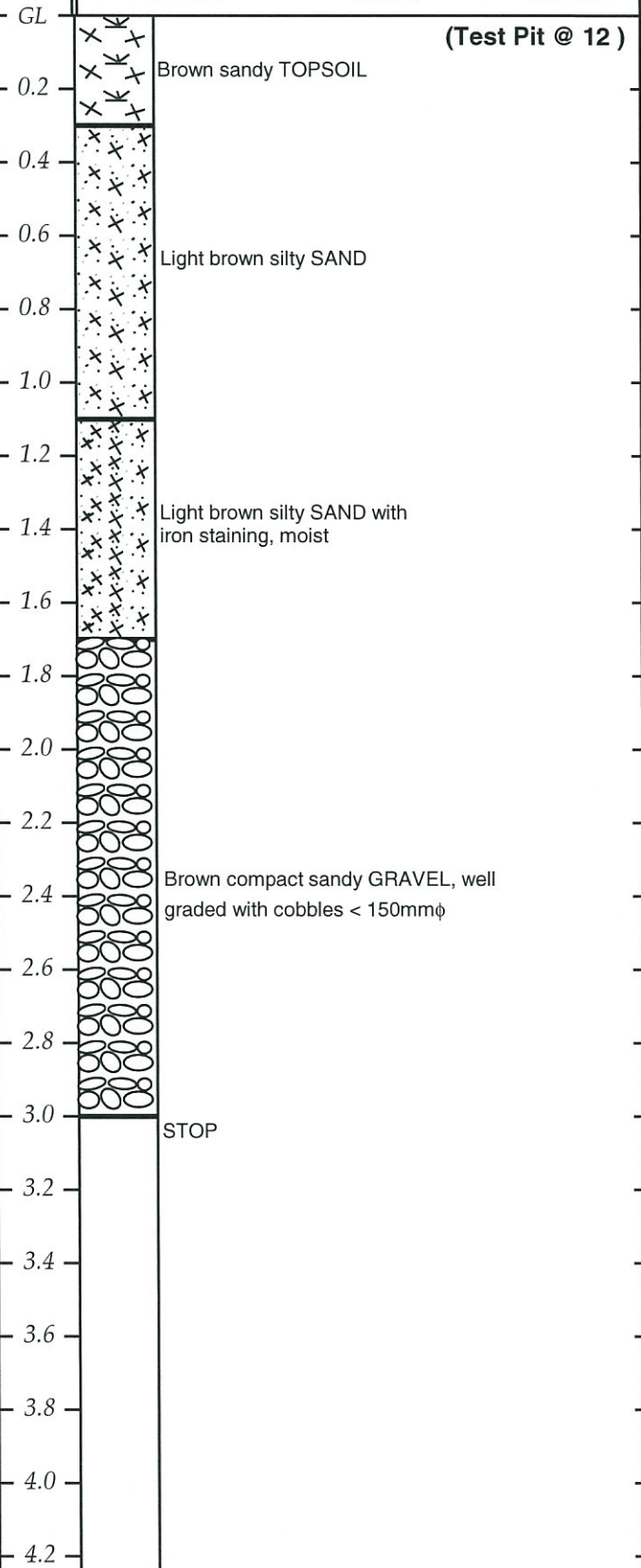
Hand Auger



Machine Auger



Test Pit



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer *John Chanoway* Date: 16/1/12

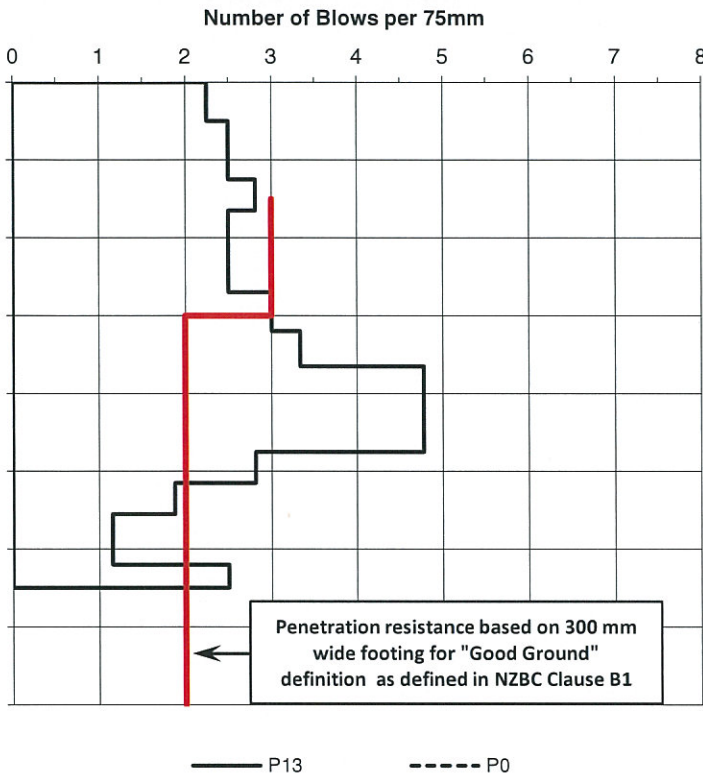
SITE INVESTIGATION RECORD

Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P.
 Lot
 Project No.

SCALA PENETROMETER TESTS



DEPTH

BORE LOGS

DEPTH [m]	Hand Auger <input checked="" type="checkbox"/>	Machine Auger <input type="checkbox"/>	Test Pit <input type="checkbox"/>
GL	(Test Pit @ 13)		
0.2	Dark brown rich silty TOPSOIL		
0.4	Light brown silty SAND		
0.6	Brown SAND with some silt, moist		
0.8			
1.0			
1.2			
1.4	Greyish brown sandy SILT with iron staining and stones		
1.6			
1.8	Greyish brown sandy GRAVEL, moist		
2.0			
2.2			
2.4			
2.6	Greyish brown coarse sandy GRAVEL with some cobbles, wet		
2.8			
3.0			
3.2	STOP		
3.4			
3.6			
3.8			
4.0			
4.2			

SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer *John Channing* Date: 16/1/12

SITE INVESTIGATION RECORD

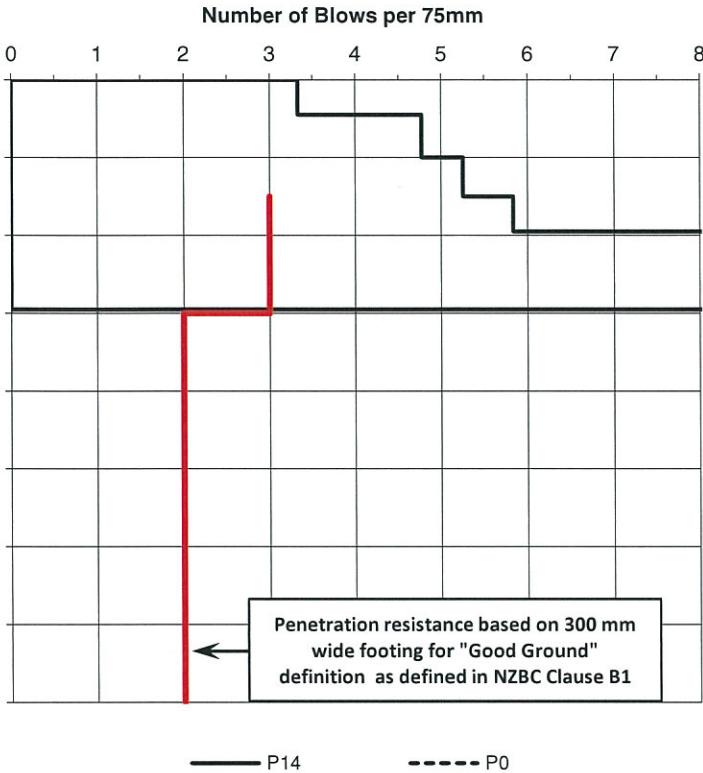
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P
 Lot

Project No.

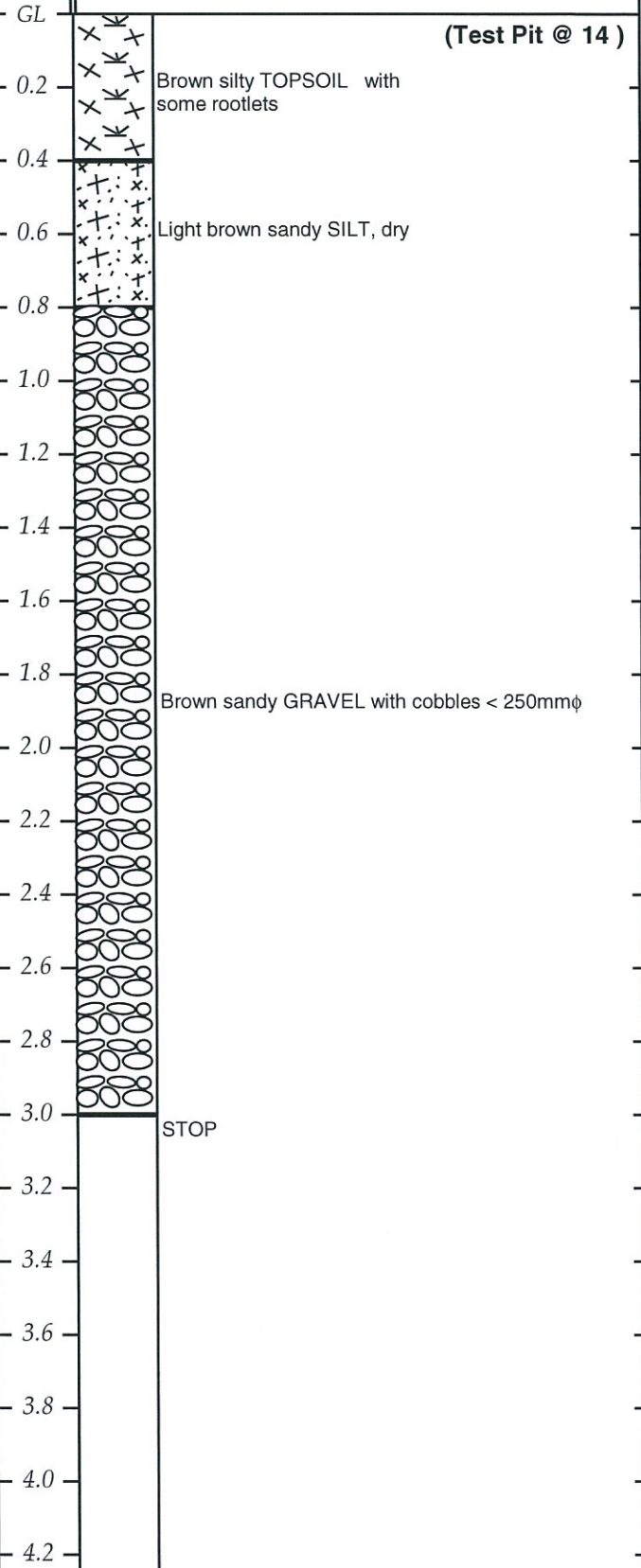
SCALA PENETROMETER TESTS



DEPTH

[m] Hand Auger Machine Auger Test Pit

BORE LOGS



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer

John Armstrong Date: 16/1/12

SITE INVESTIGATION RECORD

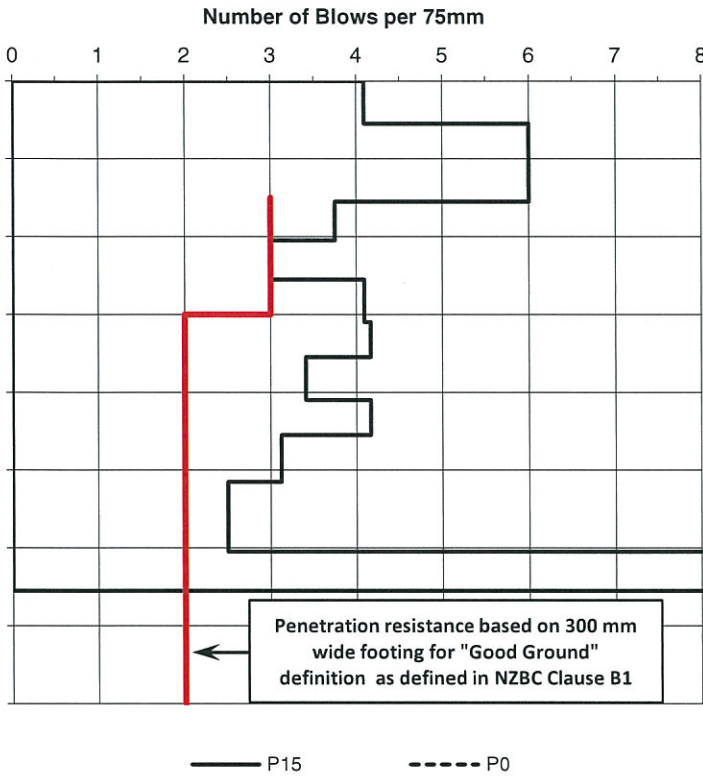
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P
 Lot

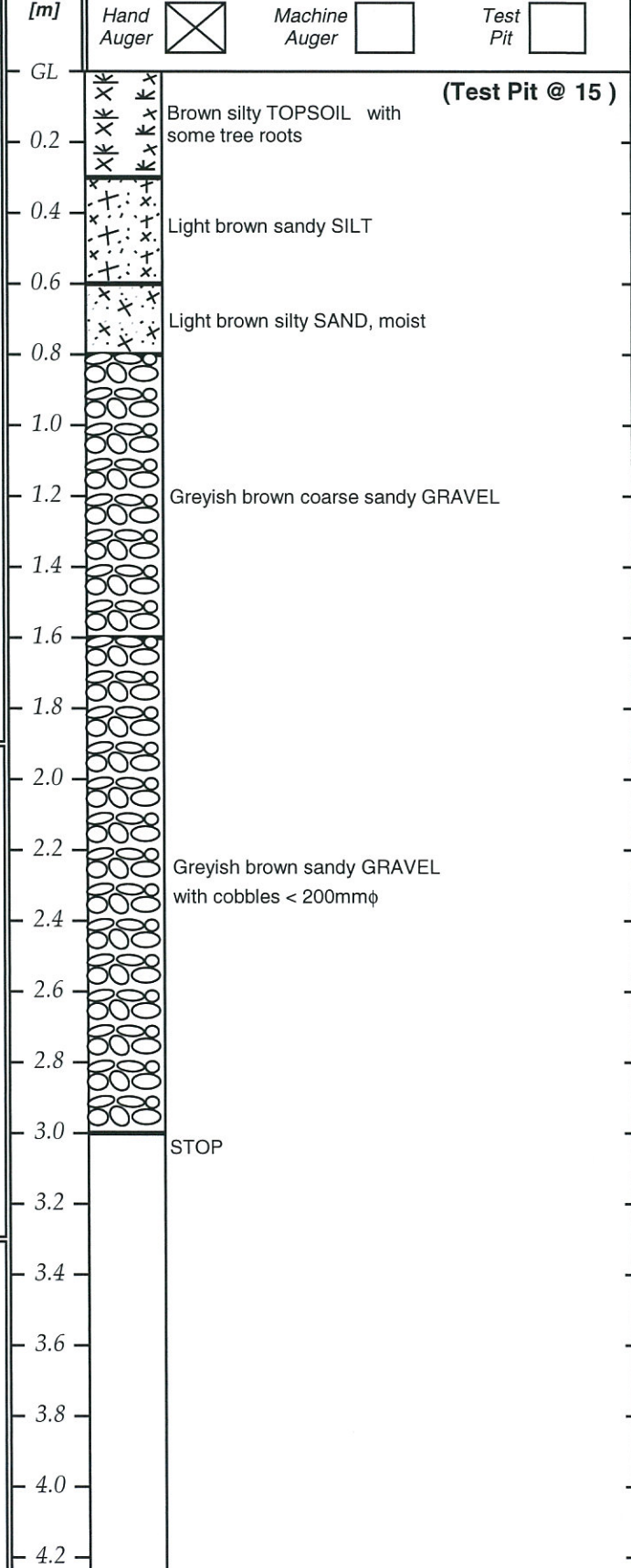
Project No.

SCALA PENETROMETER TESTS



DEPTH

BORE LOGS



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer

John Channing

Date:

16/1/12

SITE INVESTIGATION RECORD

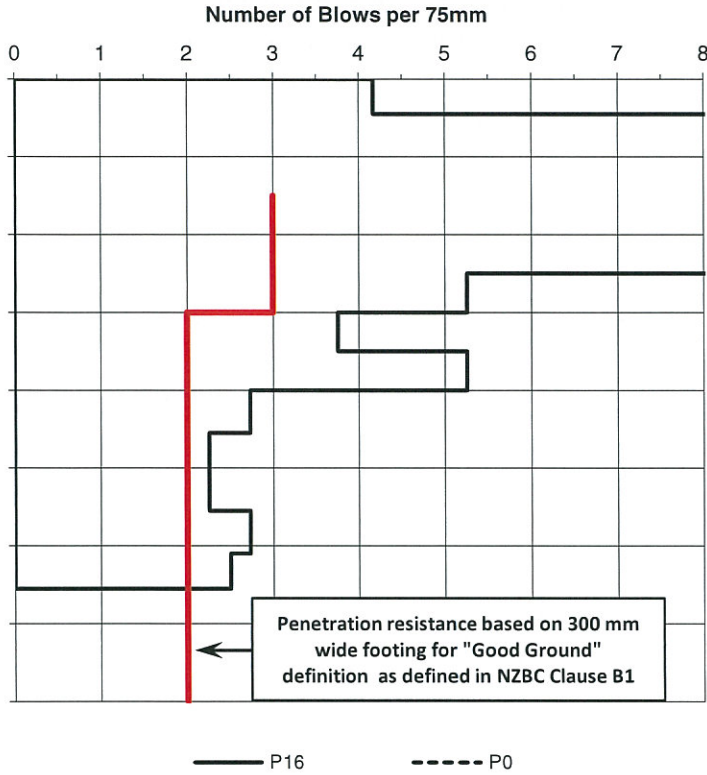
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

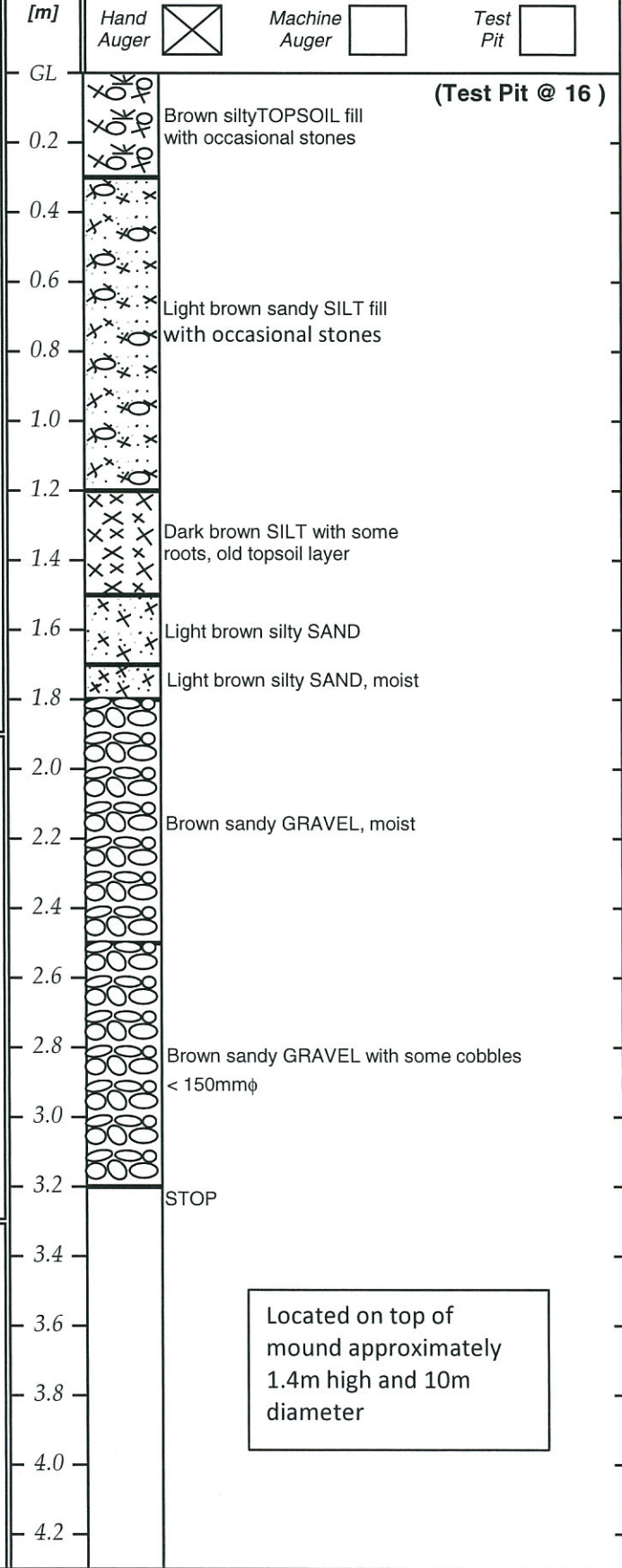
D.P
 Lot

Project No.

SCALA PENETROMETER TESTS



DEPTH



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Note presence of uncontrolled fill to form mound.

Civil Engineer

John Anamouing Date: *16/1/2012*

SITE INVESTIGATION RECORD

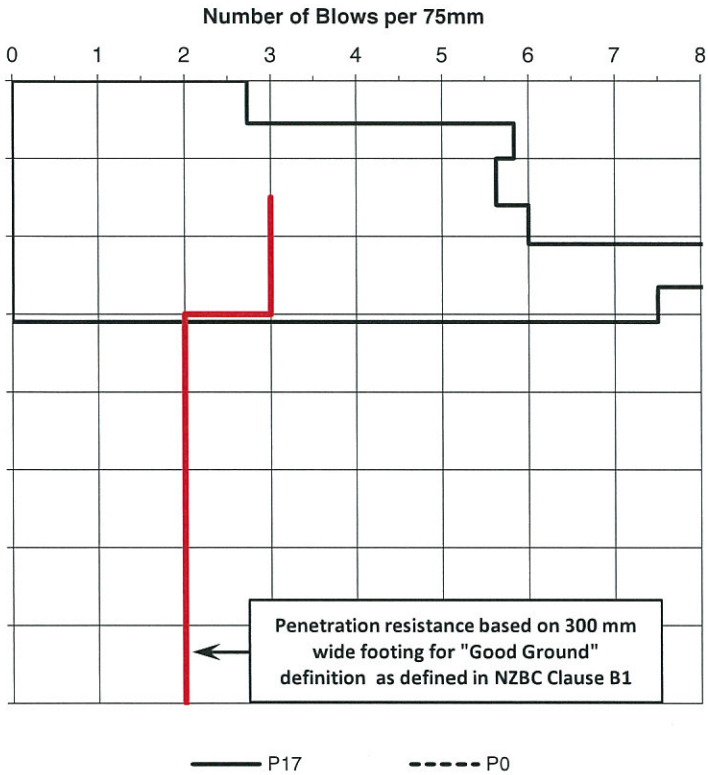
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

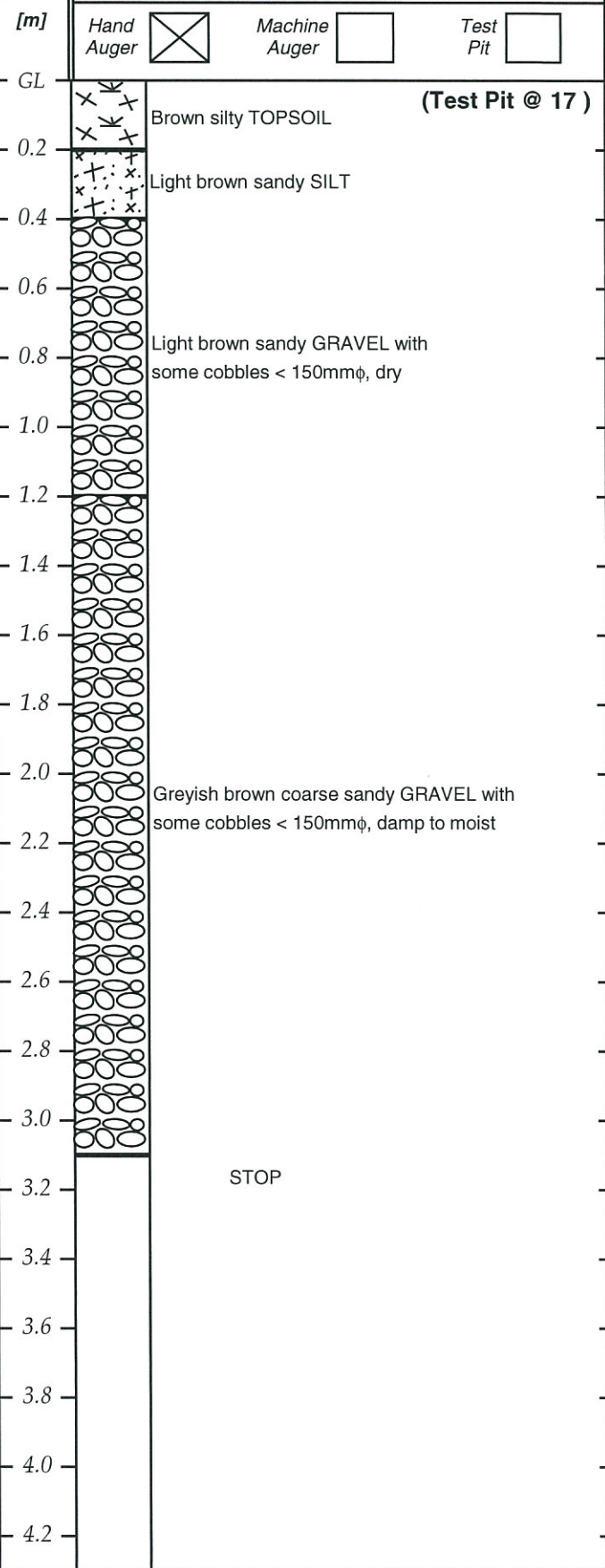
D.P.
 Lot

Project No.

SCALA PENETROMETER TESTS



DEPTH



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer *John Channing* Date: 16/1/12

SITE INVESTIGATION RECORD

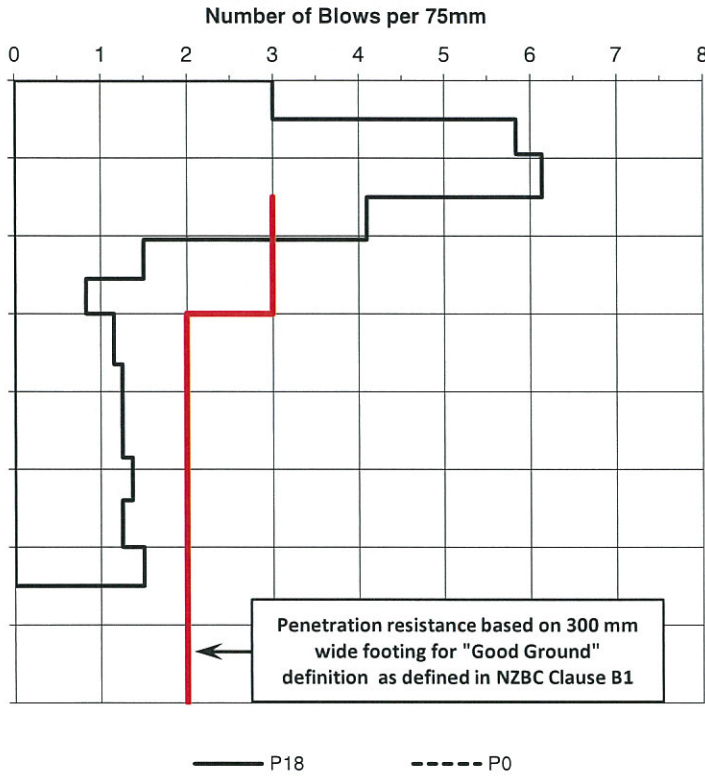
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P
 Lot

Project No.

SCALA PENETROMETER TESTS

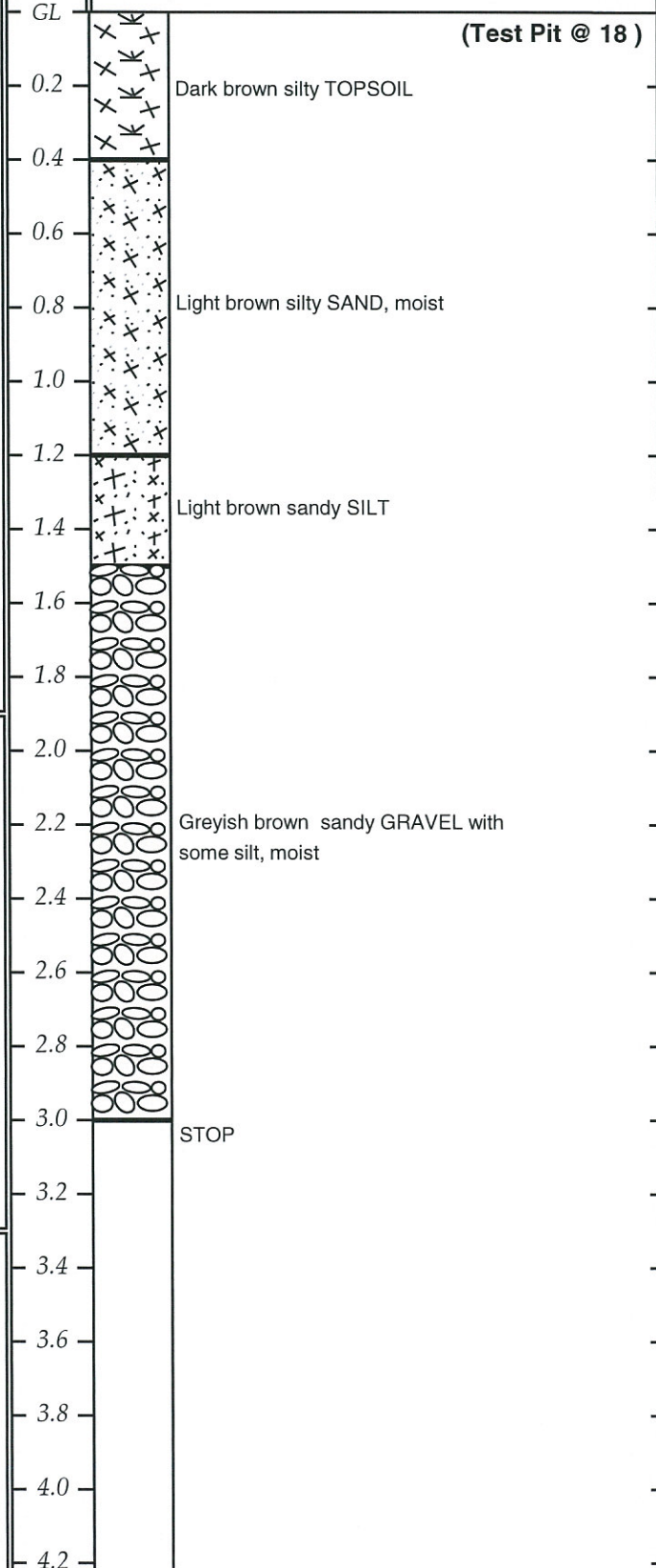


DEPTH

[m]

BORE LOGS

Hand Auger Machine Auger Test Pit



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer

John Aramoring Date: 16/1/12

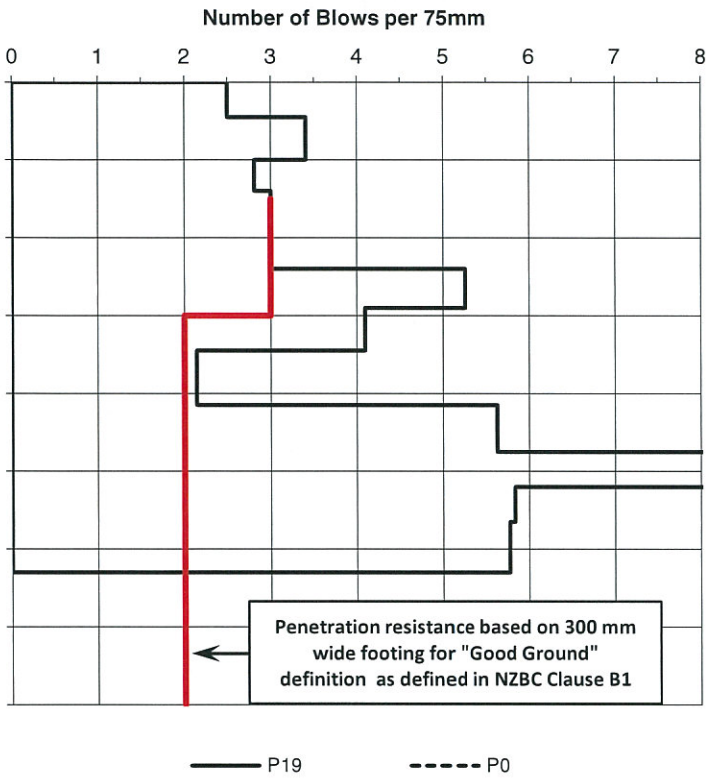
SITE INVESTIGATION RECORD

Client **Rockwood Holdings Ltd.**

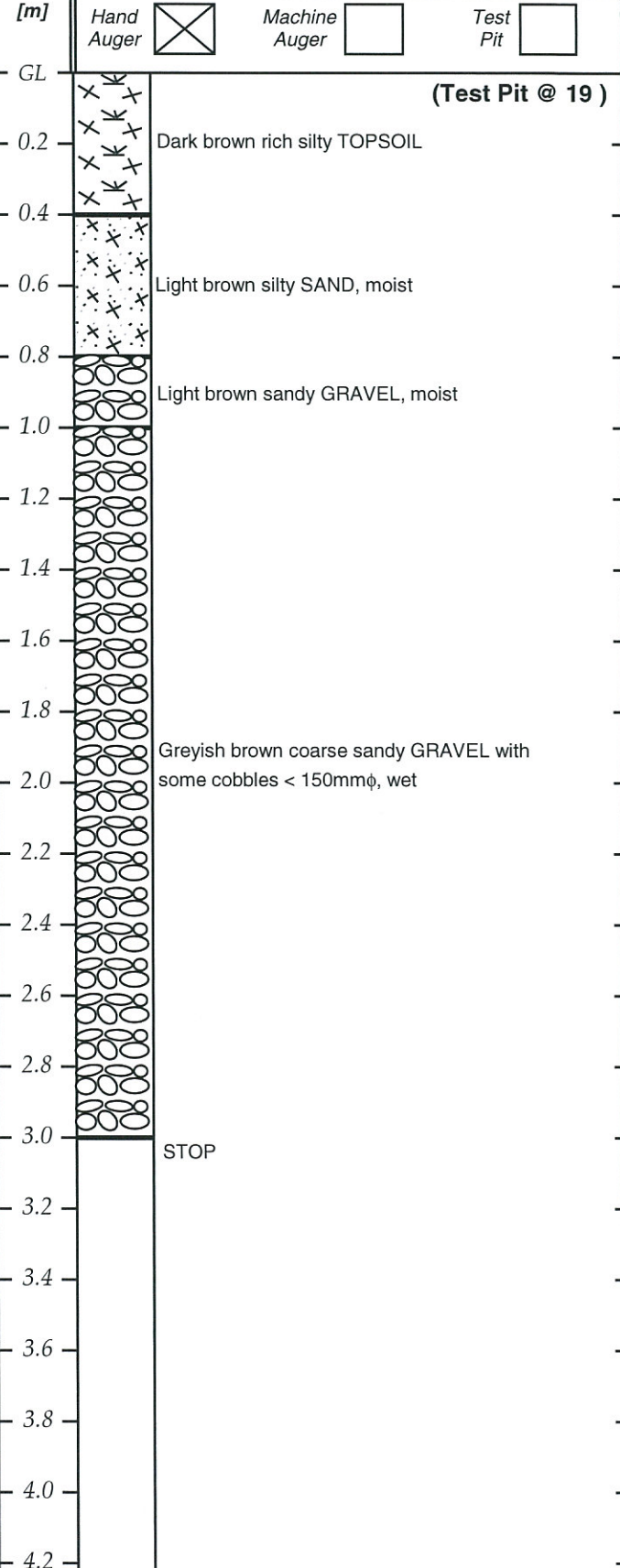
Site **Kirk Road, Templeton**

D.P.
 Lot
 Project No.

SCALA PENETROMETER TESTS



DEPTH



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer *John Aramowicz* Date: *16/1/12*

SITE INVESTIGATION RECORD

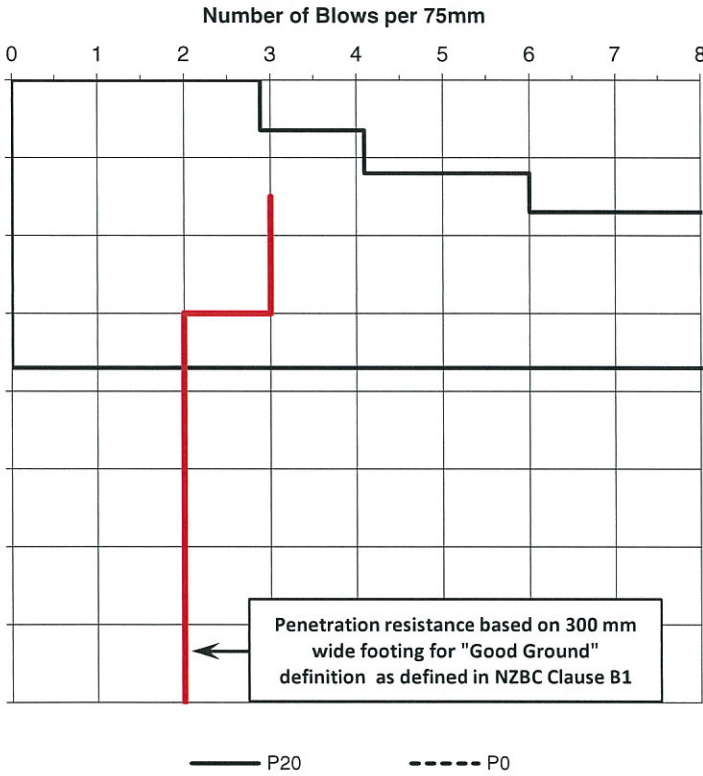
Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

D.P.
 Lot

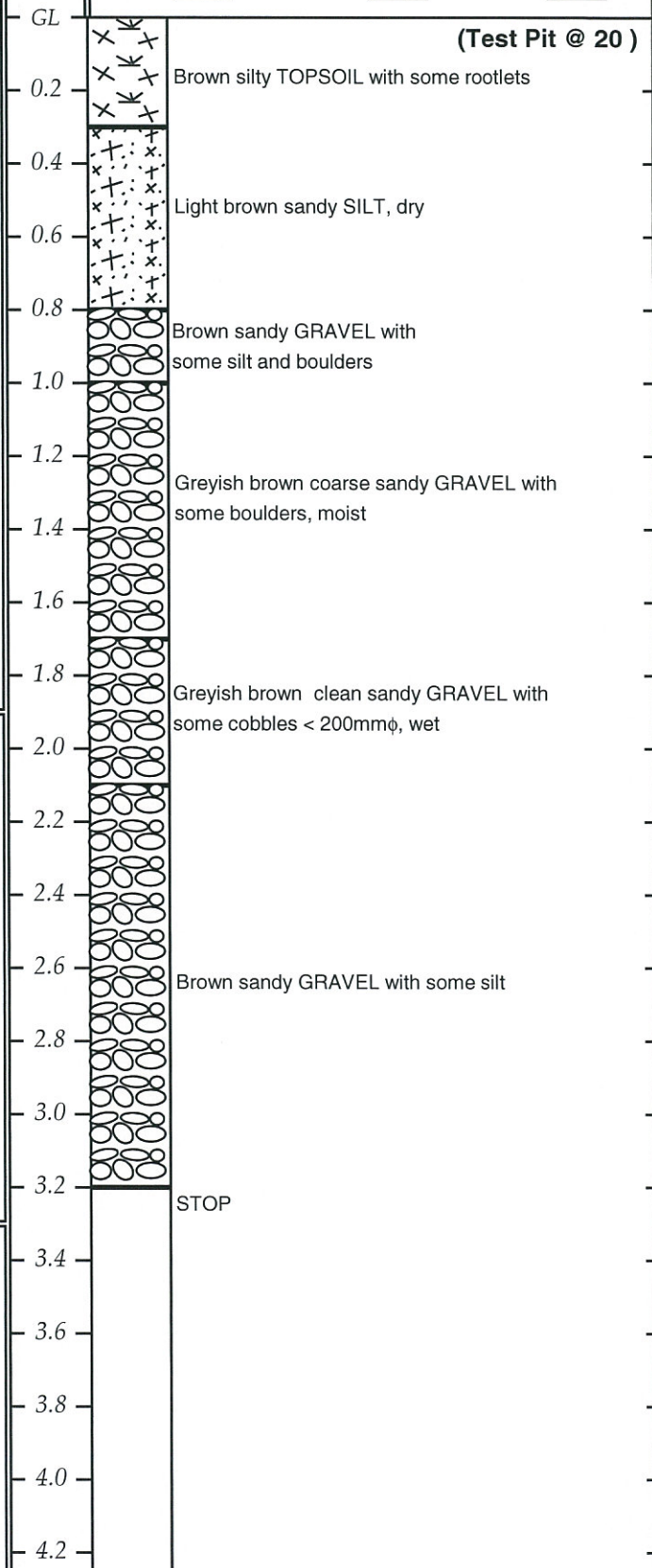
Project No.

SCALA PENETROMETER TESTS



DEPTH

[m] Hand Auger Machine Auger Test Pit



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS

Civil Engineer *John Aramowicz* Date: *16/1/12*

SITE INVESTIGATION RECORD

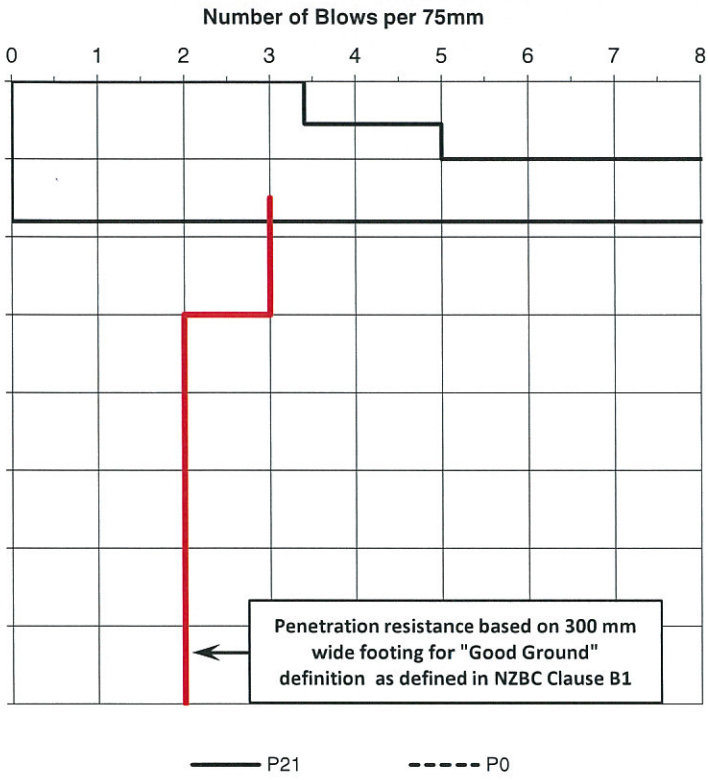
D.P
 Lot

Client **Rockwood Holdings Ltd.**

Site **Kirk Road, Templeton**

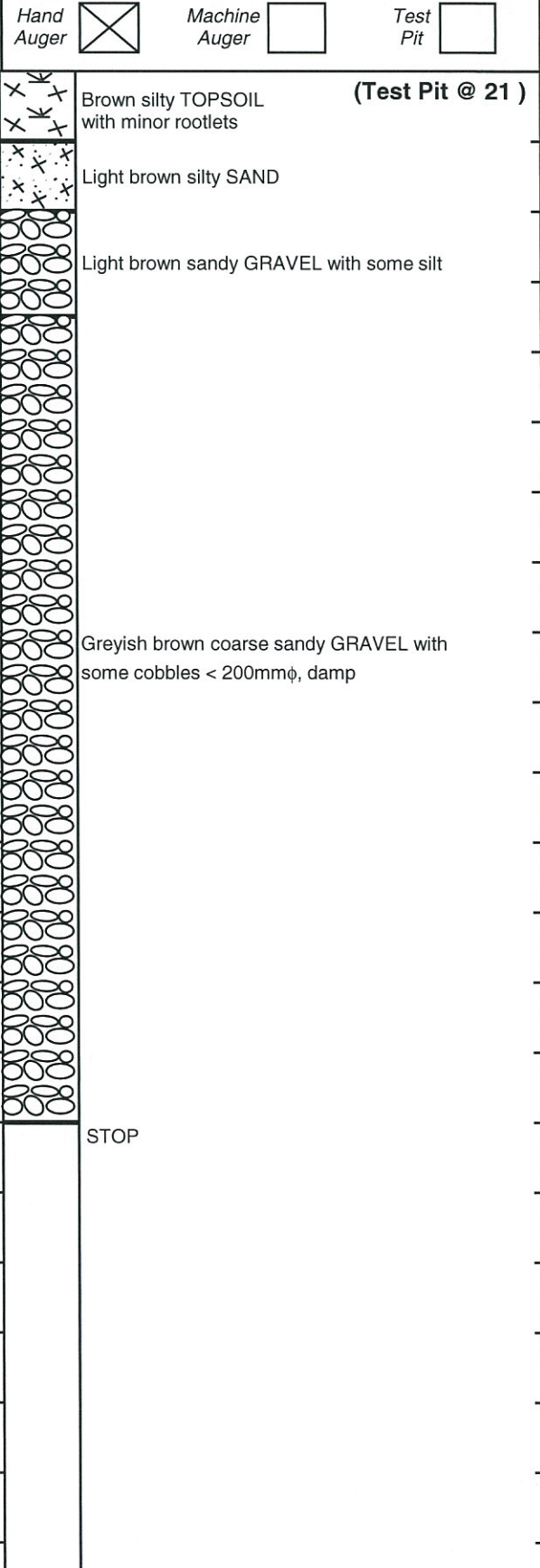
Project No.

SCALA PENETROMETER TESTS



DEPTH

BORE LOGS



SITE PLAN (Not to Scale)

North

See site plan for location.

COMMENTS


Civil Engineer

John Anagnostou Date: 16/1/12

18 APPENDIX F – LAND CLASSIFICATION

LandCheck.org.nz

Canterbury Earthquake
Recovery Authority



Home Zone info FAQ About Contact us
CERA website

221 KIRK ROAD TEMPLETON Christchurch City

[View Street Report](#) Last updated 20 Dec 2011

G

Green Zone, N/A - Rural & Unmapped

If your property is categorised as green, key points to note are:

- Land is generally suitable to be repaired and rebuilt on;
- Land damage may be present but this can be repaired on an individual basis as part of the normal insurance process;
- Property owners should talk directly with their insurer or EQC about repairs. You may also require a geotechnical assessment of your property;
- Property owners no longer have to wait for the results of any area-wide land assessment reports by EQC or their engineering consultants Tonkin & Taylor;
- Repair and rebuilding work should take into consideration the risk of ongoing aftershocks, so some finishing tasks such as brick and driveway concrete laying should be delayed until that risk decreases.

What do these technical categories mean?

Some properties in the green zone have experienced liquefaction-related land damage and considerable settlement during the sequence of Canterbury earthquakes. While land in the green zone is still generally considered suitable for residential construction, houses in some areas will need more robust foundations or site specific foundation design where foundation repairs or rebuilding are required.

- Technical Category not applicable:** Non-residential properties in urban areas, properties in rural areas or beyond the extent of land damage mapping, and properties in the Port Hills and Banks Peninsula have not been given a Technical Category.

Normal consenting procedures will apply in these areas.


What happens next?

You should make contact with your insurer or [EQC](#) to progress repairs.

[Download this PDF](#) for more information on properties classified as Green.

If you want to query whether your home has been categorised into the right zone, please email landinfo@cera.govt.nz

The above zoning information is correct to the best of our knowledge at the time of publishing.



Residential classification

- G **Green Zone**
Repair / rebuild process can begin.
- O **Orange Zone**
Further assessment required.
- R **Red Zone**
Land repair would be prolonged and uneconomic.
- W **White Zone**
CBD or hillside suburb, mapping still underway

Support and Assistance

If you need further assistance regarding the status of a residential property, please phone us on 0800 RING CERA (0800 7464 2372).

[Home](#) [Zone info](#) [FAQ](#) [About](#) [Contact us](#)

newzealand.govt.nz

MEMORANDUM

To: Andrew Long, Strategy and Planning

From: Roy Eastman, Capital Programme

Date: 23 February 2012

PLAN CHANGE 66 (PC66 – FORMER TEMPLETON HOSPITAL SITE) TO THE CITY

PLAN: STORMWATER MANAGEMENT

Introduction

Andrew Long of Strategy and Planning Group and Brian Norton of the Greenspace Unit have requested an investigation into a feasible Stormwater Management Concept Plan for the former Templeton Hospital Site, as part of the Council initiated Plan Change 66 to the City Plan. To assist the Stormwater Investigation, considerable documentation and reports are available from an earlier Private Plan Change PC23 in 2009, which was declined. Considerable reliance is made on these reports in this investigation as to the infiltration capacity of the sites soils and groundwater depth.

Background

In 2009 a Private Plan Change (PC23), for Business 4M zoning, was put forward by Rookwood Holdings Limited to redevelop the former Templeton Hospital site. PC23 was declined at the time, but the Council has now resolved to undertake its own Plan change (PC66) for the site, based on a lower density of development.

Considerable investigation work was carried out by the Applicant in support of PC23 at that time and this work was reviewed by Council staff. In his section 42A Officer's Report to the Hearing for Proposed Plan Change 23, Council's Contract Storm – water Engineer at that time, Andrew Tisch, was of the opinion that the stormwater management concept, of a Council managed network for collection and soakage to ground for all stormwater runoff, put forward by the Applicant in support of PC23, was:

“...generally sound and provide an acceptable solution for the management of stormwater at this site”.

Andrew Tisch also considered that:

“The stormwater proposal generally meets the relevant objectives and policies of the City Plan, the values described in the Waterways and Wetland Design Guide”.

Andrew Tisch did however seek a number of amendments to the Scheme. He wanted to see:

- A reduction in number of stormwater mitigation facilities

- Roof discharge directly to the ground
- Avoidance of contaminated ground, if any, in the siting of stormwater mitigation facilities
- Clarification of design infiltration rates proposed at that time
- Secondary flow pathways to be located to avoid nuisance to neighbouring land from extreme storm event overflows
- Where possible; use and maintain historic drain paths and depressions.

The issue of larger retention basins was also highlighted at that time in relation to airport flight paths and the potential to attract birds (birdstrike). Smaller basins were preferred, which was to some degree in conflict with Council's call for fewer basins.

Capital Programme Group has now been engaged by the Strategy and Planning Unit and the Greenspace Unit to reassess the PC23 stormwater management proposal in terms of PC66.

I have reviewed the earlier investigation work carried out by Elliot Sinclair and Partners Limited, Pattle Delamore Partners Limited, and Barnett and MacMurray Limited, and have the benefit of their comprehensive reports to better understand the site. I have also visited the site with Warner Mauger and Simon Tucker who act for the property owners. They gave me a tour of the site and explained their proposals for its long term development. They agreed that a lower site density development would work for them. They also gave a favourable/supportive response to my initial ideas on a stormwater management proposal, given the lower density site development now proposed with PC66.

Site Description

PC66 encompasses the old Templeton hospital site, 185 Kirk Road (Lot 2 DP315110) of about 66.4 hectares, which lies at the western edge of Christchurch City. The land is located adjacent to, and west of, Kirk Road, Maddisons Road and Brackenridge Estate to the south, pastoral/agricultural land to the west and mainly pastoral land to the north. The site extends approximately 1500m by 500m (at its widest point). Land over the site is generally 'flat' with a gradual fall of about 1: 300-500 from the North West to south east. Refer to Figure 1.

The site is currently zoned 'Special Purpose (Hospital)' as per the City Plan and the surrounding area is zoned 'Rural 2-Templeton-Halswell' to the north, west and south, and 'Rural 5-Airport Influence' to the east beyond Kirk Road.

The property falls immediately west of the area designated as Christchurch Groundwater Recharge Zone 2 in Environment Canterbury's (ECan) Natural Resources Regional Plan (NRRP). Groundwater flow is in a general south east direction (the same as the general lie of the land) and ground water level is likely to be about 35m above mean sea level (Source ECan Data Base).

From interpolated well level data presented by Peter Callander, Pattle Delamore Partners, at the discharge Consent Hearing for south west Christchurch, this could equate to 15m or so below ground level, however test bores carried out in May 2006 encountered water in two of four wells at about 4.5m below ground level.

Surface soil types are understood to be comprised of Waimakariri, Templeton and Eyre silt loams. These soils are generally free draining and Council's Waterways,

Wetlands and Drainage Guide categorises Waimakariri River silt loams as free draining with an ultimate infiltration of between 15-20mm/hour.

The site is underlain by river gravel and alluvium. Whilst no specific soil log information was provided in the earlier reports, from the report on subsurface infiltration testing, gravels are likely within 4m of the surface. Warner Mauger informed me that their limited earthworks over the site to date would suggest gravels very close to the surface in many areas.

Surface infiltration testing over the site by Pattle Delamore Partners Limited, in 2006, using double ring infiltrometers, suggests an average rate of 20 mm/hr surface infiltration could be expected, albeit with some variability. The 20mm/hr was concluded from a modified range of 13mm/hr to 40mm/hr test results (Memorandum Mark Hooker to Mark Pennington, 10 July 2006). The actual test results were modified down by 33% to allow for a known over estimation of 'actual' infiltration rates from double ring infiltrometer testing.

Infiltration testing in gravel strata below the surface concluded that in the northern portion of the site, vertical conductivity of 10m/day and horizontal conductivity of 150m/day could be assumed. In the southern portion of the site, vertical conductivity of 100m/day and horizontal conductivity of 150m/day could be assumed. For facility design purposes, these rates would be reduced by a factor of 3.

(I.e. North $K_V=3.3\text{m/day}$, $K_H=50\text{m/day}$, South $K_V=33\text{m/day}$, $K_H=50\text{m/day}$)
(Reference Memorandum Hillary Lough to Mark Pennington, 10 August 2006).

A significant natural drainage depression runs though the site which continues east of Kirk Road. This depression can be clearly seen from LiDAR contours for the site shown in Figure 1. This is likely a remnant of old Waimakariri River flood channels. Apparently, a portion of this depression has been used for a small wet pond in the past. The nearest surface waterway to the site is a water race, which runs along the north eastern side of Kirk Road, on the eastern boundary of the site. The water race flows toward Templeton.

According to the earlier Pattle Delamore Partners Limited reports, the site is underlain by unconfined or semi-confined aquifers (reference ECan's NRRP). The shallowest aquifer zone in the area is utilised by wells screened from depths of around 15-40m below ground level.

Two of the four bores on the site are 'active and existing' (M35/1032 and M35/1057). They are at depths of 61.9m and 60m below ground level respectively. Bore M35/1032 is reported as being used for fire fighting purposes, whereas bore M35/3157 is reported as being used for domestic supply. It is likely that this bore serves the existing buildings onsite with potable water. Abstraction bores within a 500m radius of the site are used for small scale public supply, domestic supply, irrigation and stock watering.

Proposed Disposal Scheme

There are no surface water channels currently draining the site. Historically stormwater has been put to ground with no known flooding or groundwater contamination issues. Further, the moderately free draining silts over gravels which are thought to be generally within 4 metres of ground level and the fact that depth to ground water is likely greater than 4 metres, all lend themselves to using stormwater

soakage to ground as the preferred stormwater management system for any further development of the site. This is consistent with the opinions formed by the technical experts who investigated and reviewed this issue as part of PC23. One of the issues with the PC23 proposal however, would appear to be Christchurch International Airport Ltd.'s (CIAL's) concern regarding large bodies of water attracting birds, and Council's desire to minimise the number of public facilities it will have to maintain and operate, i.e. fewer bigger basins was preferred, which in turn could be attractive to birds.

As such I am proposing a stormwater soakage scheme where all roof water is put directly to ground via private onsite soakage pits ('boulder holes'). All 'hardstanding' stormwater runoff (i.e. that which comes from roading, parking areas and hardstanding) would be retained within each new Business allotment created and put to ground via a combination of first flush basins and rapid soakage chambers. These facilities would be installed, maintained and operated by individual allotment owners in perpetuity.

A similar scheme has been operating successfully for almost 20 years now in 'Produce Park' off Halswell Junction Road. Separate first flush/rapid soakage facilities would be installed to provide for all areas, such as roads, that vest with Council. The relatively low site coverage proposed with PC66 means that there will be ample space within each new allotment for such a proposal.

To provide for extreme storm events or situations where on-site systems overflow, the soakage systems should be installed near public roadside boundaries or secondary overflow systems installed to allow conveyance to public roads. The public facilities should also be designed with additional capacity to manage overflow situations without being overwhelmed. It is recommended that additional capacity to manage runoff from up to 10% of the total allotment impervious area, along with the allowance required for public services, be provided. The private systems could easily be incorporated into any landscape frontage requirement for allotments.

Stormwater System Design Parameters and Typical Sizing for Allotments

All roof water shall be disposed of to ground via a sealed pipe system and a soakpit. Sizing for the soakpit shall be in accordance with the requirements of the "Compliance Document for the New Zealand Building Code, Clause E1 Surface Water". In addition to the Clause E1 requirements, no roof water should discharge from the allotment for any storm up to and including a 2% AEP event. All non roof stormwater from storm events (i.e. driveways, parking areas, etc.), up to and including a 2% AEP event, shall be retained on site and disposed of to ground via a first flush soil adsorption basin/swale sized to capture and dispose of the stormwater runoff from a minimum 25mm rainfall event. Rainfall runoff, 'post' the 25mm first flush volume shall be disposed of via a combination of detention and rapid soakage. For the 'hardstanding' stormwater management system a minimum detention volume, equivalent to the stormwater runoff from a 10% AEP 18 hour storm (85mm rainfall depth) shall be provided on site regardless of the rapid soakage capacity.

Sizing and configuration of the first flush soil absorption basin shall be in accordance with the requirements of Chapter 6 of the Council's "Waterways, Wetlands and Drainage Guide", excepting that first flush basin average operating depth shall not exceed 0.5m and all side slopes are to be no steeper than 1 horizontal to 6 vertical. A minimum separation distance of 5m shall be required to any private boundary.

Some form of primary treatment of runoff would be required upstream of the first flush basin bed to reduce premature “clogging” of the filter medium. Secondary overflow shall be to the nearest public road.

A typical sizing for an average allotment of say 5,000m² with site coverage for buildings of 20% and say 30% for hardstanding surfaces would be:

Roof Water

(Reference Clause E1 – ‘Surface Water’ of the Building Code, Section 9.0).

Adopting the infiltration rates determined by Pattle Dellamore Partners Limited for the northern half of the Templeton Site, factored by 3.

$K_V=3.3\text{m/day}$; $K_H=50\text{m/day}$.

The 10% AEP, 60 minute storm requirement of ‘Clause E1’ has rainfall depth of 20mm. Ignoring any vertical infiltration capacity the minimum surface area of any ‘boulder hole’, assuming no storage, and full roof run-off would be:

$$\begin{aligned}\text{Rainfall Volume} &= 5,000\text{m}^2 \times 0.2 \times 0.02\text{m} \\ &= 20\text{m}^3 \\ \text{Rainfall Runoff Rate} &= 20\text{m}^3/\text{hr} \\ \text{Infiltration Area} &= 20\text{m}^3/\text{hr}/\underline{50\text{m/hr}} \\ & \qquad \qquad \qquad 24 \\ &= 9.6\text{m}^2\end{aligned}$$

If this infiltration area was adopted for the side area of any soakage pit, a series of different storm durations for 2% AEP events would then be tested to determine the stormwater volume that would also need to be stored, to avoid any runoff offsite for storms up to a 2% AEP.

For this example and for a number of storm duration iterations (not presented in this report), a 2% AEP, 30 minute storm would prove critical for required storage volume and storage of about 10.5m³ would be required.

First Flush Volume

Adopting a 90% runoff coefficient and 30% site coverage:

$$\begin{aligned}\text{First Flush Volume} &= 5,000\text{m}^2 \times 0.3 \times 0.9 \times 0.25 \\ &= 34\text{m}^3\end{aligned}$$

Simplistically a first flush basin, assuming an average depth of 0.5m, could occupy between 90m² and 120m² dependant on configuration with a design infiltration rate of 20 mm/hr. Half metre deep first flush basins should be able to draw down within about 1 day following any storm at the design infiltration rate of 20 mm/hr. No more than 2 days draw down time however, should be permitted.

Minimum Detention Volume

A minimum storage volume sufficient to store the runoff of a 10% AEP, 18 hour storm, or rainfall depth of 85 mm, would be mandatory for each allotment.

$$\begin{aligned}\text{Vol}_{\text{min}} &= 0.085\text{m} \times 5,000 \times 0.9 \times 0.3 \\ &= 115\text{m}^3\end{aligned}$$

or 81m³ (i.e. 115 minus 34) over and above the first flush volume. Because rapid soakage to ground for post first flush rainfall runoff is permitted and thus drain down of ponded stormwater would be faster, the storage depth can be increased for detention storage basins, thereby reducing their footprint. An average depth of up to 1m would be acceptable. A 20m long trapezoidal channel with 1 horizontal to 6 vertical side slopes and just over 1m base width would provide the necessary detention volume required in this example. By testing a number of 2% AEP storm durations, the designer can determine the rapid infiltration chamber sizing to complement the total detention storage volume and avoid discharges from the allotment for storm events up to and including the 2% AEP standard.

Public Stormwater System

A system of shallow first flush basins, detention storage and rapid infiltration chambers shall be designed for all roading areas or paved public areas that will vest with Council. The network should minimise the total number of facilities. It should provide additional detention storage volume for 10% of the total estimated hardstanding stormwater runoff from allotments, to provide for any allotment overflows from time to time.

The existing dry waterway channel which cuts through the site should be protected by appropriate zoning to avoid any possibility that it be backfilled during development of the Block. This area could offer or enhance any detention storage or secondary overflow path for the public stormwater management system. Refer to Figure 2.

Stormwater Management System Sequencing with Subdivision of the Block

It would be impractical to undertake 'on-site' individual allotment stormwater works with subdivision of the Block. This requirement would be met at the time of building consents. Some preliminary investigation work should be carried out for each proposed allotment however, to confirm the feasibility of future soakage capacity.

A stormwater management system should be constructed and commissioned with the construction of future public road and hard standing areas. An estimate of the additional allotment overflow storage can be made at the time of these works, to size and construct this requirement within public land, even though no development of individual allotments will have taken place at the time of issuing a Section 224 Certificate.

Recommendations

- The geology and depth to groundwater of the former Templeton Site are suitable for a stormwater management system associated with redevelopment of the site, which relies entirely on soakage to ground.
- The preferred stormwater management system associated with any redevelopment would require all roof water to be put directly to ground via sealed pipework and soakage pits.

- The stormwater runoff from individual allotment hard standing and paved areas should be retained onsite and put to ground via first flushes soil adsorption basins and rapid soakage. A 2% AEP level of service should be required.
- Notwithstanding the first flush and rapid soakage requirements, a minimum volume of stormwater detention storage should be installed on each allotment to retain all hardstanding runoff for a 10% AEP design storm event of 18 hours duration (rainfall depth 85mm).
- First flush volume shall be the stormwater runoff volume from the first 25mm of rainfall depth of any storm and the average depth of first flush basins should not exceed 0.5m to ensure full drawdown following storms within 48hours.
- A separate soakage system of first flush basins, detention and rapid soakage should be provided at the time of subdivision for all public roads and public paved areas. Additional detention storage, equivalent to 10% of the estimated likely hardstanding stormwater runoff volume from private allotments, shall be provided in the public system to provide for possible occasional overflows from allotments. A 2% AEP level of service should be required.
- The existing dry waterway depression running through the site should be protected from any future earthworks and development by special zoning.
- Discharge consents should be obtained from Environment Canterbury by the Block's Developer prior to any subdivision approval.
- Consideration of the effects of the stormwater management system proposed on the area's surrounding wells should be made at the time of discharge consent application.
- Whilst the stormwater management scheme proposed should be identified on any Outline Development Plan, it should be described in a way for the zoning that allows full flexibility in the siting and sizing of the mix of public and private mitigation facilities when subdivision occurs.

**Rookwood Holdings Ltd & Christchurch
City Council**

Plan Change 66 - Templeton Hospital Site

Transportation Assessment Report

February 2012

Rookwood Holdings Ltd & Christchurch City Council

Plan Change 66 - Templeton Hospital Site

**Transportation Assessment Report
Quality Assurance Statement**

Prepared by:

Judith Makinson

Principal Transportation Engineer



Reviewed by:

Liam Ryan

Associate



Approved for Issue by:

Tony Penny

Director



Status: Final

Date: February 2012

PO Box 8615, Riccarton
Christchurch 8440
New Zealand

P: +64 3 348 3215

www.tdg.co.nz

Table of Contents

1.	Introduction	1
2.	Existing Transport Infrastructure	2
2.1	Site Location.....	2
2.2	Roading Network	2
2.3	Public Transport	7
2.4	Footpaths and Cycle Routes	7
3.	Current Travel Patterns.....	8
3.1	Traffic Volumes.....	8
3.2	Traffic Growth	8
3.3	Provision of Public Transport.....	9
3.4	Cyclists and Pedestrians	9
3.5	Road Safety.....	11
4.	Future Changes to Transport Network.....	14
5.	The Proposed Development	17
5.1	Existing Site Use	17
5.2	Permitted Use.....	17
5.3	Proposed Site Use.....	17
6.	Trip Generation and Distribution	19
6.1	Existing Site Generation	19
6.2	Potential Generation of Existing Zoning	19
6.3	CTM Generation	20
6.4	PC66 Traffic Generation.....	20
6.5	Traffic Distribution.....	21
7.	Capacity of the Transport Network.....	23
7.1	Site Accesses	23
7.2	Effects upon Roading Network	23
7.3	Road Safety.....	24
7.4	Buses, Cyclists and Pedestrians	24
8.	Strategic Policy Considerations	26
8.1	Regional Policy Statement	26
8.2	Regional Land Transport Strategy.....	27
9.	Compliance with City Plan Requirements	29
9.1	Rules	29
9.2	Objectives.....	29
10.	Conclusions	31

1. Introduction

Christchurch City Council in association with Rookwood Holdings Ltd is proposing to rezone the former Templeton Hospital site on Kirk Road, Templeton. The site is located within the area of the noise contours influenced by the flight-path for Christchurch International Airport, which makes general forms of residential development not suitable. The intent would be to develop the site for business activities supportive of the surrounding rural area. There are, however, a number of substantial buildings that are to be retained on the site to be used for educational and institutional purposes. Efficient use of these resources would require new activities that could be easily adapted to the available facilities within this area.

This Transport Assessment Report (TAR) assesses the potential traffic effects of the proposed Plan Change 66 on connections to the surrounding road network, and compliance with the relevant transportation policies and rules within the Christchurch City Plan.

The TAR considers the implications of travel to and from the proposed development on the adjacent transport network, and demonstrates how potential adverse effects can be mitigated. Whilst the TAR includes assessment of travel by private motor vehicle, it also recognises the importance of other forms of transport. Consequently, consideration is also given to public transport, walking and cycling.

2. Existing Transport Infrastructure

2.1 Site Location

The Plan Change site is located to the northwest of the Kirk Road / Maddisons Road intersection which is to the north of the Templeton township as illustrated in **Figure 1**. The site of approximately 66 hectares has its major road frontage along Kirk Road between the intersections with Maddisons Road and Newtons Road. The other activities within this block are the Brackenridge Estate on the Maddisons Road corner, the Westmount School and Waitaha Learning Centre near the northern boundary of the site, rural land between the northern boundary of the site to Newtons Road and the Nova Trust site in Newtons Road.

The plan change site has a depth from the Kirk Road frontage of approximately 500m with an extension to the west in the northern part of the site. The site is currently zoned Special Purpose (Hospital) with an underlying Rural 2 zone, as shown in **Figure 2**.

The land in the vicinity of the site zoned Rural 2 extends to the south of Maddisons Road and in the west to the boundary with Selwyn District Council approximately 1 km away. Land owned by the Corrections Department for prison purposes is located to the north across Newtons Road and to the east across Kirk Road.

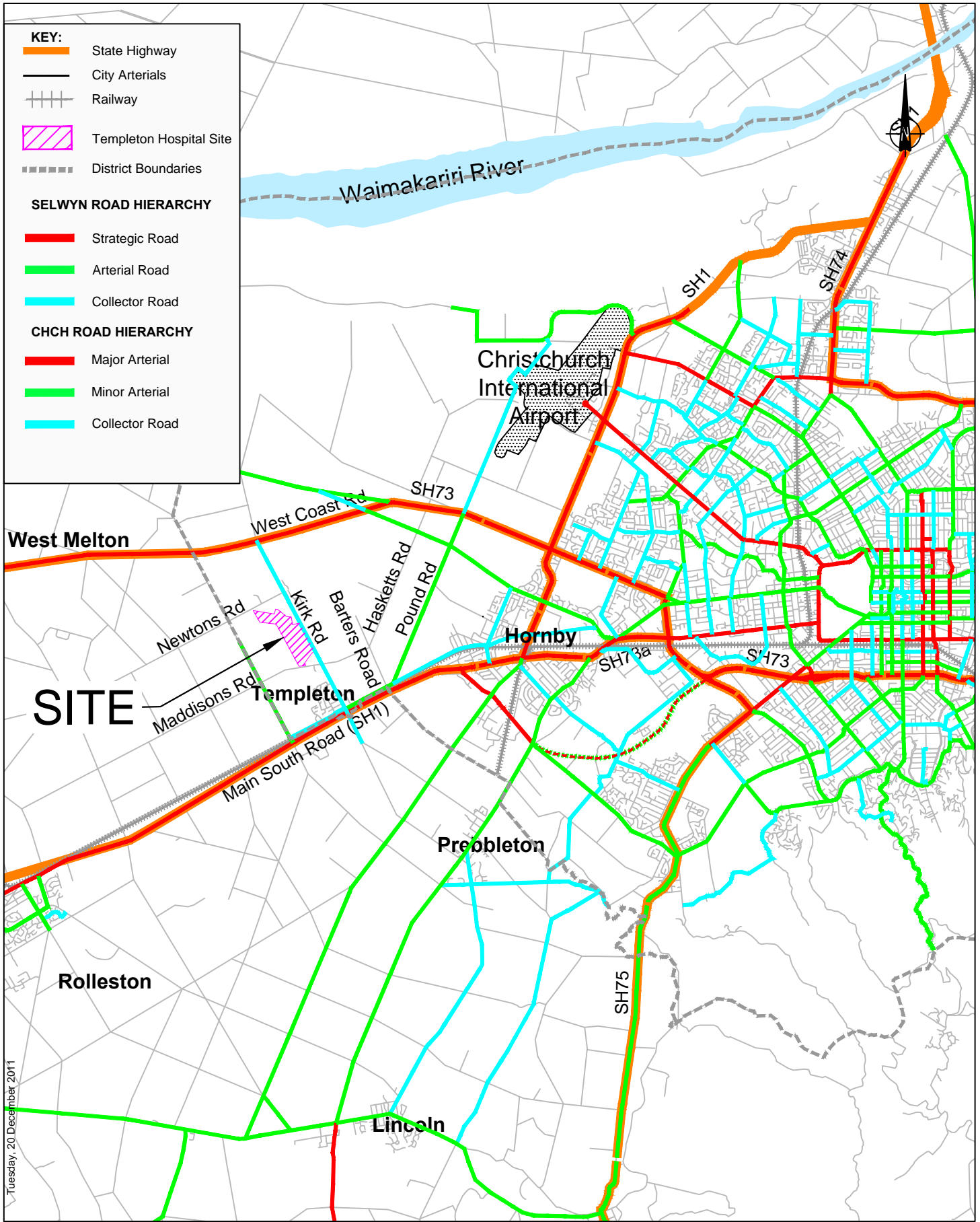
The site lies outside the Urban Limit described in Chapter 12A of the Regional Policy Statement (RPS). However, in the decision on Proposed Change 1 (PC1) the commissioners accepted that remediation / restoration of brownfield sites lying outside the Urban Limits should not be precluded in limited “genuine” situations (paragraph 487). To that end, specific mention was made of the Templeton Hospital site (paragraphs 481 to 485) in the decision, where it was noted that the site posed some unique challenges, both in terms of potential future use but also in that urban limits are designed to manage new greenfield development rather than development associated with remediation / restoration (paragraph 485). As a result, the Commissioners considered that there may be the potential for site-specific solutions in this location that involved some level of urban activity despite the site being outside the urban limits (paragraphs 484 and 485).

2.2 Roading Network

Figure 1 shows the location of the Plan Change site together with the roading hierarchy defined in the Christchurch City Plan. Main South Road (SH1) to the south of the site and West Coast Road (SH73) to the north of the site are defined as major arterial roads connecting Christchurch with other centres to the south and west. Both of these roads are under the control of New Zealand Transport Agency (NZTA) as road controlling authority for state highways. All other roads, unless otherwise stated are under the control of Christchurch City Council (CCC) as roading authority.

Kirk Road runs generally southeast-northwest and connects with both SH1 and SH73. It is defined as a collector road in the Christchurch City Plan with the function of distributing traffic from arterial routes. It also forms the main street within the urban area of Templeton.

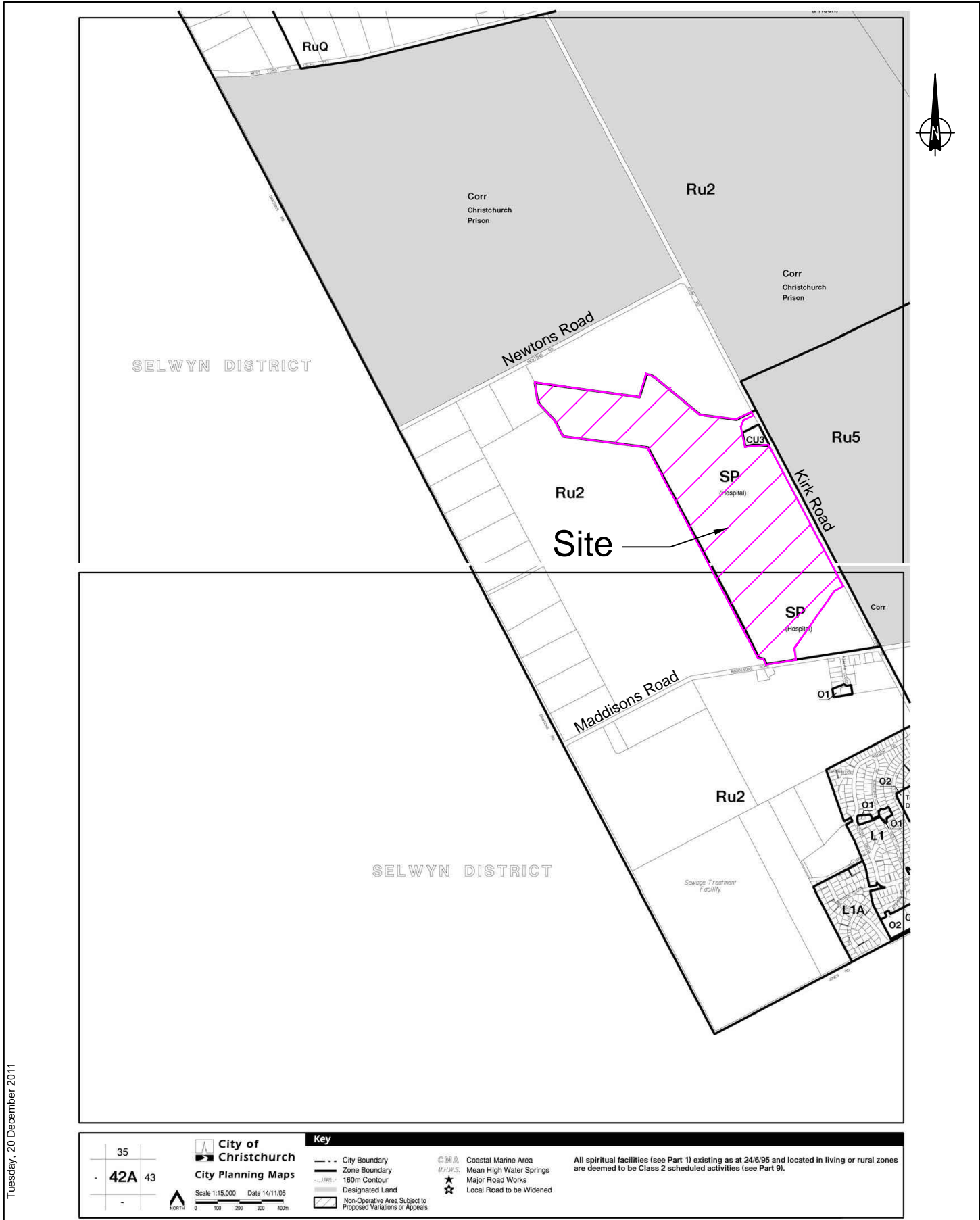
Kirk Road forms a priority cross-roads intersection with SH1, with Kirk Road being ‘stop’ sign controlled. Right turn lanes are provided on SH1 together with deceleration lanes for left turning vehicles from SH1. At this location, SH1 is subject to a 70kph speed limit. The South Island main trunk railway line runs parallel to SH1 in this area, crossing Kirk Road some 15m to the north of the intersection with SH1. This is a level crossing controlled by lights.



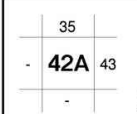
Tuesday, 20 December 2011

Templeton Hospital Plan Change 66
 Strategic Location and Road Hierarchy





Tuesday, 20 December 2011



City of Christchurch
City Planning Maps
Scale 1:15,000 Date 14/11/05

Key	
	City Boundary
	Zone Boundary
	160m Contour
	Designated Land
	Non-Operative Area Subject to Proposed Variations or Appeals
	Local Road to be Widened

All spiritual facilities (see Part 1) existing as at 24/6/95 and located in living or rural zones are deemed to be Class 2 scheduled activities (see Part 9).

Templeton Hospital Plan Change 66

City Plan Zoning Map



2
SCALE: N.T.S



Photograph 1: Kirk Road / SH1 Intersection and level crossing

Kirk Road is subject to a 50kph speed limit immediately to the north of the level crossing and throughout the settlement area of Templeton. Within Templeton, Kirk Road has a carriageway that is approximately 13.5m wide, providing sufficient space for two traffic lanes and parking on both sides of the road. A centre line is painted and there are footpaths on both sides of the carriageway. Once outside Templeton, Kirk Road is generally rural in character and has two 3.5m wide traffic lanes with 0.5m sealed shoulders, grass berms to each side and is subject to a speed limit of 100kph.



Photograph 2: Kirk Road in vicinity of site

Waterloo Road runs parallel to SH1 and meets Kirk Road at a priority controlled staggered intersection with Railway Terrace some 15m north of the level crossing. Waterloo Road is classified as a collector road and has a speed limit of 50kph within the Templeton urban area. It has two 3.5m wide traffic lanes, a footpath along the northern side of the carriageway between

Kirk Road and the settlement limits, a painted centre line and grass verges once outside the settlement.

Maddisons Road is defined as a local road under the Christchurch City Plan and meets Kirk Road at a “Stop” sign controlled cross roads intersection that has offset central islands on the side roads to ensure drivers do see the intersection. Maddisons Road is subject to a 100kph speed limit and is generally constructed with a 5.5m - 6m wide seal and painted centre line with gravel shoulders and no footpath.



Photograph 3: Maddisons Road at Maddisons Road / Kirk Road intersection

To the north of the site, Kirk Road meets SH73 at a priority cross roads intersection that has recently been upgraded. SH73 has a right turn lane and a left turn deceleration taper to facilitate safe turning manoeuvres at this intersection. SH73 is subject to a 100kph speed limit in this area.



Photograph 4: SH73 / Kirk Road intersection

Barbers Road runs parallel and to the east of Kirk Road. It is defined under the Christchurch City Plan as being a local road and is subject to a speed limit of 80kph. It is generally 6m wide with a painted centreline and gravel shoulders. It meets Waterloo Road at a “Stop” sign controlled cross roads intersection with Barbers Road maintaining priority, before crossing the railway line at a signal controlled level crossing and intersecting with SH1 at a cross-roads intersection. This intersection has a similar configuration to that at Kirk Road / SH1 described earlier.

2.3 Public Transport

A pair of bus stops is provided on Kirk Road 85m and 125m north of SH1. The southbound stops include a shelter and painted bus layby while the northbound stop having no associated facilities.

Additional pairs of bus stops with no specific facilities are located immediately to the north of the Maddisons Road / Kirk Road intersection. There are also bus stops with no facilities on either side of Kirk Road opposite the existing entry locations approximately 750m and 1200m to the north of the Maddisons Road intersection.

A pair of bus stops is also provided on Waterloo Road, close to the intersection with Barbers Road.

Details of current bus services and use of stops is provided in Section 3.3.

2.4 Footpaths and Cycle Routes

There is no specific cyclist provision in the area, either in the immediate vicinity of the site or in the wider area. In the immediate vicinity of the site, the road shoulders are of insufficient width to encourage their use as cycle lanes. This is also the case for the remaining local roads described above. Shoulder widths on SH1 and SH73 are however considered suitable for cycle usage.

There are footpaths on both sides of most roads in Templeton. On the local road network outside the settlement there are no footpaths, as described earlier, with pedestrians being required to use either the carriageway shoulders or the berms. A single footpath is provided along the west side of Kirk Road linking the site to Templeton. Between Templeton and Maddisons Road, this footpath is of reasonable quality but no cut outs are provided in the traffic island at Maddisons Road to aid pedestrians. To the north of Maddisons Road, the footpath is in a poor state of repair.

3. Current Travel Patterns

3.1 Traffic Volumes

Table 1 shows the latest available traffic volumes on the roading links surrounding the site.

Road	Location	ADT (vpd)	Year
West Coast Road (SH73)	East of Dawsons Road	7,200	2010
Main South Road (SH1)	East of Templeton	22,300	2010
Main South Road (SH1)	West of Templeton	20,000	2010
Kirk Road	North of Main South Road	5,600	2009
Kirk Road	South of West Coast Road	2,800	2008
Pound Road	North of Waterloo Road	4,800	2010
Barters Road	North of Waterloo Road	1,300	2008

Table 1: Average Daily Traffic Volumes in vicinity of site

The volumes show the dominance of the SH1 arterial route. The increase in volume on SH1 from 20,000 vehicles per day (vpd) to the west of Templeton to 22,300 vpd to the east indicates the contribution made by journeys between Templeton and Christchurch.

Kirk Road has an average daily traffic volume of 5,600 vpd crossing the railway line north of Main South Road. This volume reflects the traffic generated by the Templeton Township that has destinations other than within Christchurch.

The traffic count on Kirk Road immediately to the south of West Coast Road was 2,800 vpd. This volume would be representative of the volume on the part of Kirk Road adjacent to the proposed plan change site. The weekday (5 day) average flows are similar to those over seven days, indicating little commuter traffic currently uses the northern section of Kirk Road.

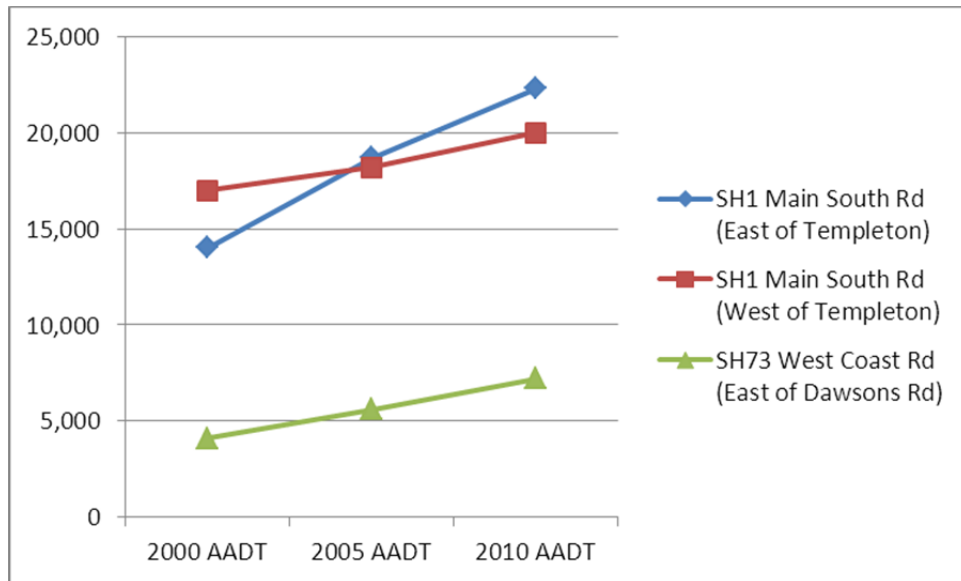
3.2 Traffic Growth

In terms of traffic growth on the state highway network, the two-way Annual Average Daily Traffic volumes for the past 10 year period have been considered as shown in Table 2 and illustrated in Graph 1:

Road	Location	2000 AADT (vpd)	2005 AADT (VPD)	2010 AADT (vpd)	Annual traffic growth (5 year)	Annual traffic growth (10 year)
Main South Road (SH1)	East of Templeton	14,000	18,700	22,300	6.7%	5.9%
Main South Road (SH1)	West of Templeton	17,000	18,200	20,000	1.4%	1.8%
West Coast Road (SH73)	East of Dawsons Road	4,100	5,600	7,200	7.3%	7.6%

Table 2: State Highway Average Daily Traffic Growth in Vicinity of Site

It can be seen that traffic volumes on SH1 east of Templeton have been increasing rapidly in recent years and have increased more than traffic on SH1 west of Templeton. Traffic volumes on SH73 have also been increasing at a consistently rapid rate.



Graph 1: Average Daily Traffic Volumes in vicinity of site

It is expected that the completion of Stage 1 of the Christchurch Southern Motorway extension (CSM1) in 2013 will result in a minor reduction in traffic growth on SH1 through Templeton as traffic is diverted to alternative routes using Springs Road and Shands Road. However, SH1 will continue to exhibit general growth in traffic. The major influence on the PC66 site access will occur with the completion of the Southern Motorway extension (CSM2) which will significantly reduce traffic volumes on the section of SH1 intersecting with Kirk Road that provides the primary access. In the interim it is expected that the proposed new SH1 / Pound Road signalised intersection will improve access by providing alternative access routes via Barbers Road—Maddisons Road or Waterloo Road—Kirk Road and by creating gaps in SH1 traffic that will reduce delays at the SH1 / Kirk Road intersection.

3.3 Provision of Public Transport

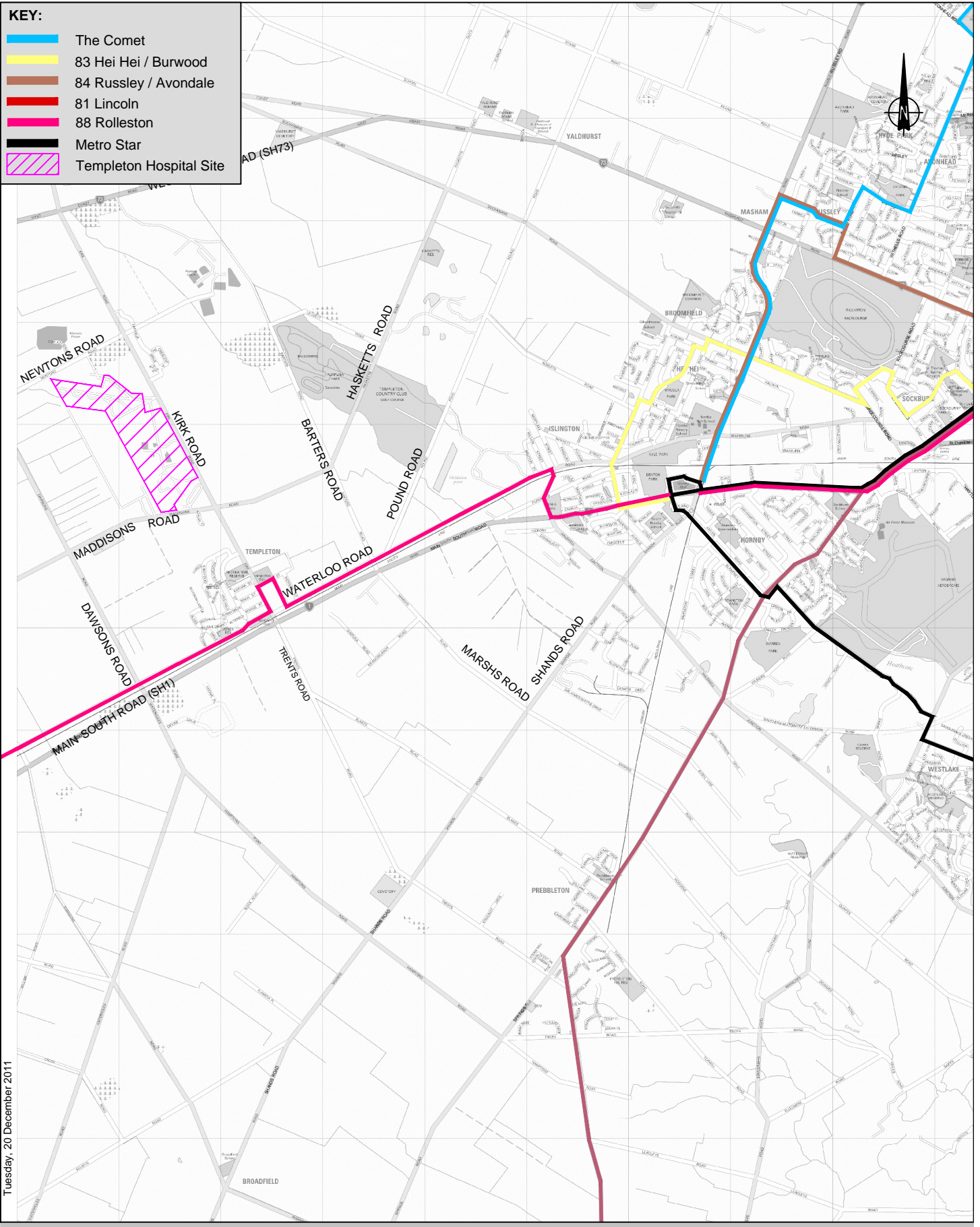
Only one bus service operates in the Templeton area. The published route for Route 88 that connects Christchurch City and Rolleston is described as calling at Central Station (currently the temporary facilities), Christchurch Hospital, Westfield Mall (Riccarton), Church Corner, The Hub (Hornby) and Templeton en route to Rolleston as shown in **Figure 3**. This service uses the bus stops on Waterloo Road and those at the south end of Kirk Road. It generally operates on a 30 minute frequency from around 7am – 7pm and hourly thereafter, Monday to Saturday, with services ceasing to operate at around 9.30pm on weekdays and 10.30pm on Saturdays. On Sunday, the service operates hourly from around 9am to 8pm.

The other bus stops on Kirk Road were used previously when Templeton Hospital was open and a bus service was run along Kirk Road, extending to the adjacent prisons.

3.4 Cyclists and Pedestrians

The existing level of service for pedestrians and cyclists in the area is typical for rural roads and the state highway network. Informal observations have indicated that the volumes of pedestrians and cyclists are currently not significant along Kirk Road or the rest of the roading network described earlier.

- KEY:**
- The Comet
 - 83 Hei Hei / Burwood
 - 84 Russley / Avondale
 - 81 Lincoln
 - 88 Rolleston
 - Metro Star
 - Templeton Hospital Site



Tuesday, 20 December 2011

Templeton Hospital Plan Change 66

Existing Bus Routes

Traffic Design Group



3

SCALE: 1:50,000

The recommended walking catchment of 800m and the 2km maximum walking catchment are shown on **Figure 4**, together with the 'crow fly' cycle catchment of 5km. These show that there is minimal potential for people to walk to the Plan Change site, with the only urban area within the maximum walking distance being Templeton which is mostly outside the convenient walkable catchment.

There is more potential for cycling to the site with the catchment covering all of Templeton and some of the western fringe of the main Christchurch urban area.

3.5 Road Safety

A search of the NZTA's Crash Analysis System (CAS), over the six year period from 2006 to 2011 inclusive, has shown a relatively good safety record for the intersections of the local roads in the vicinity of the site. However the intersections on the State Highways have been less satisfactory, reflecting the traffic volumes and the delays at SH1 intersections.

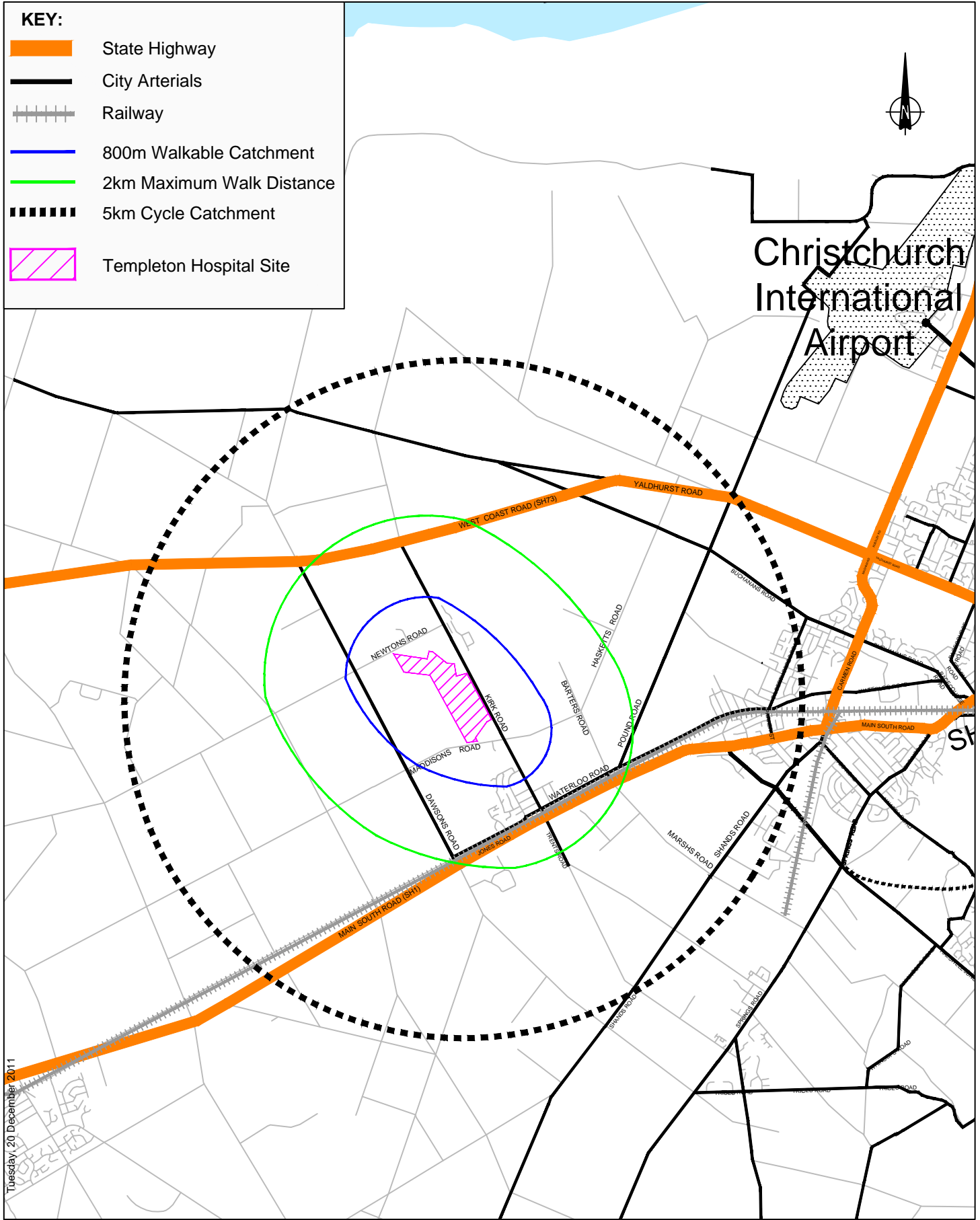
The reported accident history of the local intersections and the adjacent SH intersections are summarised as follows:

Intersection	Injury Accidents	Persons Injured			Non-Injury Accidents	Total Accidents
		Fatal	Serious	Minor		
SH73 / Kirk Road	6	0	1	10	1	7
Kirk Road / Newtons Road	1	0	0	2	0	1
Kirk Road / Maddisons Road	2	0	0	3	2	4
Kirk Road / Railway Tce – Waterloo Rd	0	0	0	0	2	2
SH1 / Kirk Road	7	0	0	14	6	13
Barbers Road / Maddisons Road	1	0	0	2	5	6
Barbers Road / Waterloo Road	4	0	0	5	5	9
Dawsons Road / Jones Road	3	0	1	2	2	5
Barbers Road / SH1	7	0	1	5	7	14

Table 3: Intersection Accident History (2006 - 2011)

At the intersections on Kirk Road either side of the plan change site there were only three injury accidents reported over this period. There was only one accident at the Newtons Road intersection and four at the Maddisons Road intersection, of which two included injuries. The factors recorded as contributing to the accidents included failure to give way at the stop signs and vehicles overtaking right turning vehicles through the intersection.

There were two recorded non-injury accidents at the intersections with Kirk Road through the Templeton Township area from Bailey Street to Waterloo Road, both of these were loss of control accidents and occurred at the Waterloo Road intersection.



Templeton Hospital Plan Change 66
Walking and Cycling Catchments

The intersection of Kirk Road with SH1, which provides the most direct access to and from the PC66 site from Main South Road, had 13 accidents (seven injury and six non-injury) over this period. Two accidents resulted from motorists crossing SH1 from the south with four accidents involving motorists crossing SH1 from the north. There were also rear ending and loss of control accidents. All of the recorded crashes occurred between 2006 and 2009.

The intersections on Barters Road with Maddisons Road and Waterloo Road had fifteen accidents (five injury and ten non-injury). The accidents at Maddisons Road all involved loss of control with the acute angle of Hasketts Road possibly contributing to this. Failure to give way was involved in all the accidents at Waterloo Road.

The intersection of Barters Road with SH1 had 14 accidents (seven injury and seven non-injury) over this period. Again, the significant factor in 10 of the accidents involved motorists crossing both directions of SH1 traffic. Three of these accidents involved the right turn out of Barters Road, four were right turn out of Marshs Road and three were south bound straight through from Barters Road.

There were six injury accidents at the intersection of Kirk Road and SH73. However four of these occurred before the intersection was upgraded in 2009. Only one non-injury accident has been recorded subsequently.

Accordingly the intersections that remain a concern are the SH1 intersections with Kirk Road and Barters Road. The Waterloo Road / Barters Road intersection is also of concern, and with the adjacent SH1 intersection, has been part of the reason for the recent study of improvement options that has led to the identification of a preferred scheme that involves replacing the Barters Road railway crossing with a new crossing that will enable Pound Road to be linked directly into SH1 at a new traffic signal controlled intersection.

There have been no accidents associated with the operation of the railway crossing on Kirk Road or Barters Road in the recent six year period.

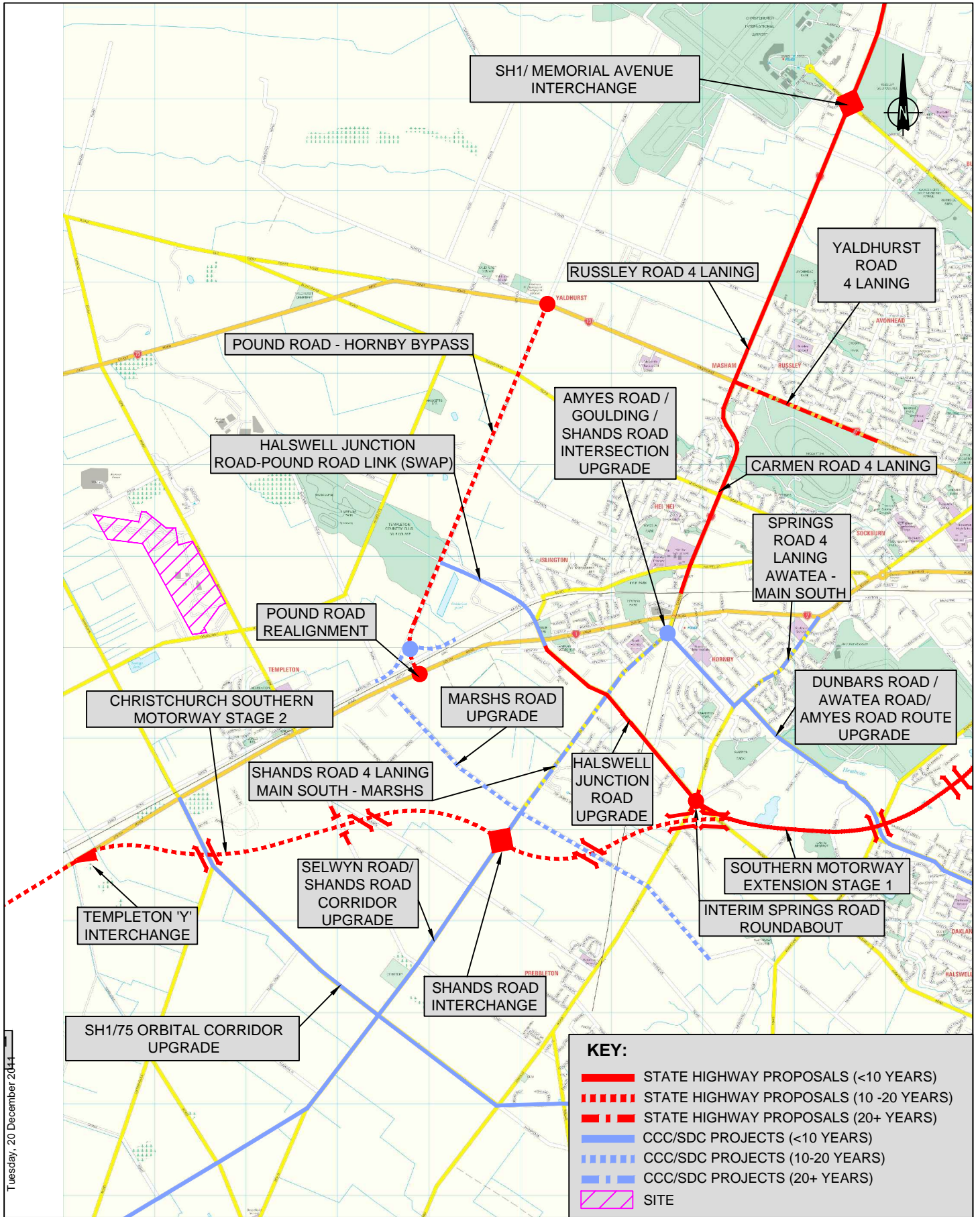
4. Future Changes to Transport Network

A major transportation study known as CRETS was undertaken and completed in 2007 for NZTA, Selwyn District Council, Christchurch City Council, Environment Canterbury and Christchurch International Airport Limited. CRETS developed a strategy intended to meet the requirements of the transportation network necessary to support projected land use activities in the southwest and the west of Christchurch to the year 2021.

There were a number of primary recommendations of the strategy that have been adopted and will affect transport networks in the vicinity of the plan change site. **Figure 5** shows these transport projects and others proposed by NZTA, Christchurch City Council and Selwyn District Council. In brief:

- The Christchurch Southern Motorway (CSM) Stage 1 involves widening of the existing Southern Motorway to four lanes and extension of the motorway from Curletts Road to Springs Road. Construction of this project has started and is expected to be completed by 2013.
- In addition to Stage 1, it is proposed to construct a subsequent extension of the motorway from Springs Road through to SH1 south of Templeton (Stage 2). A further stage includes widening SH1 to four lanes from Rolleston to the CSM Stage 2 connection. It is understood that the earliest commencement date for CSM Stage 2 is 2015.
- The upgrading of Halswell Junction Road between SH1 and Springs Road is proposed as an interim link between SH1 and the CSM Stage 1 terminus. The intersection of Halswell Junction Road and SH1 has been upgraded to traffic signals as an early stage of the overall upgrade. Similar upgrading is currently being implemented at the Shands Road / Halswell Junction Road intersection with the replacement of the roundabout with traffic signals.
- The upgrading of the Pound Road bypass between Main South Road (SH1) and West Coast Road (SH73) is also proposed. The intersection of Pound Road and SH73 has recently been upgraded to a roundabout. The CRETS study proposed that the National Arterial (SH1) route between Russley Road and Main South Road be provided by the Yaldhurst Road/Pound Road route, with this replacing the current route formed by Carmen Road and Main South Road through Hornby.
- As part of this bypass strategy, upgrades of the SH1 / Barters Road intersection have recently been investigated with an alternative route involving a possible deviation of Pound Road to link directly with SH1 identified as the preferred option. This would involve the closure of Barters Road railway crossing and a new crossing for Pound Road linking to a new signalised intersection with SH1. It is also proposed that Waterloo Road will be realigned so that the Pound Road / Waterloo Road intersection is separated as far as possible from the new railway crossing and the intersection with SH1. The SH1 / Pound Road / Barters Road upgrade was indicated as a medium term (2021) project in CRETS but it is now proposed by NZTA that this is brought forward.

The National Land Transport Programme 2009-2012 (NLTP) outlines the allocation of funding for projects taking account of regional priorities from the Regional Land Transport Programme 2009-2012. In addition to prioritising the regional projects for funding, the NLTP outlines the Government's identification of Roads of National Significance which include several major projects that will affect traffic patterns associated with the proposed plan change site.



Tuesday, 20 December 2011

Templeton Hospital Plan Change 66
 Future Roding Projects



Of particular importance within the Roads of National Significance category is the identification of the upgrading of the western corridor (four-laning of the Russley Road-Masham Road-Carmen Road route), and the CSM extension to SH1 west of Templeton. NZTA anticipates that these projects will receive a priority status for investigation, design and construction. In addition to these Roads of National Significance, the NZTA projects include the upgrading of the Main South Road / Barbers Road intersection.

5. The Proposed Development

5.1 Existing Site Use

The previous use of the site for hospital purposes would have generated significant traffic volumes with over 600 staff employed at the hospital complex. This use has been discontinued and the site is largely disused at present.

The Templeton Hospital previously had three access points on Kirk Road which are still in place but it is noted that the southern access is fenced off. The three accesses are located approximately 350m, 750m and 1,200m respectively north of the Maddisons Road intersection. The first two of these have driveways that are about 6 metres wide while the northern access is only about 5 metres wide. These entrances are linked by an internal circulation road and most of the existing buildings are located along this road.

There are two other driveways on Kirk Road south of the northern access to the PC66 site. The driveway to Westmount School is immediately adjacent to the northern access and separated by a post and chain fence and partially by a kerb. This driveway does not currently connect to the internal roads in the PC66 site. The other driveway is some 100m to the south and provides access to the Waitaha Learning Centre. Again it does not link to the internal road network of the PC66 site.

The access to the Brackenridge Estate on Maddisons Road is controlled by a security gate and the internal road network for the estate no longer connects to the PC66 site.

The present use of the PC66 site involves a very low level of activity as all the accesses along Kirk Road have been observed to be only generating around 20 vehicle movements per hour (vph) during the weekday PM peak hour.

5.2 Permitted Use

Under the existing Special Purpose (Hospital) zoning, the site has the potential to generate a much greater number of vehicle movements, even more than when the previous Templeton Hospital was operating.

In order to identify the difference in traffic generation between currently permitted land uses and development that could be constructed under the proposed plan change, the following scenarios have been considered for the existing zone:

- A large hospital of 49,500 sqm GFA;
- A health related complex including a psychiatric hospital, retirement home and various support services;
- A private hospital in the nature of St George's Hospital in Merivale.; or
- Rural recreational use including golf course, sports field and winery Proposed Use

5.3 Proposed Site Use

It is proposed that the approximately 66 hectare site would be used for a combination of educational and institutional uses, strategic infrastructure and depots, rural activity, and for low-density rural business activity which supports surrounding rural activities. The proposed

Templeton Special Rural Zone is a response to the cessation of the use of Templeton Hospital, and the need to rehabilitate the site and make use of the existing assets. The zone provides for activities at a low building density and in a manner which seeks to maintain the rural character and amenity of the area.

The zone is split into three precincts and is intended to be a low density, high amenity area for rural service and business activities, as shown on the plan in Appendix 6 (attached). Activities will be those that support rural land-uses, and those associated with strategic infrastructure. Anticipated land uses might include plant for processing agricultural or horticultural produce, farm machinery sales or hire, rural contracting business, warehousing of rural produce or supplies, strategic infrastructure and depots, sand and gravel sales, light engineering and mechanical repairs, and similar uses.

The anticipated site make up is as follows:

- RB1 - 39ha occupying the south and west of the site, fronting both Kirk Road and Maddisons Road, e.g. rural industrial uses such as produce processing, farm machinery sales, rural contracting, produce warehousing, sand and gravel sales, mechanical repairs, light engineering
- RB2 - 16ha occupying the north of the site, e.g. driver training, equestrian activities, animal boarding and rescue, small scale horticulture, landscape supplies, renewable energy generation, strategic infrastructure depot.
- Community Facilities - 11ha occupying the east of site and fronting onto Kirk Road, e.g. school, gym, swimming pool, dairy / café to service the site, farmers market

The outline development plan (ODP) provided shows indicative locations of access points and the internal roading layout, which do not relate to the existing facilities other than for the northern access on Kirk Road. However, it is understood that the aim is to reuse as much of the existing infrastructure as is feasible. This would include the existing internal roads and the existing central access on Kirk Road which would provide separate access to the community facilities. It is also expected that there would be a connection to the community facilities area from the internal road network.

It would be logical to relocate the southern access on Kirk Road to the north as indicated to improve potential development site layouts. The new access indicated for Maddisons Road would also appear sensible for providing convenient access to/from the southwest.

6. Trip Generation and Distribution

6.1 Existing Site Generation

The site currently operates with very low levels of traffic during the weekday PM peak hour with less than 20 vehicle movements being observed (in total). This reflects the current low activity levels on site subsequent to the closure of the hospital.

6.2 Potential Generation of Existing Zoning

The traffic generated by the discontinued hospital use on the site is not known as traffic survey information on previous hospital traffic levels is not available. However with over 600 staff employed at the hospital complex, the movements of employees, visitors and vehicles involved in service activities are estimated to have generated between 3,000 and 4,000 vehicle movements each day to / from the area.

As discussed above, consideration has also been given to the volume of traffic the site could reasonably be expected to generate if a new facility were established under the current zoning i.e. Special Purpose (Hospital) Zone, for new “health facilities” (such as a large scale hospital or a cluster of several independent health facilities). Based on the under-lying rural zoning, the maximum potential traffic generation of rural recreational uses were also considered, including a golf course, sports field and winery. However this potential generation is less than with the hospital scenarios.

The weekday evening peak hour and daily trip generation rates and resultant generated traffic volumes for the four scenarios considered above are presented in Table 4.

Scenario	Activity	Size	Trip Generation Rates		Total Traffic	
			PM Peak	Daily Trip Rate	PM Peak (vph)	Daily (vpd)
1	Public Hospital	66ha	2.4 trips/100sqm GFA	16.8 trips/100sqm GFA	1,180	8,310
2	Health Related Retirement Home	60ha	0.8 trips/100GFA	7 trips/100GFA	800	6,300
	Psychiatric Hospital	2ha	1.4 trips/100GFA	14 trips/100GFA		
	Support Services	4ha	5-9 trips/100GFA	20-90trips/100GFA		
3	Private Hospital	-	-	-	870	6,100
4	Rural / Recreation	23ha	2-20 trips/ha	20-200 trips/ha	500	3,150
	Golf Course / Range					
	Sports Fields	13ha	3-5 trips/ha	10-30 trips/ha		
	Winery	30ha	1.4 trips/ha	14 trips/ha		

Table 4: Traffic Generation Rates of Alternative Permitted Development Options

This shows that under the current zoning, the site has the potential to generate high volumes of traffic, up to a maximum of 8,300 vpd or 1180 vph in the evening peak, if a large public hospital were established. A smaller private hospital or a cluster of medical facilities would be a more likely use, with approximately 6,000 vpd representing the basis of comparison against which the traffic potentially generated by the proposed plan change zoning should be considered.

6.3 CTM Generation

The Christchurch Transportation Model, (CTM) includes land use forecasts based on the Urban Development Strategy and those are provided for a large zone (No. 233) that includes the PC66 site. For this exercise this PC66 area has been split into a separate zone (No. 473) using proportions calculated from meshblock land use data available from the 2006 Census. The future traffic generation for the PC66 zone in the CTM is estimated to be some 1,700 vpd in 2016 and 1,850 vpd in 2026. This is referred to as the “base development” scenario.

6.4 PC66 Traffic Generation

In order to quantify the external traffic effects of the proposed plan change, it is necessary to assess the scale and intensity of the traffic movements expected to be entering and leaving the site. In this regard the standard transportation engineering approach that has been adopted is based on estimates of the traffic generation potential per site area of developed land for different types of land use activity. Account must be taken of the actual site (or net) area which will be available for development in future.

There is extensive infrastructure already present on the site in terms of a road network, areas of significant planting and facilities such as the gym and swimming pool in the community facilities zone, together with additional facilities such as a sports ground, lawn bowls green, and tennis courts.

It is considered that only 50% of the overall site area i.e. 33ha, would be available for development due to the retention of planting, on-site facilities, roading network, stormwater retention ponds etc. This also takes account of the 11ha of Community Facilities which includes existing and retained facilities such as the gym and swimming pool. The area for Community Facilities is focused on ancillary services for the site and few additional trips external to the site are expected to be generated from this area. Accordingly traffic generation levels of ‘external’ usage have been based on 33ha and no further account has been taken of the Community Facilities in traffic generation terms.

For the RB1 and RB2 uses, there is limited data available within the most commonly used sources of trip generation data, namely the TDB Database, RTA and ITE. Traffic generation data from nearby low density industrial development at Produce Park and other low density industrial developments have therefore been used to identify traffic generation associated with the proposed PC66 site.

The Produce Park site has a density of 35% coverage in total and is occupied by warehousing (73%), offices (3%), manufacturing (17%) and personal storage (7%). This is considered to offer a reasonable representation of the proposed development of the PC66 site and the associated trip rate of 0.1 vehicles per hour (vph) / 100sqm developed site area has been adopted. This trip generation rate relates to a development with a higher density than proposed at the PC66 site and accordingly the actual trip rate that would occur at the new zone would be expected to be lower. However, a conservative approach has been taken in calculating traffic generation and no account has therefore been taken of comparative development densities.

With the 33ha developable area in zones RB1 and RB2 generating traffic at a peak hour trip rate of 0.1vph/100sqm developable area gives rise to a peak hour generation of 330 vehicle movements per hour at the site. Typically, peak hour traffic relates to approximately 10% of daily traffic volumes, leading to an estimated daily traffic generation of 3,300 vehicles. Comparing this to the likely level of traffic generation of Templeton Hospital when operational shows that the level

of activity is similar. It is higher than the traffic generation for the PC66 site included in the CTM model (1,850 vpd). However it is much lower than could be potentially generated by development that is consistent with the existing zoning (6,000vpd).

In the assessment of traffic effects, the AM peak hour has not been analysed in detail as the traffic volumes are similar to those in the PM peak but background flows are 3% lower therefore the worst combination of existing and future traffic flows is expected during the weekday PM peak hour.

6.5 Traffic Distribution

The distribution of traffic generated by the proposed Plan Change 66 site has been considered using the Christchurch Transport Model (CTM) for the following scenarios:

- background traffic growth to 2016 with committed road network improvements (including CSM Stage 1 and a traffic signal upgrade to the Barbers Road / SH1 intersection) and 50% of the proposed plan change site development completed;
- background traffic growth to 2026 with the road network after completion of the CSM (Stages 2 and 3) and 100% of the PC66 development.

The traffic volumes during the PM peak hours for these scenarios are compared below in Table 5 for 2016 and 2026 with the CTM base development scenarios because the future road network was planned on the basis of these demands. It is noted that the 'base development' modelled scenarios, including the site activity levels predicted for the CTM, have very similar levels of traffic activity as those associated with the development that would be enabled by proposed PC66.

Location	2008 Traffic Volumes	2016		2026	
		Committed Road Network, Including CSM Stage 1		Proposed Road Network Including Full CSM	
		Base Development	50% PC66 Development	Base Development	100% PC66 Development
West Coast Road (SH73 east of Dawsons Road)	684	1,110	1,110	1,280	1,290
Kirk Road (South of Maddisons Road)	550	635	630	820	840
Kirk Road (North of Maddisons Road)	226	350	350	365	375
Maddisons Road (East of Kirk Road)	100	200	205	20	85
Maddisons Road (west of Kirk Road)	100	100	110	100	125
Dawsons Road	230	240	250	310	330
Main South Road (SH1 east of Templeton)	1,960	2,540	2,550	1,510	1,530
Main South Road (SH1 west of Templeton)	1,655	2,060	2,060	3,730	3,725

Table 5: Projected PM Peak Hour Traffic Volumes

This table shows the change of traffic volumes on the roads surrounding the PC66 site between observations in 2008 and the CTM model base predictions for 2016 with CSM Stage 1 and

predictions for 2026 after completion of the full CSM project. In 2016 there is a modest increase in traffic using Kirk Road through Templeton but a greater increase in traffic using Maddisons Road east of Kirk Road. By 2026 the traffic volume on this section of Maddisons Road leading to Barbers Road is reduced to less than existing levels while the use of Kirk Road increases equivalently.

This latter pattern is a response to the traffic changes on the state highway network over this period. On Main South Road (SH1) at Templeton, the completion of CSM2 is expected to reduce traffic volumes significantly compared to CSM1. Therefore traffic which prior to 2026 uses the Maddisons-Barbers route or the Kirk—Waterloo route to get to / from SH1 to the east because of delays at the Kirk Road/SH1 intersections will then be able to use the Kirk Road route.

With partial (50%) development of the PC66 site in 2016 there will be only minor changes to the base traffic forecasts. In 2026 with full development of the PC66 site there will be some increases in the traffic volumes on Kirk Road and Maddisons Road but these will not have any adverse effects on the surrounding road network because of the reduced base volumes on Main South Road within and to the east of Templeton following completion of the construction of the CSM.

7. Capacity of the Transport Network

7.1 Site Accesses

The proposed access arrangements are understood to have at least two access points on Kirk Road and to also access the site from Maddisons Road. The traffic volumes on the two frontage roads are predicted to remain relatively low and no adverse effects are expected at the intersections of the access roads.

It is anticipated that no direct lot access will be gained from Kirk Road or Maddisons Road and that all lot access will be gained from the internal roading network.

7.2 Effects upon Roothing Network

As has previously been highlighted, the level of traffic predicted with the activity in the CTM base model and that predicted with the plan change is very similar. Given that the CTM has been used to test the planned future major road network improvements, the traffic volumes associated with the development of the PC66 site should be able to be accommodated.

PC66 is predicted to generate 3,300 vehicle movements per day while under the existing zoning development generating some 6,000vpd could occur. This is about twice the volume of traffic that would be generated by development under the proposed plan change. Given that the future traffic volumes under the proposed zoning are expected to be less than the level of activity potentially associated with the existing zoning, it is considered that the traffic effects on the wider network associated with the expected level of traffic generation with PC66 should be acceptable to the road controlling authorities.

However detailed capacity analysis of the surrounding road network with the traffic generated by the development that would be enabled by the proposed Plan Change has been undertaken for the scenarios set out earlier in this report.

The analysis of the road network surrounding the plan change site calculated the level of service (LOS) expected for 2016 and 2026 with the plan change in place based on the average delay at intersections with LOS A describing a situation of low delay and LOS F high delay. All intersections exhibit acceptable levels of service except for the following two intersections.

7.2.1 SH1 / Barters Road

Capacity analysis indicates that the existing SH1 / Barters Road intersection involves large delays to side road traffic and it will not perform any better with future traffic flows projected for 2016 with 50% development of the Plan Change 66 site. A similar conclusion is also set out in the CRETS study even without development of the site and is the justification for the recent investigation of the proposed upgrading involving the use of Pound Road as a Hornby Bypass.

The preferred scheme from that investigation is to replace the Barters Road connection by including a signalised intersection between SH1 and an extension of Pound Road. Even with the alternative scheme of traffic signals at Barters Road / SH1, the scenarios with the development traffic associated with the proposed plan change showed acceptable LOS for intersection operation in 2016 and 2026. It can be expected that the preferred scheme will exhibit similar (or better) levels of service.

7.2.2 SH1 / Kirk Road

The modelling analysis predicts that the SH1 / Kirk Road Intersection will experience LoS F for peak periods in 2016 prior to the construction of the Christchurch Southern Motorway Stage 2 (CSM2). However, this is likely to be the current situation and it will occur in the future irrespective of whether Plan Change 66 proceeds (or any development were to occur under the existing zoning) and arises due to the traffic growth on Main South Road (SH1) in the future.

The worst levels of performance at the Kirk Road approach to SH1 are for the straight-ahead and right-turn movements but the proposed plan change contributes very few additional vehicles to these two movements, particularly as there are other routes via Maddisons Road for these movements. Traffic from the plan change site heading towards Christchurch has the option to use the proposed SH1 / Pound Road intersection. This signalised intersection will also create platoons and gaps in the southbound traffic flow approaching the Kirk Road/SH1 intersection which will improve the conditions for vehicles turning right or travelling straight across SH1 at Kirk Road. Accordingly, the development of the plan change site is expected to result in a minimal change in the operation of the SH1 / Kirk Road intersection at peak times in 2016.

By 2026 with the full CSM project in place, an acceptable level of service is predicted to occur for Kirk Road movements even with completion of the proposed development.

7.3 Road Safety

The existing road safety record has been presented earlier. Given the improvements already implemented at SH73 / Kirk Road, the upgrade proposed for SH1 / Barbers Road, the significant reduction in traffic volumes at SH1 / Kirk Road with completion of the CSM, and the minimal level of change in traffic volumes at critical intersections development associated with PC66, it is reasonable to conclude that there are no particular road safety features or factors involved that would affect, or be affected by, the development of the site. Therefore, the proposed development is not expected to result in a significant deterioration in road safety on the surrounding road network. In any event, the traffic generation associated with the proposed zoning will be less than that possible under the existing zoning and therefore the effect on road safety will be less.

7.4 Buses, Cyclists and Pedestrians

The majority of the site is “within practical walking distance” (defined in the RLTS as within a 500m ‘crow-fly’ radius) of an existing bus stop. However, the bus stops on Kirk Road near the site are not currently in use and bus patronage associated with the PC66 site is likely to be low given the walking distance to the currently operational bus stops at the south end of Kirk Road.

With the potential increases in patronage associated with the plan change (or indeed development under the existing zoning), it is not unreasonable to anticipate that a new or improved bus service may be provided, increasing accessibility and environmental benefit not only for the plan change area but also for people in Templeton and elsewhere along the route. Those travelling to the Waitaha Learning Centre, Brackenridge and the prisons would also benefit from the reinstatement of this bus service.

The 2006 Census data showed that in the Canterbury region walking comprised only 6% of trips to and from work, and that cycling made up only 5% of trips to and from work. Due to the geographic location of the site, a reduced percentage of such trips is expected. The likely low flows would not justify specific pedestrian and cyclist provision along Kirk Road and Maddisons

Road; however, an increased level of infrastructure would enhance and encourage pedestrian and cyclist movements between the site and nearby Templeton. As such, a shared cycleway/walkway adjoining the site frontages on Kirk Road and Maddisons Road between the site access points and the Kirk Road / Maddisons Road intersection is suggested.

8. Strategic Policy Considerations

As part of assessing the context of the proposed Plan Change, a number of policy and strategy documents at a local, regional and national level have been reviewed. In undertaking this assessment, it has been helpful to consider the existing land use zoning of the site and to be mindful of the Commissioners' decision for PC1 which did not preclude some form of urban development at the site.

8.1 Regional Policy Statement

The Canterbury Regional Policy Statement (RPS) was prepared to meet the requirements of the Resource Management Act 1991, and aimed to promote sustainable management of natural and physical resources. From Chapter 15 of this document, the relevant transport policies are:

Policy 1: "Protect Canterbury's existing transport infrastructure and land transport corridors necessary for future strategic transport requirements by avoiding, remedying, or mitigating the adverse effects of the use, development or protection of land and associated natural and physical resources on transport infrastructure."

Policy 2: "Promote the use of transport modes which have low adverse environmental effects."

Policy 3: "Promote changes in movement patterns, travel habits and the location of activities, which achieve a safe, efficient and cost-effective use of the transport infrastructure and reduce the demand for transport."

Following the Canterbury earthquakes in 2010 / 11 Chapter 12A relating to urban limits has been introduced into the Regional Policy Statement with the relevant policy being:

Policy 9: Transport Effectiveness (a): "Development of Greenfields Areas, Key Activity Centre and areas accommodating intensification and rural residential activities shall avoid overloading existing and proposed transport network infrastructure, particularly strategic roads and avoid detracting from the primary through-traffic function of State Highways and arterial roads"

Chapter 12A deals very specifically with greenfield areas, key activity centres, rural residential intensification and urban development with the transport policy not referring to or being necessarily relevant to the proposed Plan Change 66 area. However, Objective 7 of Chapter 12A states the following:

Objective 7: Integration of Transport Infrastructure and Land Use: "Ensure that planning and provision of transport infrastructure is integrated with development and settlement patterns and facilitates the movement of goods and provision of services in Greater Christchurch while a) limiting network congestion, b) reducing dependency on the private motor vehicle, c) reducing emission of contaminants to air and d) energy use and promoting the use of active transport modes."

It is considered that the Plan Change 66 proposal is not inconsistent with Objective 7 of the RPS because the PC66 site is so well located relative to the strategic road network formed primarily by SH1 and SH73. Access to SH73 can be achieved via an existing Collector Road (Kirk Road) which has recently had its intersection with SH73 upgraded. Based upon the proposed zoning, the level of traffic volumes compared to the potential traffic volumes under the existing zoning will be less and it is considered that the effect on the existing transport infrastructure will be

acceptable, requiring no mitigation or protection specifically associated with the proposed zoning. Similarly, the proposed zoning for rural business uses places these activities in a rural area, close to the anticipated customers of such businesses, thereby reducing the need to travel.

It is also considered that the Plan Change proposal is not inconsistent with Objective 7 of the RPS as the internal layout of the site will consist of roads that allow for safe and direct access for cyclists and pedestrians from the existing classified road network and between properties within the site. It is proposed that the existing pedestrian and cycle facilities providing access to the site will be enhanced.

As well as providing footpaths for pedestrians and carriageways to allow safe movement of cyclists, the internal roading layout is expected to allow the key roads to accommodate buses to enable a service to be extended into the site if practical. Consequently, it is considered that the Plan Change is not inconsistent with Objective 7.

8.2 Regional Land Transport Strategy

The Canterbury Regional Land Transport Strategy 2008-2018 (RLTS) sets the strategic direction for land transport. It identifies the region's transport needs and the roles of all land transport modes, and sets out the methods by which the future land transport system of Canterbury is to be provided. The overarching role of the RLTS is to contribute towards the government's overall vision of achieving an integrated, safe, responsive and sustainable land transport system.

Policy 1.1 supports greater use of walking and Policy 1.2 greater use of cycling. In terms of the location of the PC66 site, it is not considered that a significant number of walking and cycling trips are likely to be made other than from Templeton which will be accommodated by the proposed infrastructure improvements referenced earlier in this report. Walking and cycling trips within the site will also be specifically facilitated as discussed previously.

It is considered that Policy 1.3 relating to greater use of public passenger transport is supported by the proposed plan change, given that it could stimulate the reintroduction of a nearby bus route.

Policy 2.3 addresses the maintenance and development of the region's strategic road network. The assessment has shown that the capacity and safety of the strategic roading network will not be adversely affected by the plan change and that any intersection issues are likely to be less than those which could occur under the existing land use zoning.

In terms of the local roads addressed through Policy 2.4, the proposed plan change will create lower traffic volumes on the local road network than the current zoning potentially and this is therefore not considered to represent a material issue for consideration.

Regarding the location of the site (Policy 4.1), the anticipated development includes for social and commercial facilities that will be accessible for pedestrians and cyclists, and that will reduce the need to travel outside the site. The site has the potential to justify a new public transport service but as noted previously, walking and cycling trips to the site are unlikely other than to / from Templeton.

The proposed plan change is considered to be cognisant of sustainable transport choices (Policy 4.2) through accommodating the needs of sustainable modes within the site, and providing additional infrastructure for pedestrians and cyclists on the external roading network. The site is also located in a manner whereby access is readily available to the strategic roading network including via an existing Collector Road (Policy 4.4).

On balance, it is considered that the proposed plan change is not contrary to the RLTS.

9. Compliance with City Plan Requirements

9.1 Rules

There are a number of transport rules in the Proposed Christchurch District Plan that control access from activities to the road network. The relevant rules to this proposal control the number of access points to the road network and the required separation distances of these access points from adjacent intersections. The application of these rules would depend on the final layout but is unlikely to place significant restraints on development.

The AUSTRROAD Guide to Traffic Engineering Part 5 describes intersection spacing of 350m to 550m for major intersections based on optimum spacing for co-ordination of traffic signals. The same guide specified 150m spacing for intermediate intersections.

The southern access point proposed on Kirks Road will be located at approximately 450m spacing from Maddisons Road. The spacing to the other major access at the northern end of the site is also greater than the minimum recommended. While providing a reasonable number of access points, using the existing central access to the community activity area would involve a separation distance of only about 300m from the proposed southern access. The access could be moved to the north if considered necessary.

The location of the northern access is comparatively close to the driveway to the Waitaha Learning Centre, approximately 100m away. However this development is not considered a significant traffic generator and this driveway is not considered to preclude the northern access point or an access to the community activity area. The access to the Westmount School is immediately adjacent to the northern access to the PC66 site and would need to be modified through the formation of a shared driveway.

Most developments within the PC66 site under the proposed zoning will trigger the high traffic generator rule (Vol. 3 Part 13, 2.3.8) in the City Plan. This will give the Council limited discretion to assess resource consent applications for matters associated with vehicular access listed in 3.2.14. However it is expected that such developments will be acceptable based on the analysis already considered as part of this report.

9.2 Objectives

A review of the proposed development against the Objectives set out in the City Plan has also been undertaken as set out below:

Objective	Achieved	Comments
7.1 Objective: A sustainable transport system A safe, efficient and sustainable transport system.	Yes	The change of zone would reduce the traffic that could be generated as compared to an activity anticipated on the site under the existing zoning.
7.2 Objective: Road network An efficient and effective road network that allows the City to function and develop with minimal conflict between land uses, traffic and people	Yes	The transport network in the vicinity of the application site has been identified to need medium term improvements. This work is not related to the effects of the application site and forms part of the RLTP and RoNS. Conflicts between competing forms of road users will be kept to a minimum by improving access to the site for pedestrians and cyclists.

Objective	Achieved	Comments
7.3 Objective: Public transport Recognition of the public transport needs of people throughout the City and provision for meeting those needs.	Yes	There is an existing bus service that services Templeton. This service can accommodate an increase in public transport demand that may be generated by the change in zone, but it may be some time before development is at a level to justify the introduction of a new or extended route.
7.4 Objective: Cyclists Provision for the safe movement of cyclists and actively encouraging cycling as a means of transport.	Yes	As part of the site development the application of cycling facilities will be provided both on the frontage roads and along the internal roading network.
7.5 Objective: Pedestrians The safe movement of pedestrians in a pleasant environment.	Yes	The proposal provides for a high degree of pedestrian connectivity. As part of the development extensive walkways are proposed both along the frontage roads and along the internal roading network. The safe movement of pedestrians for the adjoining sites will be considered. The Brackenridge site at 150 Maddisons Road is a special needs residential facility and care has been taken when designing the pedestrian links to incorporate the needs of the residents. These include links to other facilities on site that the Brackenridge residents utilise, for example the Chapel.
7.6 Objective: Off Street Parking and Loading Sufficient and accessible off-street parking and loading facilities meeting the normal anticipated demands for each activity, while minimising the adverse effects of such facilities on the safety and efficiency of the transport system.	Yes	The application will be able to comply with the provisions of the Transport section (Volume 3 Part 13) of the City Plan because of the low density development intended.
7.8 Objective: Access to the City Recognition of the need for regional, national and international links with the City and provision for those links.	Yes	The site is ideally located for providing opportunities for businesses on the site to develop international, national and regional links. The rezoning of the site recognises the importance of access to the city as well as to rural access.
7.7 Objective: Transport safety The maintenance and improvement of transport safety throughout the City.	Yes	The internal layout and access intersections will be designed to appropriate standards to ensure safety standards are maintained.

Table 6: Planning Objectives Compliance

10. Conclusions

It is concluded that if the site previously occupied by the Templeton Hospital were rezoned as proposed by Plan Change 66, there would be safe and efficient vehicular connections available to the surrounding road system. Satisfactory site access would most likely be provided by two or three access points on Kirk Road and a single access on Maddisons Road.

The development enabled by the proposed zoning would result in lower traffic volumes compared to the use of the site as a hospital or other health facilities that are consistent with the current zoning. Accordingly, traffic generated by the PC66 development would have lesser effects on the existing and future network operations. The proposed zoning would also provide a rural service locality that is easily accessible for people living and working in the adjacent rural areas.

A number of roading network improvements are proposed in response to the expected traffic growth in the south-west sector of Christchurch. The major components of these have been adopted as Roads of National Significance and would relieve traffic pressure on Main South Road and improve the level of service for motorists in general and also for those generated by development enabled by PC66.

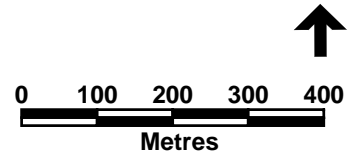
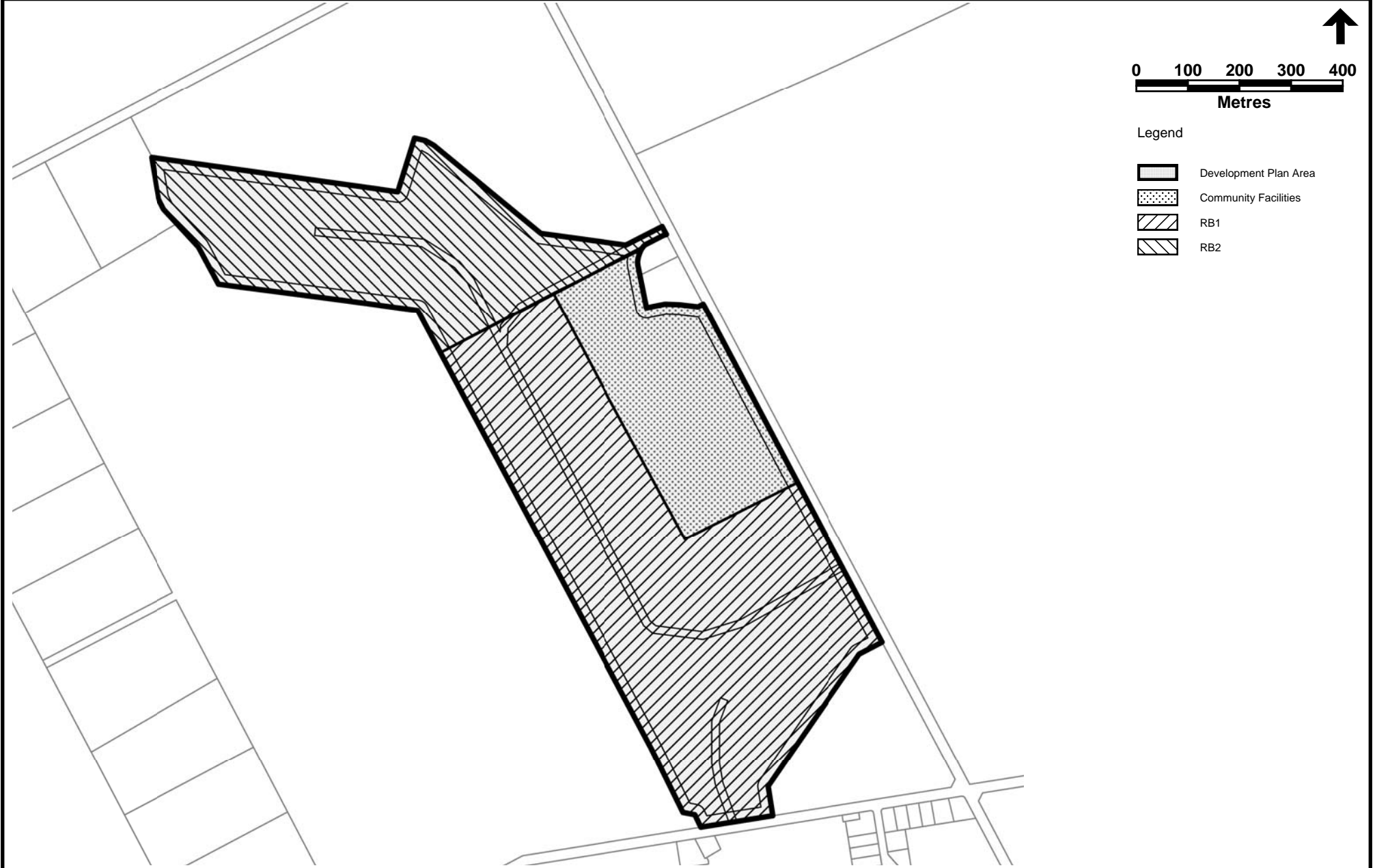
It is expected that the completion of CSM Stage 1 in 2013 will result in a minor reduction in traffic growth on SH1 through Templeton as traffic is diverted to alternative routes using Springs Road and Shands Road. However the major influence on the PC66 site access will occur with the completion of the CSM which will significantly reduce traffic volumes on the section of SH1 that provides access from the east.

In the interim it is expected that the proposed SH1 / Pound Road signalised intersection will improve access by providing an alternative access route via Barbers Road – Maddisons Road or Waterloo Road – Kirk Road and by creating gaps in SH1 traffic that will reduce delays at the SH1 / Kirk Road intersection.

The proposed plan change is not inconsistent with the transportation objectives of Chapter 12A of the RPS and would generally comply with the transport objectives and rules of the City Plan. It is expected that there will continue to be some delays for traffic accessing SH1 until the CSM is completed but these will be less than could occur with development of the PC66 site under the current zoning. Accordingly, it is considered that the proposed Plan Change 66 zoning for the Templeton Hospital site would represent an improvement from the transportation perspective compared with retaining the existing zoning.

Traffic Design Group Ltd
February 2012

Appendix 6 - Outline Development Plan



- Legend
- Development Plan Area
 - Community Facilities
 - RB1
 - RB2



1 December 2011

Simon Tucker
Rookwood Holdings Limited
PO Box 18538
CHRISTCHURCH 8641

Andrew Long
Christchurch City Council
PO Box 237
CHRISTCHURCH 8140

Dear Simon / Andrew

SOIL SAMPLING INVESTIGATION – FORMER TEMPLETON HOSPITAL, 185 KIRK ROAD, TEMPLETON

1.0 Introduction and Background

Pattle Delamore Partners Limited (PDP) has been engaged to conduct a soil sampling investigation at the former Templeton Hospital site located at 185 Kirk Road, Templeton, Christchurch. It is understood that the former hospital site will be redeveloped for future low and medium density business use.

PDP conducted a Phase 1 (site history) preliminary site assessment for the property in August 2007, which included a walk-over and review of the historical land use activities across the site with the potential to cause human health and/or environmental issues in the context of a future commercial/industrial land use setting. Section 3.0 provides a summary of the PDP 2007 Phase 1 assessment.

The objective of this soil sampling investigation is to determine the suitability of the site with respect to its proposed future use based on the potential sources of contamination identified in the PDP Phase 1 assessment.

The assessment has comprised a surface soil sampling and test pitting exercise, analysis of the main contaminants of concern associated with the various historic land use activities, a review of the laboratory results and subsequent comparison with relevant environmental acceptance criteria for commercial/industrial land use.

A site location map and an aerial photograph showing the existing site layout are attached as Figures 1 and 2.

2.0 Site Location and Description

The investigation site is located at 185 Kirk Road, Templeton, approximately 14 km west from central Christchurch. The legal description of the site is defined as Lot 2 Deposited Plan 315110 and covers an area of approximately 66.42 ha.

The approximate grid reference for the centre of the property is NZMS 260 M35:6635-4078 and is currently zoned 'Special Purpose (Hospital)' as per the Christchurch City District Plan.

The site comprises numerous disused buildings which were previously used by the hospital. Some of the existing buildings in the northern portion of the site are currently occupied for schooling and administration purposes. A workshop complex comprising workshop buildings, an implement shed and a bulk storage building are located halfway along the western site boundary. Two substations (one reportedly no longer in use) are located towards the south-eastern property boundary with an additional substation located within the 'dog-leg' towards the north-western property boundary. A concrete water tower is located adjacent to the southern most substations. A sealed roadway, with the main entrance off Kirk Road, provides access to the onsite buildings. With the exception of the buildings, the roadway and sealed car parking areas, the majority of the site is covered with grass. Numerous trees around the site have been recently removed from the site.

3.0 Summary of Potential Contamination Sources

A 2007 Phase 1 site history report identified a number of potential sources of site contamination associated with the previous use of the site as a hospital. At the time of the 2007 site walkover (August 2007) a number of underground storage tank (USTs) and above ground storage tanks were remaining at the site, while it appeared that others had been removed from the site in the past.

All identified former USTs (seven) were subsequently removed from site in September 2008 under the supervision of Envirochem Limited. It was reported that all soil samples collected following the removal of the seven USTs contained acceptable concentrations of residual petroleum hydrocarbon residues with respect to the Ministry for the Environment (MfE, 2011¹) Tier 1 residential/agricultural and commercial/industrial land use guideline criteria suggesting no significant environmental and/or human health issues remained as a result of the previous storage of petroleum based fuels at the site. An independent review of the report by PDP concurred with the Envirochem findings with regard to residual petroleum hydrocarbon residues and the potential risk to human health and the receiving environment.

Additional sources of contamination identified in the PDP 2007 Phase 1 report were associated with a former reported landfill, various waste stockpiles, an area where produce/crop growing was reportedly undertaken, glasshouses, garden store shed, flammable store and substations. A site plan from the 2007 report showing the location of these potential sources of contamination is presented as Figure 3.

4.0 Soil Sampling Investigation

PDP initially conducted a site walkover on 11 October 2011 to determine if any site changes associated with the previously identified potential contamination sources had occurred at the site since the PDP 2007 assessment. It was noted that additional soil stockpiles (approximately 10-20 m³) were located towards the western site boundary, which according to the site owner had originated from a nursery. Other stockpiles containing tree stumps, branches and topsoil which originated from the tree felling activities across the site were also located in this area of the site. One of the original stockpiles which was identified in the 2007 inspection (which comprised tree stumps, branches and some topsoil) previously located in the northern portion of the property had been removed. This area of the site had since undergone recent surface earthworks/soil movement. With the exception of some of the stockpiles the remainder of the site was largely unchanged, with regard to the previously identified potential contamination sources.

The soil sampling and test pitting exercise was conducted by PDP on 8 November 2011.

Details of the soil sampling exercise, sampling rationale, soil guideline criteria and results are described below.

¹ The MfE 2011 Guidelines are an update of the MfE (1999) Guidelines. The guideline criteria are unchanged between the 1999 and 2011 Guidelines.

4.1 Soil Sampling Methodology and Rationale

A total of 34 soil samples were collected during the investigation and were analysed for the contaminants of concern associated with the specific land use activities. These areas are detailed as follows:-

Re-contoured landfill

During the test pitting exercise within the reported landfill area towards the western site boundary, waste/fill material was encountered. A total of six test pits (TP1 to TP6) were therefore excavated in this area to determine the nature of the waste material and to define the lateral and vertical extent of the waste. The lateral and vertical extent of the waste material by additional test pitting and was limited to an area of approximately 32 m x 15 m while the maximum depth of the waste was 1.3 m below ground level (bgl). The waste material was encountered at depths below the ground surface of between 0.3 and 0.5 m bgl and had an average thickness of approximately 0.7 m. The total quantity of waste material in this area was approximately 200-300 m³. The near surface capping material overlying the waste comprised sandy gravel. The waste/fill material comprised predominantly a soil matrix with anthropogenic material such as concrete, bricks, charred material, metal and demolition rubble. Due to the presence of the waste material a total of eight selected soil samples collected from the test pits were analysed for heavy metals, total petroleum hydrocarbons (TPH) and semi volatile organic compounds (SVOCs), which include organochlorine pesticides (OCP) and polycyclic aromatic hydrocarbons (PAH).

Former glasshouse, waste pile, flammable store shed

A total of three surface soil samples (SS2 to SS4) were collected in the vicinity of the former glasshouse and waste pile located in the northern portion of the site. The soil samples were analysed for heavy metals and SVOCs. In addition, a sample (SS1) was collected in the area of the former flammable store (adjacent to the glasshouse), which was analysed for TPH and SVOCs.

Waste Piles

A total of two surface samples (SS5 and SS6) were collected from the new soil stockpiles located towards the western boundary, which were understood to have originated from a nursery. These samples were analysed for heavy metals and OCP. A total of eight soil samples (SS7 to SS14) were also collected from the footprint of the stockpiled material adjacent to the western boundary of the site. It is understood that these stockpiles have been progressively screened of all finer material. These soil samples were also analysed for heavy metals and SVOC.

Former vegetable garden

A total of 12 surface samples (SS15 to SS26) were collected along the eastern site boundary from an area which was reportedly used for intensive cropping and agricultural purposes. The soil samples were analysed for heavy metals and OCP to determine whether any residual pesticide chemicals are present in the near surface soils.

It should be noted that no soil samples were collected within the existing substations across the site due to their continued presence.

The site plan showing the location of the areas investigated as part of this assessment is presented in Figure 4.

The surface samples were collected using a fresh hand trowel and a fresh pair of nitrile gloves for each sample. A mechanical excavator was used to excavate the soils within each test pit location. The test pit soils were systematically removed so that they were able to be placed back into the excavation in the same manner as they were originally removed. The test pits were excavated to a maximum depth of 2.0 m bgl (TP1 and TP3). Soil samples were collected from the face of the test pit walls using pre-cleaned stainless steel hand trowels and/or directly from the

bucket of the excavator. All sampling equipment was cleaned using standard PDP protocols between each sample collection point to minimise the potential for cross-contamination.

All samples were placed into glass jars with food-grade plastic sealed lids provided by the analytical laboratory. The samples were placed immediately into a chilly bin containing frozen ice pads before being shipped to RJ Hill Laboratories Limited in Hamilton for analysis. The samples were received by the laboratory on the following day after shipment. A copy of the chain of custody documentation is appended.

4.2 Soil Guideline Criteria

The current assessment is based on the intended future commercial/industrial land use at the site. In order to provide a suitable assessment as to the possible human health risk for any soils remaining at the site the following standards/guidelines have been used, based on the hierarchy specified in MfE (2011c):

- ∴ *Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand* (Ministry for the Environment (MfE) 2011b);
- ∴ *Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health* (MfE, 2011a); and
- ∴ *Guidelines on the Investigation Levels for Soil and Groundwater* (National Environmental Protection Council (NEPC) 1999).

Heavy Metals, OCP and Benzo(a)pyrene eq.² (BaPeq.)

The guideline criteria selected for comparison of the heavy metal concentrations, selected OCP and benzo(a)pyrene eq. (BaPeq.) on the site are the soil contaminant standards as outlined in the MfE (2011a). Where no applicable New Zealand guideline criteria exist for some of the tested metals (nickel and zinc) the Australian NEPC (1999) guidelines have been used.

Total Petroleum Hydrocarbons and PAH Compounds (excluding BaPeq.)

The MfE (2011b) Tier 1 soil acceptance criteria have been developed to account for the protection of maintenance/excavation workers in addition to a commercial/industrial land use setting. In addition to site usage, the Tier 1 acceptance criteria take into consideration the environmental settings including soil type (permeability) and depth to contamination.

As such, the Tier 1 soil acceptance criteria via All Pathways are a reflection of the most stringent criteria associated with the protection of human health via several exposure routes. Comparison of analytical results to these criteria reveals whether a more in-depth review of the potential exposure pathways is required at the site.

In this case, the Tier 1 soil acceptance criteria (All Pathways) for commercial/industrial land use (MfE, 2011b) have been applied as screening criteria and are presented in the tables. A “sand” soil type has been applied for comparison with the relevant criteria for the soil samples. This soil type best represents the soils observed at the site.

In addition, Environment Canterbury (ECan) has established background soil concentrations of selected trace elements in the major Canterbury soil groups. For comparative purposes only, the total recoverable metals analytical results have also been compared with ECan Level Two background soil concentrations for the ‘recent’ soil group. Concentrations above background levels do not necessarily indicate that a risk exists to human health, more so that

² Benzo(a)pyrene eq. (BaPeq.) – Equivalent BaP concentration calculated as the sum of each of the detected concentrations of the nine PAHs listed in Table 40 of MfE (2011a) *Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health*.

land practices/chemical use has resulted in an accumulation of trace elements in the soil in that area, or that the concentrations detected are actually the localised background soil concentrations for this area.

4.3 Investigation Results Laboratory Results and Comparison to Guideline Criteria

The laboratory results for heavy metals, TPH and selected SVOCs are summarised below, while the laboratory report is appended. The soil results tables are also appended as Tables 1 and 2.

Heavy Metals

All heavy metal concentrations in the soil samples collected across the site were reported below the MfE (2011a) soil contaminant standards for commercial/industrial land use and, where no New Zealand criteria exist, below the NEPC criteria for commercial/industrial land use.

OCP Compounds

Low but detectable DDT³ concentrations were reported in eight samples collected across the site ranging from 0.038 mg/kg (sample SS19; former vegetable garden) to 4.45 mg/kg (sample SS3; former glasshouse and waste pile). However, all soil samples analysed for OCP had concentrations reported below the MfE (2011a) soil contaminant standards for commercial/industrial land use. None of the remaining 14 individual compounds that make up the OCP suite were measured above the laboratory limit of detection in all analysed samples.

TPH and PAH Compounds

The eight soil samples analysed for TPH did not contain concentrations above the laboratory limit of detection (70 mg/kg).

With regard to the MfE (2011b) specific PAH compounds naphthalene and pyrene, naphthalene was not measured above the laboratory limit of detection in any of the 20 analysed samples and pyrene was only measured above the laboratory limit of detection in two samples up to 1.7 mg/kg (SS4). All TPH and MfE (2011b) specific PAH compound concentrations were reported below the MfE (2011b) Tier 1 All Pathways guideline criteria for commercial/industrial land use.

In addition, BaP_{eq} concentrations were only measured above the laboratory limit of detection in three of the 20 analysed samples up to 1.61 mg/kg (SS4), but below the MfE (2011a) soil contaminant standard for commercial/industrial land use.

Remaining SVOCs

None of the remaining compounds analysed within the SVOC suite were measured above the laboratory limit of detection in all analysed samples.

4.4 Comparison to ECan Background Soil Concentrations

The results of the soil samples have been compared with ECan background soil concentrations for metals (as shown in Table 1). The majority of the samples have heavy metal concentrations above the respective ECan background concentrations. However, as mentioned previously, the presence of metal concentrations above background levels do not necessarily indicate that a risk exists to human health, more so that land practices/chemical use has resulted in an

³ Results for DDT, DDD and DDE summed (i.e. Σ DDT) and compared to the soil contaminant standards for DDT.

accumulation of trace elements in the soil in that area, or that the concentrations detected are actually the localised background soil concentrations for this area.

5.0 Summary and Conclusions

A surface soil sampling and test pitting investigation has been undertaken at the former Templeton Hospital site located at 185 Kirk Road, Templeton, Christchurch. It is understood the site is being redeveloped for future low and medium density business use. The objective of this soil sampling investigation is to determine the suitability of the site with respect to its proposed future use based on the potential sources of contamination identified in the PDP Phase 1 assessment.

The investigation comprised a test pitting exercise around a suspected landfill area located towards the western site boundary to determine whether any landfill exists and also to determine the nature of the waste material. During the test pitting exercise an area of waste/fill material comprising predominantly a soil matrix with anthropogenic material such as concrete, bricks, charred material, metal and demolition rubble was identified. A total of eight selected soil samples were collected from the test pits and were analysed for heavy metals, TPH and SVOCs.

Three surface soil samples were collected in the vicinity of the former glasshouse and waste pile located in the northern portion of the site and were analysed for heavy metals and SVOCs. In addition, a sample was collected in the area of the former flammable store (adjacent to the glasshouse), which was analysed for TPH and SVOCs.

Two surface samples were collected from the soil stockpiles along the western boundary, which were understood to have originated from a nursery. These samples were analysed for heavy metals and OCP. Eight soil samples were also collected from the footprint of the stockpiles near the western boundary and analysed for heavy metals and SVOCs.

Twelve surface samples were also collected along the eastern site boundary which was reportedly used for intensive cropping and agricultural purposes (vegetable garden). The soil samples were analysed for heavy metals and OCP to determine whether any residual pesticide chemicals are present in the near surface soils.

Overall, all samples collected and analysed from the targeted areas around the site during the investigation were reported below the soil contaminant standards and guideline criteria for commercial/industrial land use.

6.0 Limitations

- 1) This assessment is limited to the collection and analysis of 34 soil samples across the site, and the comparison of laboratory test results with environmental and health guidelines. Subsurface conditions, including contaminant concentrations, can vary in time and distance so that conditions found at any specific point of sampling might not be representative of subsurface conditions that could occur away from the specific point of sampling.
- 2) If contaminants have been found at the site, it is possible that the contaminants could extend off-site, or that any contaminants existing on neighbouring sites might have contributed to the contamination that exists at the site. The presence or absence of contaminants off-site, and risks associated with any off-site contaminants, are not considered by this report.
- 3) This report has been prepared by PDP on the specific instructions of Rookwood Holdings Limited and Christchurch City Council for the limited purposes described in the report. PDP accepts no liability to any

other person for their use of or reliance on this report, and any such use or reliance will be solely at their own risk.

7.0 References

- Environment Canterbury, 2007b. *Background concentrations of selected trace elements in Canterbury soils. Addendum 1: Additional samples and Timaru specific background levels.* Environment Canterbury Report R07/1/2.
- Ministry for the Environment, August 1999, Revised October 2011(b). *Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (Revised 2011)*, Ministry for the Environment, Wellington, New Zealand.
- Ministry for the Environment, November 2003, Revised October 2011(c). *Contaminated Land Management Guidelines No. 2 - Hierarchy and Application in New Zealand of Environmental Guideline Values (Revised 2011)*. Wellington, New Zealand.
- Ministry for the Environment, 2011(a). *Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health.* Wellington, New Zealand.
- National Environment Protection Council, 1999. *Guidelines on the Investigation Levels for Soil and Groundwater*, National Environment Protection Council of Australia.
- Pattle Delamore Partners Limited, August 2007. *Phase 1 Preliminary Site Assessment for the Former Templeton Hospital, 185 Kirk Road, Templeton.*

Yours sincerely

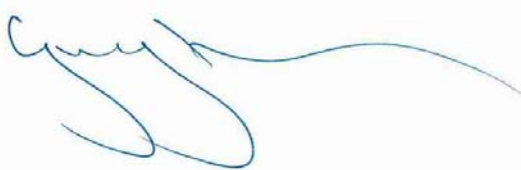
PATTLE DELAMORE PARTNERS LIMITED

Prepared by:

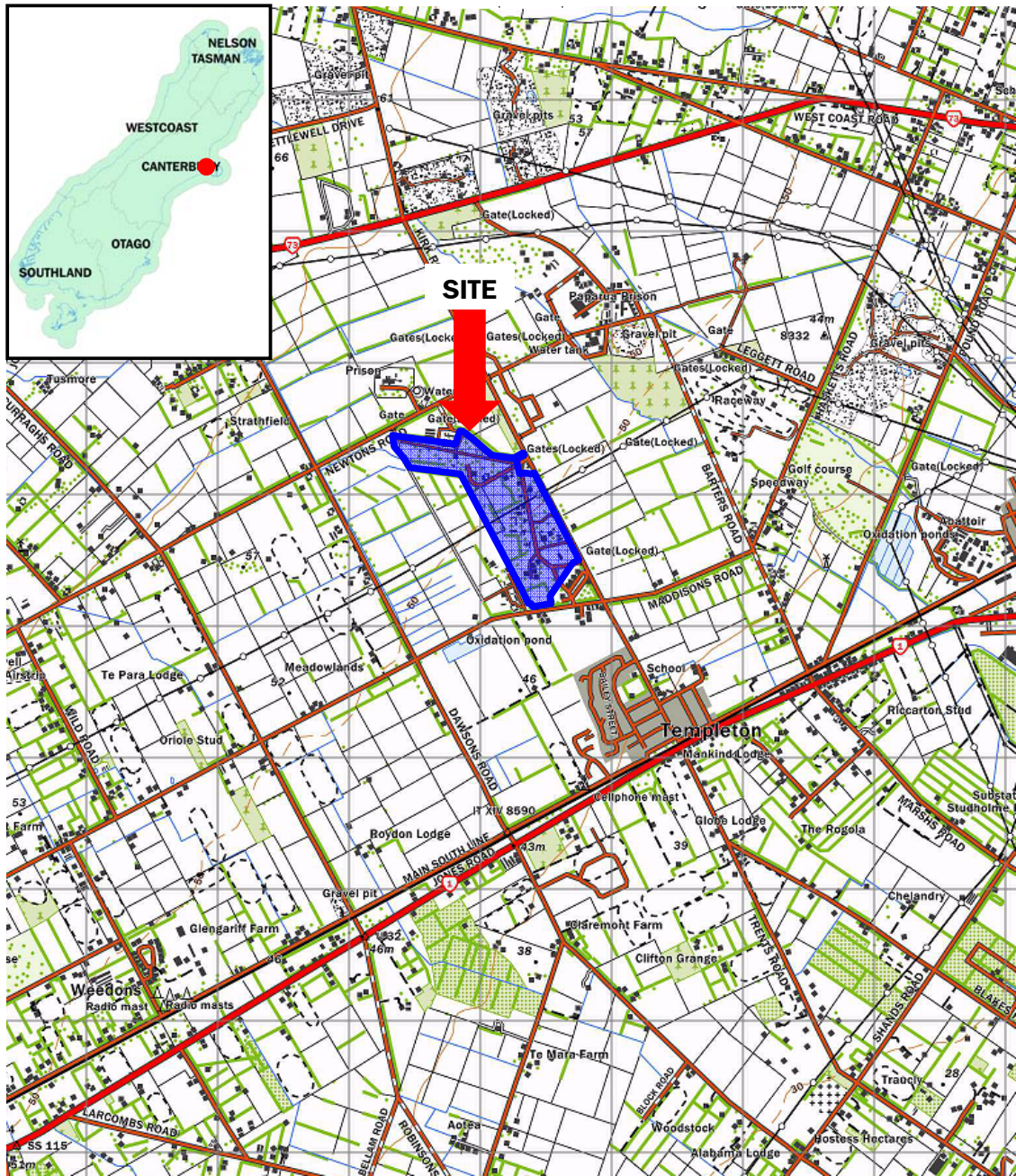


Gerard Stark
Environmental Scientist

Reviewed by:



Guy Knoyle
Environmental Scientist



NZMS 260 Map 35.

SCALE 1 : 50,000 (A4)

Sourced from Land Information
New Zealand data.
Crown Copyright Reserved.

Figure 1: Site Location



Figure 2 : Site Layout (Source: Terranet)

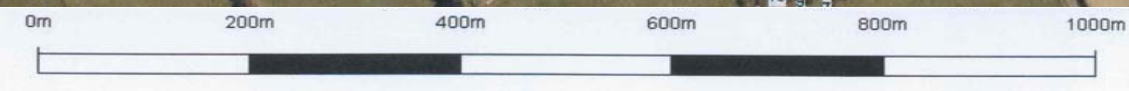


Key

- Property boundary
- Existing UST
- Possible existing UST location
- Possible former UST
- Above ground tank
- Possible former vegetable garden
- Re-contoured landfill
- Waste pile
- Substation
- Demolished greenhouse/glasshouse
- Flammable store shed

Figure 3: Location of potentially contaminated areas on site (identified in the 2007 Phase 1 Site Assessment)

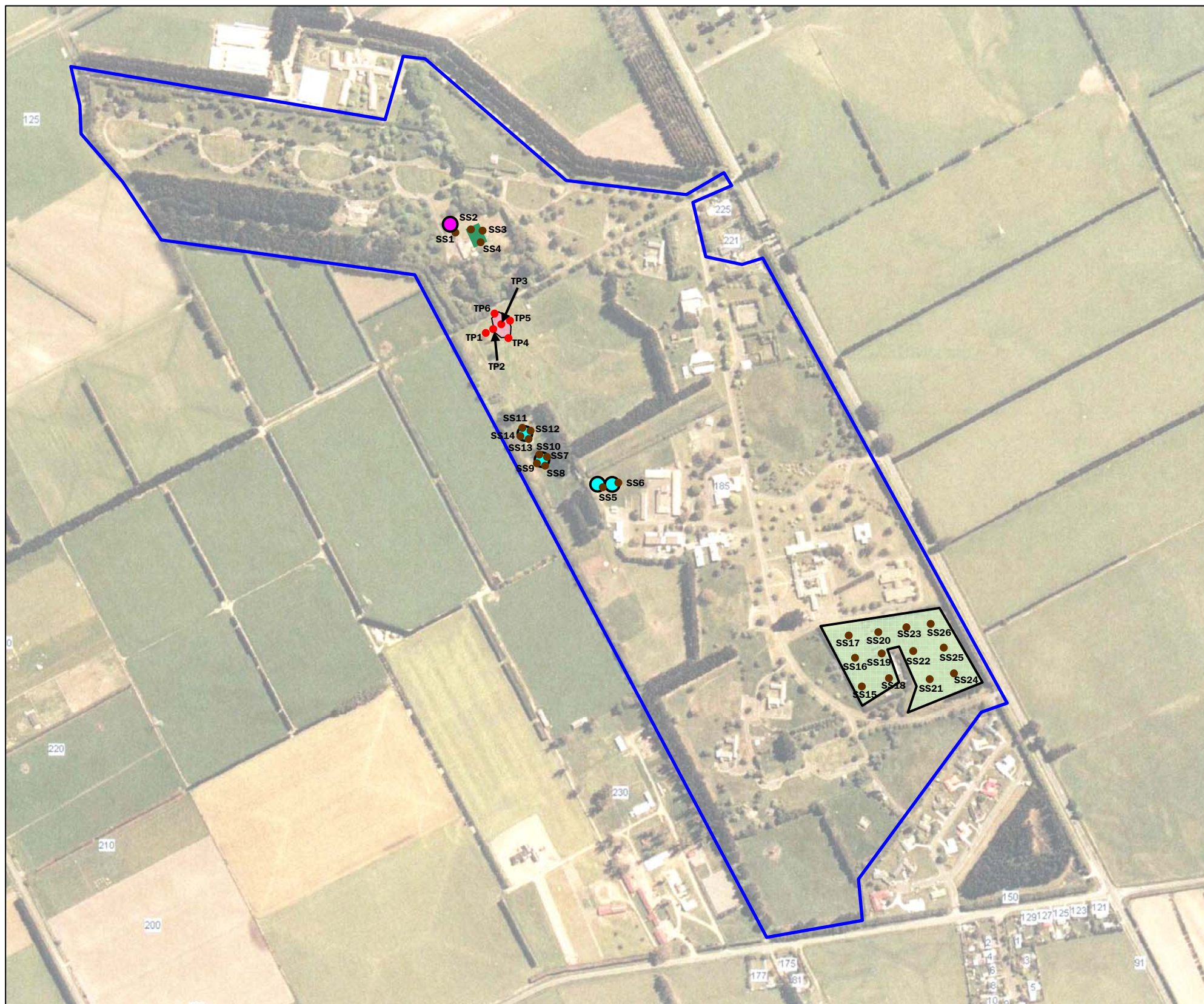
terranet
property information online



Property Information
Search Result: Lot 2 DP 315110
Date of Imagery: 2002
Date Report Created: 10/07/2007

Data Statement
Accuracy of aerial imagery +/-15m.

Copyright Notice
Copyright 2003 Terralink International Limited. Certain information on this report is sourced from LINZ. Crown copyright reserved.



Key

- Property boundary
- Possible former vegetable garden
- Re-contoured landfill (~32m x 15m)
- Waste pile
- Demolished greenhouse/glasshouse
- Flammable store shed
- SS1 Soil sample
- TP1 Test Pit

Figure 4 : Soil Sample and Test Pit Locations

<p>terranel property information online</p>	<p>0m 200m 400m 600m 800m 1000m</p>	<p>Copyright Notice Copyright 2003 Terralink International Limited. Certain information on this report is sourced from LINZ. Crown copyright reserved.</p>
<p>Property Information Search Result: Lot 2 DP 315110 Date of Imagery: 2002 Date Report Created: 10/07/2007</p>	<p>Data Statement Accuracy of aerial imagery +/-15m.</p>	



Photograph 1: Excavation within the suspected landfill



Photograph 2: View of the soil and waste material within test pit TP3



Photograph 3: View of the soil and waste material within test pit TP4



Photograph 4: View of the former glasshouse in the northern portion of the site



Photograph 5: View of the former flammable shed in the northern portion of the site



Photograph 6: View of the new stockpiles towards the western site boundary

Table 1: Sample Results - Maddison Park, Templeton (Heavy Metals and OCP)

Sample Name	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	SS10	SS11	SS12	SS13	SS14	SS15	SS16	SS17	ME (2011) (Commercial/Industrial Land Use) ¹	Environment Canterbury Background Soil Concentrations - Recent Soils ²
Sample Depth (m)	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1		
Laboratory Reference	951232.12	951232.13	951232.14	951232.15	951232.16	951232.17	951232.18	951232.19	951232.20	951232.21	951232.22	951232.23	951232.24	951232.25	951232.26	951232.27	951232.28		
Date	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011		
Heavy Metals																			
Arsenic	-	7	8	19	7	8	7	6	6	6	23	18	22	12	6	5	6	70 ¹	12.58
Cadmium	-	0.17	0.24	0.15	0.18	0.14	0.27	0.18	0.15	0.22	0.50	0.60	0.53	0.38	0.18	0.23	0.19	1,300 ^{1,4}	0.19
Chromium	-	15	15	19	15	17	17	15	16	16	24	22	25	20	16	16	16	6,300 ^{1,5}	22.7
Copper	-	14	18	23	13	16	30	20	17	18	41	37	54	22	9	9	9	NL ¹	20.3
Lead	-	46	88	71	34	39	620	300	151	560	109	138	183	123	36	26	20	3,300 ¹	40.96
Nickel	-	11	11	11	10	10	11	10	11	11	13	14	13	14	11	11	11	3,000 ²	20.7
Zinc	-	290	138	128	100	111	200	142	112	190	420	490	330	450	90	96	64	35,000 ²	93.94
Organochlorine Pesticides (OCP)																			
Ddt	<5.4	<5.8	4.45	<5.6	0.070	0.074	<5.6	<6.0	<5.8	<5.8	<5.4	<5.6	<5.4	<0.060	0.203	<0.060	<0.060	1,000 ^{1,4}	-
Dieldrin	<2.4	<2.8	<2.6	<2.6	<0.020	<0.020	<2.6	<3.0	<2.8	<2.8	<2.4	<2.4	<2.6	<2.4	<0.020	<0.020	<0.020	160 ^{1,7}	-

Sample Name	SS18	SS19	SS20	SS21	SS22	SS23	SS24	SS25	SS26	TP2/0.4	TP3/0.2	TP3/0.5	TP3/1.4	TP4/0.6	TP4/1.3	TP5/0.5	TP6/0.4	ME (2011) (Commercial/Industrial Land Use) ¹	Environment Canterbury Background Soil Concentrations - Recent Soils ²
Sample Depth (m)	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.4	0.2	0.5	1.4	0.6	1.3	0.5	0.4		
Laboratory Reference	951232.29	951232.30	951232.31	951232.32	951232.33	951232.34	951232.35	951232.36	951232.37	951232.2	951232.3	951232.4	951232.5	951232.7	951232.8	951232.9	951232.11		
Date	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011	8 November 2011		
Heavy Metals																			
Arsenic	5	5	4	7	13	12	5	5	4	27	11	7	3	29	4	6	8	70 ¹	12.58
Cadmium	0.20	0.23	0.14	0.24	0.26	0.22	0.29	0.27	0.32	0.46	0.15	0.16	< 0.10	0.23	< 0.10	0.10	0.13	1,300 ^{1,4}	0.19
Chromium	15	16	15	20	28	17	19	17	15	28	23	17	14	44	13	16	15	6,300 ^{1,5}	22.7
Copper	10	10	12	14	21	15	15	10	10	33	37	14	6	40	6	13	13	NL ¹	20.3
Lead	35	26	21	44	46	63	33	25	32	1710	74	53	13.4	97	11.3	38	51	3,300 ¹	40.96
Nickel	10	10	11	12	12	12	12	11	11	14	14	12	11	13	11	12	12	3,000 ²	20.7
Zinc	87	88	77	95	109	97	101	89	81	550	92	96	46	122	41	74	109	35,000 ²	93.94
Organochlorine Pesticides (OCP)																			
Ddt ^{1,4}	0.045	0.038	0.090	<0.060	<0.060	<0.060	<0.060	<0.060	0.110	<5.8	<5.6	<5.6	<5.6	<5.6	<5.4	<5.6	<5.8	1,000 ^{1,4}	-
Dieldrin ^{1,7}	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<2.8	<2.6	<2.6	<2.6	<2.6	<2.4	<2.6	<2.8	160 ^{1,7}	-

Notes:

- Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health (ME, 2011) - Commercial/Industrial land use.
 - Guideline on Health Based Investigation Levels for Soil and Groundwater (NHPC, 1999) - Commercial/Industrial land use.
 - Background concentrations of selected trace elements in Canterbury soils - Addendum 1, (ECan 2007, Report no. R07/12). Based on 'recent' soil type - background concentration value based on maximum plus half inter-quartile range.
 - Based on a default pH of 5.
 - Soil contamination standard for Cr VI used as a conservative approach.
 - Results for DDT, DDD and DDE summed and compared to Guideline value for DDT.
 - Results for Aldrin and Dieldrin summed and compared to Guideline value for Dieldrin.
 - Where one or more of the compounds was below the detection limit, a value of half the detection limit was used in the sum. Where all compounds in the sum are non-detects, the overall detection limit is the sum of the detection limits.
- All results in mg/kg.
 NL - No Limit.

31 Concentration above reported ECan Background soil concentration.

Table 2: Sample Results - Maddison Park - ALL PATHWAYS (TPH & PAH)

Soil Samples Collected at a Depth of <1 m Below Ground Level ¹																				
Sample Name	SS1	SS2	SS3	SS4	SS7	SS8	SS9	SS10	SS11	SS12	SS13	SS14	TP2/0.4	TP3/0.2	TP3/0.5	TP4/0.6	TP5/0.5	TP6/0.4	Tier 1 Soil Acceptance Criteria ^{2,3} Commercial/ Industrial Land Use	
Laboratory Reference	951232.12	951232.13	951232.14	951232.15	951232.18	951232.19	951232.20	951232.21	951232.22	951232.23	951232.24	951232.25	951232.2	951232.3	951232.4	951232.7	951232.9	951232.11		
Soil Fate	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	
Soil Type - Field	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Soil Type - MIE (1999)	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Sample Depth (m bgl)	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.4	0.2	0.5	0.6	0.5	0.4	< 1 m
C ₇ -C ₉ hydrocarbons	< 8	-	-	-	-	-	-	-	-	-	-	-	-	< 9	< 8	< 9	< 9	< 9	< 9	120 ⁶
C ₁₀ -C ₁₄ hydrocarbons	< 20	-	-	-	-	-	-	-	-	-	-	-	-	< 20	< 20	< 20	< 20	< 20	< 20	(1,900) ^{6,x}
C ₁₅ -C ₂₀ hydrocarbons	< 40	-	-	-	-	-	-	-	-	-	-	-	-	< 40	< 40	< 40	< 40	< 40	< 40	NA ⁴
TPH	< 70	-	-	-	-	-	-	-	-	-	-	-	-	< 70	< 70	< 70	< 70	< 70	< 70	-
Naphthalene	< 0.6	< 0.7	< 0.7	< 0.7	< 0.7	< 0.8	< 0.7	< 0.7	< 0.6	< 0.6	< 0.7	< 0.6	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	(190) ^{6,x}
Non-carc. (Pyrene)	< 0.6	< 0.7	< 0.7	1.7	< 0.7	< 0.8	< 0.7	< 0.7	0.6	< 0.6	< 0.7	< 0.6	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	NA ⁴
Benz(a)pyrene eq. ⁵	ND	ND	ND	1.61	ND	ND	ND	ND	1.42	ND	ND	1.42	ND	ND	ND	ND	ND	ND	ND	NES - 35 mg/kg
Soil Samples Collected at a Depth of <1 m Below Ground Level ¹																				
Sample Name	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Tier 1 Soil Acceptance Criteria ^{2,3} Commercial/ Industrial Land Use
Laboratory Reference	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TP3/1.4	TP4/1.3	-	-	
Soil Fate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Remaining	Remaining	-	-	
Soil Type - Field	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Sand	Sand	-	-	Sand
Soil Type - MIE (1999)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Sand	Sand	-	-	
Sample Depth (m bgl)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	1.3	-	-	1 - 4 m
C ₇ -C ₉ hydrocarbons	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 9	< 8	-	-	120 ⁶
C ₁₀ -C ₁₄ hydrocarbons	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 20	< 20	-	-	(1,900) ^{6,x}
C ₁₅ -C ₂₀ hydrocarbons	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 40	< 40	-	-	NA ⁴
TPH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 70	< 70	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.7	< 0.6	-	-	(230) ^{6,x}
Non-carc. (Pyrene)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.7	< 0.6	-	-	NA ⁴
Benz(a)pyrene eq. ⁵	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	-	-	NES - 35 mg/kg

Note:
 1. All results in mg/kg.
 2. Criteria from Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (ME, August 2011).
 3. Criteria assume commercial/industrial land use, sand soil type and contamination depths of <1 m and 1-4 m below ground level.
 4. NA indicates contaminant is not limiting as health based criterion is significantly higher than may be encountered on site (i.e. 20,000 mg/kg for TPH, 10,000 mg/kg for other contaminants).
 5. The following notes indicate the limiting pathway for each criterion: m - maintenance/excavation, v - volatilisation, x - PAH surrogate.
 6. Brackets denote values exceed threshold likely to correspond to formation of residual separate phase hydrocarbons.
 7. Risk associated with mixture of carcinogenic PAHs assessed by comparison Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health (ME, 2011). Where a laboratory result for an individual PAH compound is below the laboratory detection limit the concentration is taken to be half the detection limit. ME guideline value applicable to commercial/industrial land use.
 8. ND - none of the individual PAH compounds were recorded above the laboratory limit of detection.



ANALYSIS REPORT

Client:	Pattle Delamore Partners Ltd	Lab No:	951232	SPV1
Contact:	J Seale	Date Registered:	09-Nov-2011	
	C/- Pattle Delamore Partners Ltd	Date Reported:	17-Nov-2011	
	PO Box 389	Quote No:		
	CHRISTCHURCH 8140	Order No:		
		Client Reference:	CO1779103	
		Submitted By:	J Seale	

Sample Type: Soil						
Sample Name:		TP2/0.4 08-Nov-2011	TP3/0.2 08-Nov-2011	TP3/0.5 08-Nov-2011	TP3/1.4 08-Nov-2011	TP4/0.6 08-Nov-2011
Lab Number:		951232.2	951232.3	951232.4	951232.5	951232.7
Individual Tests						
Dry Matter	g/100g as rcvd	79	88	84	87	84
Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Recoverable Arsenic	mg/kg dry wt	27	11	7	3	29
Total Recoverable Cadmium	mg/kg dry wt	0.46	0.15	0.16	< 0.10	0.23
Total Recoverable Chromium	mg/kg dry wt	28	23	17	14	44
Total Recoverable Copper	mg/kg dry wt	33	37	14	6	40
Total Recoverable Lead	mg/kg dry wt	1,710	74	53	13.4	97
Total Recoverable Nickel	mg/kg dry wt	14	14	12	11	13
Total Recoverable Zinc	mg/kg dry wt	550	92	96	46	122
Haloethers in SVOC Soil Samples by GC-MS						
Bis(2-chloroethoxy) methane	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Bis(2-chloroethyl)ether	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Bis(2-chloroisopropyl)ether	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
4-Bromophenyl phenyl ether	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
4-Chlorophenyl phenyl ether	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Nitrogen containing compounds in SVOC Soil Samples by GC-MS						
3,3'-Dichlorobenzidine	mg/kg dry wt	< 7	< 7	< 7	< 7	< 7
2,4-Dinitrotoluene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2,6-Dinitrotoluene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Nitrobenzene	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
N-Nitrosodi-n-propylamine	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
N-Nitrosodiphenylamine	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Organochlorine Pesticides in SVOC Soil Samples by GC-MS						
Aldrin	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
alpha-BHC	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
beta-BHC	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
delta-BHC	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
gamma-BHC (Lindane)	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
4,4'-DDD	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
4,4'-DDE	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
4,4'-DDT	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Dieldrin	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Endosulfan I	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endosulfan II	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endosulfan sulphate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endrin	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endrin ketone	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.

The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked *, which are not accredited.

Sample Type: Soil						
Sample Name:		TP2/0.4 08-Nov-2011	TP3/0.2 08-Nov-2011	TP3/0.5 08-Nov-2011	TP3/1.4 08-Nov-2011	TP4/0.6 08-Nov-2011
Lab Number:		951232.2	951232.3	951232.4	951232.5	951232.7
Organochlorine Pesticides in SVOC Soil Samples by GC-MS						
Heptachlor	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Heptachlor epoxide	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Hexachlorobenzene	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Polycyclic Aromatic Hydrocarbons in SVOC Soil Samples by GC-MS						
Acenaphthene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Acenaphthylene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Anthracene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Benzo[a]anthracene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Benzo[b]fluoranthene	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Benzo[g,h,i]perylene	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Benzo[k]fluoranthene	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
2-Chloronaphthalene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Chrysene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Dibenzo[a,h]anthracene	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Fluoranthene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Fluorene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
2-Methylnaphthalene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Naphthalene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Phenanthrene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Pyrene	mg/kg dry wt	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Phenols in SVOC Soil Samples by GC-MS						
4-Chloro-3-methylphenol	mg/kg dry wt	< 5	< 5	< 5	< 5	< 5
2-Chlorophenol	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
2,4-Dichlorophenol	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
2,4-Dimethylphenol	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
3 & 4-Methylphenol (m- + p-cresol)	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2-Methylphenol (o-Cresol)	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
2-Nitrophenol	mg/kg dry wt	< 5	< 5	< 5	< 5	< 5
Pentachlorophenol (PCP)	mg/kg dry wt	< 30	< 30	< 30	< 30	< 30
Phenol	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2,4,5-Trichlorophenol	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2,4,6-Trichlorophenol	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Plasticisers in SVOC Soil Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	mg/kg dry wt	< 6	< 5	< 6	< 5	< 6
Butylbenzylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Di(2-ethylhexyl)adipate	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Diethylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Dimethylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Di-n-butylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Di-n-octylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Other Halogenated compounds in SVOC Soil Samples by GC-MS						
1,2-Dichlorobenzene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
1,3-Dichlorobenzene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
1,4-Dichlorobenzene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Hexachlorobutadiene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Hexachlorocyclopentadiene	mg/kg dry wt	< 7	< 7	< 7	< 7	< 7
Hexachloroethane	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
1,2,4-Trichlorobenzene	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Other compounds in SVOC Soil Samples by GC-MS						
Benzyl alcohol	mg/kg dry wt	< 14	< 13	< 13	< 13	< 13
Carbazole	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Dibenzofuran	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3

Sample Type: Soil						
Sample Name:	TP2/0.4 08-Nov-2011	TP3/0.2 08-Nov-2011	TP3/0.5 08-Nov-2011	TP3/1.4 08-Nov-2011	TP4/0.6 08-Nov-2011	
Lab Number:	951232.2	951232.3	951232.4	951232.5	951232.7	
Other compounds in SVOC Soil Samples by GC-MS						
Isophorone	mg/kg dry wt	< 1.4	< 1.3	< 1.3	< 1.3	< 1.3
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 9	< 8	< 9	< 9	< 9
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	< 40	< 40	< 40	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 70	< 70	< 70	< 70	< 70
Sample Name:	TP4/1.3 08-Nov-2011	TP5/0.5 08-Nov-2011	TP6/0.4 08-Nov-2011	SS1 08-Nov-2011	SS2 08-Nov-2011	
Lab Number:	951232.8	951232.9	951232.11	951232.12	951232.13	
Individual Tests						
Dry Matter	g/100g as rcvd	92	84	82	97	81
Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Recoverable Arsenic	mg/kg dry wt	4	6	8	-	7
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.10	0.13	-	0.17
Total Recoverable Chromium	mg/kg dry wt	13	16	15	-	15
Total Recoverable Copper	mg/kg dry wt	6	13	13	-	14
Total Recoverable Lead	mg/kg dry wt	11.3	38	51	-	46
Total Recoverable Nickel	mg/kg dry wt	11	12	12	-	11
Total Recoverable Zinc	mg/kg dry wt	41	74	109	-	250
Haloethers in SVOC Soil Samples by GC-MS						
Bis(2-chloroethoxy) methane	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Bis(2-chloroethyl)ether	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Bis(2-chloroisopropyl)ether	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
4-Bromophenyl phenyl ether	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
4-Chlorophenyl phenyl ether	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Nitrogen containing compounds in SVOC Soil Samples by GC-MS						
3,3'-Dichlorobenzidine	mg/kg dry wt	< 6	< 7	< 7	< 6	< 7
2,4-Dinitrotoluene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2,6-Dinitrotoluene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Nitrobenzene	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
N-Nitrosodi-n-propylamine	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
N-Nitrosodiphenylamine	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Organochlorine Pesticides in SVOC Soil Samples by GC-MS						
Aldrin	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
alpha-BHC	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
beta-BHC	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
delta-BHC	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
gamma-BHC (Lindane)	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
4,4'-DDD	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
4,4'-DDE	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
4,4'-DDT	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Dieldrin	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Endosulfan I	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endosulfan II	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endosulfan sulphate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endrin	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endrin ketone	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Heptachlor	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Heptachlor epoxide	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Hexachlorobenzene	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Polycyclic Aromatic Hydrocarbons in SVOC Soil Samples by GC-MS						
Acenaphthene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7
Acenaphthylene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7
Anthracene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7

Sample Type: Soil						
Sample Name:		TP4/1.3 08-Nov-2011	TP5/0.5 08-Nov-2011	TP6/0.4 08-Nov-2011	SS1 08-Nov-2011	SS2 08-Nov-2011
Lab Number:		951232.8	951232.9	951232.11	951232.12	951232.13
Polycyclic Aromatic Hydrocarbons in SVOC Soil Samples by GC-MS						
Benzo[a]anthracene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Benzo[b]fluoranthene	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Benzo[g,h,i]perylene	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Benzo[k]fluoranthene	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
2-Chloronaphthalene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7
Chrysene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7
Dibenzo[a,h]anthracene	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Fluoranthene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7
Fluorene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
2-Methylnaphthalene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7
Naphthalene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7
Phenanthrene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7
Pyrene	mg/kg dry wt	< 0.6	< 0.7	< 0.7	< 0.6	< 0.7
Phenols in SVOC Soil Samples by GC-MS						
4-Chloro-3-methylphenol	mg/kg dry wt	< 5	< 5	< 5	< 5	< 5
2-Chlorophenol	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
2,4-Dichlorophenol	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
2,4-Dimethylphenol	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
3 & 4-Methylphenol (m- + p-cresol)	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2-Methylphenol (o-Cresol)	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
2-Nitrophenol	mg/kg dry wt	< 5	< 5	< 5	< 5	< 5
Pentachlorophenol (PCP)	mg/kg dry wt	< 30	< 30	< 30	< 30	< 30
Phenol	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2,4,5-Trichlorophenol	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2,4,6-Trichlorophenol	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Plasticisers in SVOC Soil Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	mg/kg dry wt	< 5	< 6	< 6	< 5	< 6
Butylbenzylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Di(2-ethylhexyl)adipate	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Diethylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Dimethylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Di-n-butylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Di-n-octylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Other Halogenated compounds in SVOC Soil Samples by GC-MS						
1,2-Dichlorobenzene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
1,3-Dichlorobenzene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
1,4-Dichlorobenzene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Hexachlorobutadiene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Hexachlorocyclopentadiene	mg/kg dry wt	< 6	< 7	< 7	< 6	< 7
Hexachloroethane	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
1,2,4-Trichlorobenzene	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Other compounds in SVOC Soil Samples by GC-MS						
Benzyl alcohol	mg/kg dry wt	< 12	< 13	< 14	< 12	< 14
Carbazole	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Dibenzofuran	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Isophorone	mg/kg dry wt	< 1.2	< 1.3	< 1.4	< 1.2	< 1.4
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 8	< 9	< 9	< 8	-
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	-
C15 - C36	mg/kg dry wt	< 40	< 40	< 40	< 40	-
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 70	< 70	< 70	< 70	-

Sample Type: Soil						
Sample Name:	SS3 08-Nov-2011	SS4 08-Nov-2011	SS5 08-Nov-2011	SS6 08-Nov-2011	SS7 08-Nov-2011	
Lab Number:	951232.14	951232.15	951232.16	951232.17	951232.18	
Individual Tests						
Dry Matter	g/100g as rcvd	86	85	-	-	84
Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Recoverable Arsenic	mg/kg dry wt	8	19	7	8	7
Total Recoverable Cadmium	mg/kg dry wt	0.24	0.15	0.18	0.14	0.27
Total Recoverable Chromium	mg/kg dry wt	15	19	15	17	17
Total Recoverable Copper	mg/kg dry wt	18	23	13	16	30
Total Recoverable Lead	mg/kg dry wt	88	71	34	39	620
Total Recoverable Nickel	mg/kg dry wt	11	11	10	10	11
Total Recoverable Zinc	mg/kg dry wt	138	128	100	111	200
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	< 0.010	< 0.010	-
alpha-BHC	mg/kg dry wt	-	-	< 0.010	< 0.010	-
beta-BHC	mg/kg dry wt	-	-	< 0.010	< 0.010	-
delta-BHC	mg/kg dry wt	-	-	< 0.010	< 0.010	-
gamma-BHC (Lindane)	mg/kg dry wt	-	-	< 0.010	< 0.010	-
cis-Chlordane	mg/kg dry wt	-	-	< 0.010	< 0.010	-
trans-Chlordane	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	-	-	< 0.04	< 0.04	-
2,4'-DDD	mg/kg dry wt	-	-	< 0.010	< 0.010	-
4,4'-DDD	mg/kg dry wt	-	-	< 0.010	< 0.010	-
2,4'-DDE	mg/kg dry wt	-	-	< 0.010	< 0.010	-
4,4'-DDE	mg/kg dry wt	-	-	0.038	0.049	-
2,4'-DDT	mg/kg dry wt	-	-	< 0.010	< 0.010	-
4,4'-DDT	mg/kg dry wt	-	-	0.012	< 0.010	-
Dieldrin	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Endosulfan I	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Endosulfan II	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Endosulfan sulphate	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Endrin	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Endrin Aldehyde	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Endrin ketone	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Heptachlor	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Heptachlor epoxide	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Hexachlorobenzene	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Methoxychlor	mg/kg dry wt	-	-	< 0.010	< 0.010	-
Haloethers in SVOC Soil Samples by GC-MS						
Bis(2-chloroethoxy) methane	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Bis(2-chloroethyl)ether	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Bis(2-chloroisopropyl)ether	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
4-Bromophenyl phenyl ether	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
4-Chlorophenyl phenyl ether	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Nitrogen containing compounds in SVOC Soil Samples by GC-MS						
3,3'-Dichlorobenzidine	mg/kg dry wt	< 7	< 7	-	-	< 7
2,4-Dinitrotoluene	mg/kg dry wt	< 3	< 3	-	-	< 3
2,6-Dinitrotoluene	mg/kg dry wt	< 3	< 3	-	-	< 3
Nitrobenzene	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
N-Nitrosodi-n-propylamine	mg/kg dry wt	< 3	< 3	-	-	< 3
N-Nitrosodiphenylamine	mg/kg dry wt	< 3	< 3	-	-	< 3
Organochlorine Pesticides in SVOC Soil Samples by GC-MS						
Aldrin	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
alpha-BHC	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
beta-BHC	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
delta-BHC	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
gamma-BHC (Lindane)	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3

Sample Type: Soil						
Sample Name:	SS3 08-Nov-2011	SS4 08-Nov-2011	SS5 08-Nov-2011	SS6 08-Nov-2011	SS7 08-Nov-2011	
Lab Number:	951232.14	951232.15	951232.16	951232.17	951232.18	
Organochlorine Pesticides in SVOC Soil Samples by GC-MS						
4,4'-DDD	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
4,4'-DDE	mg/kg dry wt	2.3	< 1.3	-	-	< 1.3
4,4'-DDT	mg/kg dry wt	< 3	< 3	-	-	< 3
Dieldrin	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Endosulfan I	mg/kg dry wt	< 3	< 3	-	-	< 3
Endosulfan II	mg/kg dry wt	< 3	< 3	-	-	< 3
Endosulfan sulphate	mg/kg dry wt	< 3	< 3	-	-	< 3
Endrin	mg/kg dry wt	< 3	< 3	-	-	< 3
Endrin ketone	mg/kg dry wt	< 3	< 3	-	-	< 3
Heptachlor	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Heptachlor epoxide	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Hexachlorobenzene	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Polycyclic Aromatic Hydrocarbons in SVOC Soil Samples by GC-MS						
Acenaphthene	mg/kg dry wt	< 0.7	< 0.7	-	-	< 0.7
Acenaphthylene	mg/kg dry wt	< 0.7	< 0.7	-	-	< 0.7
Anthracene	mg/kg dry wt	< 0.7	< 0.7	-	-	< 0.7
Benzo[a]anthracene	mg/kg dry wt	< 0.7	0.9	-	-	< 0.7
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Benzo[b]fluoranthene	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Benzo[g,h,i]perylene	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Benzo[k]fluoranthene	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
2-Chloronaphthalene	mg/kg dry wt	< 0.7	< 0.7	-	-	< 0.7
Chrysene	mg/kg dry wt	< 0.7	0.8	-	-	< 0.7
Dibenzo[a,h]anthracene	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Fluoranthene	mg/kg dry wt	< 0.7	1.9	-	-	< 0.7
Fluorene	mg/kg dry wt	< 0.7	< 0.7	-	-	< 0.7
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
2-Methylnaphthalene	mg/kg dry wt	< 0.7	< 0.7	-	-	< 0.7
Naphthalene	mg/kg dry wt	< 0.7	< 0.7	-	-	< 0.7
Phenanthrene	mg/kg dry wt	< 0.7	1.3	-	-	< 0.7
Pyrene	mg/kg dry wt	< 0.7	1.7	-	-	< 0.7
Phenols in SVOC Soil Samples by GC-MS						
4-Chloro-3-methylphenol	mg/kg dry wt	< 5	< 5	-	-	< 5
2-Chlorophenol	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
2,4-Dichlorophenol	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
2,4-Dimethylphenol	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
3 & 4-Methylphenol (m- + p-cresol)	mg/kg dry wt	< 3	< 3	-	-	< 3
2-Methylphenol (o-Cresol)	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
2-Nitrophenol	mg/kg dry wt	< 5	< 5	-	-	< 5
Pentachlorophenol (PCP)	mg/kg dry wt	< 30	< 30	-	-	< 30
Phenol	mg/kg dry wt	< 3	< 3	-	-	< 3
2,4,5-Trichlorophenol	mg/kg dry wt	< 3	< 3	-	-	< 3
2,4,6-Trichlorophenol	mg/kg dry wt	< 3	< 3	-	-	< 3
Plasticisers in SVOC Soil Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	mg/kg dry wt	< 5	< 6	-	-	< 6
Butylbenzylphthalate	mg/kg dry wt	< 3	< 3	-	-	< 3
Di(2-ethylhexyl)adipate	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Diethylphthalate	mg/kg dry wt	< 3	< 3	-	-	< 3
Dimethylphthalate	mg/kg dry wt	< 3	< 3	-	-	< 3
Di-n-butylphthalate	mg/kg dry wt	< 3	< 3	-	-	< 3
Di-n-octylphthalate	mg/kg dry wt	< 3	< 3	-	-	< 3
Other Halogenated compounds in SVOC Soil Samples by GC-MS						
1,2-Dichlorobenzene	mg/kg dry wt	< 3	< 3	-	-	< 3
1,3-Dichlorobenzene	mg/kg dry wt	< 3	< 3	-	-	< 3

Sample Type: Soil						
Sample Name:	SS3 08-Nov-2011	SS4 08-Nov-2011	SS5 08-Nov-2011	SS6 08-Nov-2011	SS7 08-Nov-2011	
Lab Number:	951232.14	951232.15	951232.16	951232.17	951232.18	
Other Halogenated compounds in SVOC Soil Samples by GC-MS						
1,4-Dichlorobenzene	mg/kg dry wt	< 3	< 3	-	-	< 3
Hexachlorobutadiene	mg/kg dry wt	< 3	< 3	-	-	< 3
Hexachlorocyclopentadiene	mg/kg dry wt	< 7	< 7	-	-	< 7
Hexachloroethane	mg/kg dry wt	< 3	< 3	-	-	< 3
1,2,4-Trichlorobenzene	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Other compounds in SVOC Soil Samples by GC-MS						
Benzyl alcohol	mg/kg dry wt	< 13	< 13	-	-	< 13
Carbazole	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Dibenzofuran	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Isophorone	mg/kg dry wt	< 1.3	< 1.3	-	-	< 1.3
Sample Name:	SS8 08-Nov-2011	SS9 08-Nov-2011	SS10 08-Nov-2011	SS11 08-Nov-2011	SS12 08-Nov-2011	
Lab Number:	951232.19	951232.20	951232.21	951232.22	951232.23	
Individual Tests						
Dry Matter	g/100g as rcvd	76	80	80	94	90
Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Recoverable Arsenic	mg/kg dry wt	6	6	6	23	18
Total Recoverable Cadmium	mg/kg dry wt	0.18	0.15	0.22	0.50	0.60
Total Recoverable Chromium	mg/kg dry wt	15	16	16	24	22
Total Recoverable Copper	mg/kg dry wt	20	17	18	41	37
Total Recoverable Lead	mg/kg dry wt	300	151	560	109	138
Total Recoverable Nickel	mg/kg dry wt	10	11	11	13	14
Total Recoverable Zinc	mg/kg dry wt	142	112	190	420	490
Haloethers in SVOC Soil Samples by GC-MS						
Bis(2-chloroethoxy) methane	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Bis(2-chloroethyl)ether	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Bis(2-chloroisopropyl)ether	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
4-Bromophenyl phenyl ether	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
4-Chlorophenyl phenyl ether	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Nitrogen containing compounds in SVOC Soil Samples by GC-MS						
3,3'-Dichlorobenzidine	mg/kg dry wt	< 8	< 7	< 7	< 6	< 6
2,4-Dinitrotoluene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2,6-Dinitrotoluene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Nitrobenzene	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
N-Nitrosodi-n-propylamine	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
N-Nitrosodiphenylamine	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Organochlorine Pesticides in SVOC Soil Samples by GC-MS						
Aldrin	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
alpha-BHC	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
beta-BHC	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
delta-BHC	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
gamma-BHC (Lindane)	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
4,4'-DDD	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
4,4'-DDE	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
4,4'-DDT	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Dieldrin	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Endosulfan I	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endosulfan II	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endosulfan sulphate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endrin	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Endrin ketone	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Heptachlor	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Heptachlor epoxide	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Hexachlorobenzene	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Polycyclic Aromatic Hydrocarbons in SVOC Soil Samples by GC-MS						

Sample Type: Soil						
Sample Name:	SS8 08-Nov-2011	SS9 08-Nov-2011	SS10 08-Nov-2011	SS11 08-Nov-2011	SS12 08-Nov-2011	
Lab Number:	951232.19	951232.20	951232.21	951232.22	951232.23	
Polycyclic Aromatic Hydrocarbons in SVOC Soil Samples by GC-MS						
Acenaphthene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	< 0.6	< 0.6
Acenaphthylene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	< 0.6	< 0.6
Anthracene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	< 0.6	< 0.6
Benzo[a]anthracene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	< 0.6	< 0.6
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Benzo[b]fluoranthene	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Benzo[g,h,i]perylene	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Benzo[k]fluoranthene	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
2-Chloronaphthalene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	< 0.6	< 0.6
Chrysene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	< 0.6	< 0.6
Dibenzo[a,h]anthracene	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Fluoranthene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	0.7	< 0.6
Fluorene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	< 0.6	< 0.6
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
2-Methylnaphthalene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	< 0.6	< 0.6
Naphthalene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	< 0.6	< 0.6
Phenanthrene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	0.7	< 0.6
Pyrene	mg/kg dry wt	< 0.8	< 0.7	< 0.7	0.6	< 0.6
Phenols in SVOC Soil Samples by GC-MS						
4-Chloro-3-methylphenol	mg/kg dry wt	< 5	< 5	< 5	< 5	< 5
2-Chlorophenol	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
2,4-Dichlorophenol	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
2,4-Dimethylphenol	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
3 & 4-Methylphenol (m- + p-cresol)	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2-Methylphenol (o-Cresol)	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
2-Nitrophenol	mg/kg dry wt	< 5	< 5	< 5	< 5	< 5
Pentachlorophenol (PCP)	mg/kg dry wt	< 30	< 30	< 30	< 30	< 30
Phenol	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2,4,5-Trichlorophenol	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
2,4,6-Trichlorophenol	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Plasticisers in SVOC Soil Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	mg/kg dry wt	< 6	< 6	< 6	< 5	< 5
Butylbenzylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Di(2-ethylhexyl)adipate	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Diethylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Dimethylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Di-n-butylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Di-n-octylphthalate	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Other Halogenated compounds in SVOC Soil Samples by GC-MS						
1,2-Dichlorobenzene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
1,3-Dichlorobenzene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
1,4-Dichlorobenzene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Hexachlorobutadiene	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
Hexachlorocyclopentadiene	mg/kg dry wt	< 8	< 7	< 7	< 6	< 6
Hexachloroethane	mg/kg dry wt	< 3	< 3	< 3	< 3	< 3
1,2,4-Trichlorobenzene	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Other compounds in SVOC Soil Samples by GC-MS						
Benzyl alcohol	mg/kg dry wt	< 15	< 14	< 14	< 12	< 12
Carbazole	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Dibenzofuran	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2
Isophorone	mg/kg dry wt	< 1.5	< 1.4	< 1.4	< 1.2	< 1.2

Sample Type: Soil						
Sample Name:		SS13	SS14	SS15	SS16	SS17
		08-Nov-2011	08-Nov-2011	08-Nov-2011	08-Nov-2011	08-Nov-2011
Lab Number:		951232.24	951232.25	951232.26	951232.27	951232.28
Individual Tests						
Dry Matter	g/100g as rcvd	84	93	-	-	-
Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Recoverable Arsenic	mg/kg dry wt	22	12	6	5	6
Total Recoverable Cadmium	mg/kg dry wt	0.53	0.38	0.18	0.23	0.19
Total Recoverable Chromium	mg/kg dry wt	25	20	16	16	16
Total Recoverable Copper	mg/kg dry wt	54	22	9	9	9
Total Recoverable Lead	mg/kg dry wt	183	123	36	26	20
Total Recoverable Nickel	mg/kg dry wt	13	14	11	11	11
Total Recoverable Zinc	mg/kg dry wt	330	450	90	96	64
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
alpha-BHC	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
beta-BHC	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
delta-BHC	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
gamma-BHC (Lindane)	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
cis-Chlordane	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
trans-Chlordane	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	-	-	< 0.04	< 0.04	< 0.04
2,4'-DDD	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
4,4'-DDD	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
2,4'-DDE	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
4,4'-DDE	mg/kg dry wt	-	-	< 0.010	0.152	< 0.010
2,4'-DDT	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
4,4'-DDT	mg/kg dry wt	-	-	< 0.010	0.031	< 0.010
Dieldrin	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Endosulfan I	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Endosulfan II	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Endosulfan sulphate	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Endrin	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Endrin Aldehyde	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Endrin ketone	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Heptachlor	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Heptachlor epoxide	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Hexachlorobenzene	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Methoxychlor	mg/kg dry wt	-	-	< 0.010	< 0.010	< 0.010
Haloethers in SVOC Soil Samples by GC-MS						
Bis(2-chloroethoxy) methane	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Bis(2-chloroethyl)ether	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg dry wt	< 1.3	< 1.2	-	-	-
4-Bromophenyl phenyl ether	mg/kg dry wt	< 1.3	< 1.2	-	-	-
4-Chlorophenyl phenyl ether	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Nitrogen containing compounds in SVOC Soil Samples by GC-MS						
3,3'-Dichlorobenzidine	mg/kg dry wt	< 7	< 6	-	-	-
2,4-Dinitrotoluene	mg/kg dry wt	< 3	< 3	-	-	-
2,6-Dinitrotoluene	mg/kg dry wt	< 3	< 3	-	-	-
Nitrobenzene	mg/kg dry wt	< 1.3	< 1.2	-	-	-
N-Nitrosodi-n-propylamine	mg/kg dry wt	< 3	< 3	-	-	-
N-Nitrosodiphenylamine	mg/kg dry wt	< 3	< 3	-	-	-
Organochlorine Pesticides in SVOC Soil Samples by GC-MS						
Aldrin	mg/kg dry wt	< 1.3	< 1.2	-	-	-
alpha-BHC	mg/kg dry wt	< 1.3	< 1.2	-	-	-
beta-BHC	mg/kg dry wt	< 1.3	< 1.2	-	-	-
delta-BHC	mg/kg dry wt	< 1.3	< 1.2	-	-	-
gamma-BHC (Lindane)	mg/kg dry wt	< 1.3	< 1.2	-	-	-

Sample Type: Soil						
Sample Name:		SS13 08-Nov-2011	SS14 08-Nov-2011	SS15 08-Nov-2011	SS16 08-Nov-2011	SS17 08-Nov-2011
Lab Number:		951232.24	951232.25	951232.26	951232.27	951232.28
Organochlorine Pesticides in SVOC Soil Samples by GC-MS						
4,4'-DDD	mg/kg dry wt	< 1.3	< 1.2	-	-	-
4,4'-DDE	mg/kg dry wt	< 1.3	< 1.2	-	-	-
4,4'-DDT	mg/kg dry wt	< 3	< 3	-	-	-
Dieldrin	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Endosulfan I	mg/kg dry wt	< 3	< 3	-	-	-
Endosulfan II	mg/kg dry wt	< 3	< 3	-	-	-
Endosulfan sulphate	mg/kg dry wt	< 3	< 3	-	-	-
Endrin	mg/kg dry wt	< 3	< 3	-	-	-
Endrin ketone	mg/kg dry wt	< 3	< 3	-	-	-
Heptachlor	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Heptachlor epoxide	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Hexachlorobenzene	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Polycyclic Aromatic Hydrocarbons in SVOC Soil Samples by GC-MS						
Acenaphthene	mg/kg dry wt	< 0.7	< 0.6	-	-	-
Acenaphthylene	mg/kg dry wt	< 0.7	< 0.6	-	-	-
Anthracene	mg/kg dry wt	< 0.7	< 0.6	-	-	-
Benzo[a]anthracene	mg/kg dry wt	< 0.7	< 0.6	-	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Benzo[b]fluoranthene	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Benzo[k]fluoranthene	mg/kg dry wt	< 1.3	< 1.2	-	-	-
2-Chloronaphthalene	mg/kg dry wt	< 0.7	< 0.6	-	-	-
Chrysene	mg/kg dry wt	< 0.7	< 0.6	-	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Fluoranthene	mg/kg dry wt	< 0.7	0.6	-	-	-
Fluorene	mg/kg dry wt	< 0.7	< 0.6	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 1.3	< 1.2	-	-	-
2-Methylnaphthalene	mg/kg dry wt	< 0.7	< 0.6	-	-	-
Naphthalene	mg/kg dry wt	< 0.7	< 0.6	-	-	-
Phenanthrene	mg/kg dry wt	< 0.7	0.6	-	-	-
Pyrene	mg/kg dry wt	< 0.7	< 0.6	-	-	-
Phenols in SVOC Soil Samples by GC-MS						
4-Chloro-3-methylphenol	mg/kg dry wt	< 5	< 5	-	-	-
2-Chlorophenol	mg/kg dry wt	< 1.3	< 1.2	-	-	-
2,4-Dichlorophenol	mg/kg dry wt	< 1.3	< 1.2	-	-	-
2,4-Dimethylphenol	mg/kg dry wt	< 1.3	< 1.2	-	-	-
3 & 4-Methylphenol (m- + p-cresol)	mg/kg dry wt	< 3	< 3	-	-	-
2-Methylphenol (o-Cresol)	mg/kg dry wt	< 1.3	< 1.2	-	-	-
2-Nitrophenol	mg/kg dry wt	< 5	< 5	-	-	-
Pentachlorophenol (PCP)	mg/kg dry wt	< 30	< 30	-	-	-
Phenol	mg/kg dry wt	< 3	< 3	-	-	-
2,4,5-Trichlorophenol	mg/kg dry wt	< 3	< 3	-	-	-
2,4,6-Trichlorophenol	mg/kg dry wt	< 3	< 3	-	-	-
Plasticisers in SVOC Soil Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	mg/kg dry wt	< 6	< 5	-	-	-
Butylbenzylphthalate	mg/kg dry wt	< 3	< 3	-	-	-
Di(2-ethylhexyl)adipate	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Diethylphthalate	mg/kg dry wt	< 3	< 3	-	-	-
Dimethylphthalate	mg/kg dry wt	< 3	< 3	-	-	-
Di-n-butylphthalate	mg/kg dry wt	< 3	< 3	-	-	-
Di-n-octylphthalate	mg/kg dry wt	< 3	< 3	-	-	-
Other Halogenated compounds in SVOC Soil Samples by GC-MS						
1,2-Dichlorobenzene	mg/kg dry wt	< 3	< 3	-	-	-
1,3-Dichlorobenzene	mg/kg dry wt	< 3	< 3	-	-	-

Sample Type: Soil

Sample Name:	SS13	SS14	SS15	SS16	SS17
	08-Nov-2011	08-Nov-2011	08-Nov-2011	08-Nov-2011	08-Nov-2011
Lab Number:	951232.24	951232.25	951232.26	951232.27	951232.28

Other Halogenated compounds in SVOC Soil Samples by GC-MS

1,4-Dichlorobenzene	mg/kg dry wt	< 3	< 3	-	-	-
Hexachlorobutadiene	mg/kg dry wt	< 3	< 3	-	-	-
Hexachlorocyclopentadiene	mg/kg dry wt	< 7	< 6	-	-	-
Hexachloroethane	mg/kg dry wt	< 3	< 3	-	-	-
1,2,4-Trichlorobenzene	mg/kg dry wt	< 1.3	< 1.2	-	-	-

Other compounds in SVOC Soil Samples by GC-MS

Benzyl alcohol	mg/kg dry wt	< 13	< 12	-	-	-
Carbazole	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Dibenzofuran	mg/kg dry wt	< 1.3	< 1.2	-	-	-
Isophorone	mg/kg dry wt	< 1.3	< 1.2	-	-	-

Sample Name:	SS18	SS19	SS20	SS21	SS22
	08-Nov-2011	08-Nov-2011	08-Nov-2011	08-Nov-2011	08-Nov-2011
Lab Number:	951232.29	951232.30	951232.31	951232.32	951232.33

Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn

Total Recoverable Arsenic	mg/kg dry wt	5	5	4	7	13
Total Recoverable Cadmium	mg/kg dry wt	0.20	0.23	0.14	0.24	0.26
Total Recoverable Chromium	mg/kg dry wt	15	16	15	20	28
Total Recoverable Copper	mg/kg dry wt	10	10	12	14	21
Total Recoverable Lead	mg/kg dry wt	35	26	21	44	46
Total Recoverable Nickel	mg/kg dry wt	10	10	11	12	12
Total Recoverable Zinc	mg/kg dry wt	87	88	77	95	109

Organochlorine Pesticides Screening in Soil

Aldrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
alpha-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
beta-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
delta-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
gamma-BHC (Lindane)	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
cis-Chlordane	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
trans-Chlordane	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2,4'-DDD	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
4,4'-DDD	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,4'-DDE	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
4,4'-DDE	mg/kg dry wt	0.020	0.013	0.048	< 0.010	< 0.010
2,4'-DDT	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
4,4'-DDT	mg/kg dry wt	< 0.010	< 0.010	0.022	< 0.010	< 0.010
Dieldrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan I	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan II	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan sulphate	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin Aldehyde	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin ketone	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor epoxide	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachlorobenzene	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Methoxychlor	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Sample Name:	SS23	SS24	SS25	SS26	
	08-Nov-2011	08-Nov-2011	08-Nov-2011	08-Nov-2011	
Lab Number:	951232.34	951232.35	951232.36	951232.37	

Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn

Total Recoverable Arsenic	mg/kg dry wt	12	5	5	4	-
Total Recoverable Cadmium	mg/kg dry wt	0.22	0.29	0.27	0.32	-
Total Recoverable Chromium	mg/kg dry wt	17	19	17	15	-

Sample Type: Soil						
Sample Name:		SS23	SS24	SS25	SS26	
		08-Nov-2011	08-Nov-2011	08-Nov-2011	08-Nov-2011	
Lab Number:		951232.34	951232.35	951232.36	951232.37	
Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Recoverable Copper	mg/kg dry wt	15	15	10	10	-
Total Recoverable Lead	mg/kg dry wt	63	33	25	32	-
Total Recoverable Nickel	mg/kg dry wt	12	12	11	11	-
Total Recoverable Zinc	mg/kg dry wt	97	101	89	81	-
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
alpha-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
beta-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
delta-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
gamma-BHC (Lindane)	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
cis-Chlordane	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
trans-Chlordane	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	-
2,4'-DDD	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
4,4'-DDD	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
2,4'-DDE	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
4,4'-DDE	mg/kg dry wt	< 0.010	< 0.010	< 0.010	0.079	-
2,4'-DDT	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
4,4'-DDT	mg/kg dry wt	< 0.010	< 0.010	< 0.010	0.011	-
Dieldrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
Endosulfan I	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
Endosulfan II	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
Endosulfan sulphate	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
Endrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
Endrin Aldehyde	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
Endrin ketone	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
Heptachlor	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
Heptachlor epoxide	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
Hexachlorobenzene	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-
Methoxychlor	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	-

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Samples
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation. May contain a residual moisture content of 2-5%.	-	2-5, 7-9, 11, 13-37
Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn	Dried sample, <2mm fraction. Nitric/Hydrochloric acid digestion, ICP-MS, screen level.	-	2-5, 7-9, 11, 13-37
Organochlorine Pesticides Screening in Soil	Sonication extraction, SPE cleanup, dual column GC-ECD analysis (modified US EPA 8082).. Tested on dried sample	-	16-17, 26-37
Semivolatile Organic Compounds Screening in Soil by GC-MS	Sonication extraction, GPC cleanup (if required), GC-MS FS analysis. Tested on as received sample	-	2-5, 7-9, 11-15, 18-25
Total Petroleum Hydrocarbons in Soil	Sonication extraction in DCM, Silica cleanup, GC-FID analysis US EPA 8015B/MfE Petroleum Industry Guidelines. Tested on as received sample	-	2-5, 7-9, 11-12
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. US EPA 3550.	0.10 g/100g as rcvd	2-5, 7-9, 11-15, 18-25
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	2-5, 7-9, 11, 13-37

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

This report must not be reproduced, except in full, without the written consent of the signatory.

A handwritten signature in blue ink, consisting of several overlapping, stylized lines that form a unique, abstract shape.

Ara Heron BSc (Tech)
Client Services Manager - Environmental Division

Request for Analyses


NOTE: Please acknowledge receipt of these samples by signing this form and emailing to submitter.

From: Pattle Delamore Partners Ltd
 Address (Refer to base of sheet): PDP Auckland PDP Wellington PDP Christchurch
 Submitted by: Joyce Seale Ph No.: 03 3633100
 To: H. 115
 Quote No.: _____ PDP Job No.: CO1779103

Chain of Custody Record

Sent:
 Name: Joyce Seale
 Signature: Joyce Seale
 Date and time: 8/11/11

Received: Room temp. Chilled Temp.: _____ °C
 Name: PAQA
 Signature: D. Abern
 Date and time: _____

Notes:
 Time Received: 09-Nov-2011 11:13:55 am
 Job No: **951232**
 No of Samples: **37** No of Fractions: **178**

 0319512323

Results by: Email submitter: joyce.seale@pdp.co.nz Mail (address below)
 Email other: _____ @pdp.co.nz Fax (number below)
 Priority: Normal High Urgent
 Results required by: _____ / _____ / _____

Invoice to: PDP Other: _____ **NOV 9 AM 2011**

Sample ID	Sample type	No. bottles	Analyses requested	Notes
TP2/0.2	5	2	Hold Cold	Temperature On Arrival <u>17.2</u> °C Temperature was measured on one or more arbitrarily chosen samples in this batch.
TP2/0.7				
TP3/0.2				
TP3/0.5				
TP3/1.4				
TP4/0.2				
TP4/0.6				
TP4/1.3				
TP5/0.5				
TP6/0.2				
TP6/0.4				
SS1			SVOC TPH _{SET}	
SS2			7 heavy metals, SVOC	
SS3			↓ ↓	
SS4				
SS5			7 heavy metals OCP	
SS6			↓ ↓	
SS7			7 heavy metals SVOC	
SS8			↓ ↓	
SS9				
SS10				
SS11				

Sample type: S Soil GW Groundwater SAL Seawater/saline FW Freshwater LEACH Leachate GEO Geothermal
 SED Sediment BIO Biota TW Tradewaste WW Wastewater P Potable Other: _____

Note: Samples may contain dangerous or hazardous substances



PATTLE DELAMORE PARTNERS LTD

Request for Analyses

NOTE: Please acknowledge receipt of these samples by signing this form and emailing to submitter.

From: Pattle Delamore Partners Ltd

Address (Refer to base of sheet): PDP Auckland PDP Wellington PDP Christchurch

Submitted by: Joyce Seale Ph No.: 033633100

To: H. H. S

Quote No.: ~~001779~~

PDP Job No.: 001779103

Chain of Custody Record

Sent: Name: Joyce Seale Signature: Joyce Seale Date and time: 8/11/10

Received: Room temp. Chilled Temp.: _____ °C Name: Darryl Signature: D.A. Bain Date and time: _____

Notes:

Results by: Email submitter: joyce.seale @pdp.co.nz Mail (address below) Email other: _____ @pdp.co.nz Fax (number below)

Priority: Normal High Urgent

Results required by: ___ / ___ / ___

Invoice to: PDP Other:

Sample ID	Sample type	No. bottles	Analyses requested	Notes
SS 12	5	2	7 heavy metals, SVOC	
SS 13				
SS 14				
SS 15			7 heavy metals, OCT	
SS 16				
SS 17				
SS 18				
SS 19				
SS 20				
SS 21				
SS 22				
SS 23				
SS 24				
SS 25				
SS 26				

Sample type: S Soil GW Groundwater SAL Seawater/saline FW Freshwater LEACH Leachate GEO Geothermal
 SED Sediment BIO Biota TW Tradewaste WW Wastewater P Potable Other: _____

Note: Samples may contain dangerous or hazardous substances



Job Information Summary

Page 1 of 3

Client:	Pattle Delamore Partners Ltd	Lab No:	951232
Contact:	J Seale	Date Registered:	09-Nov-2011 11:34:34 am
	C/- Pattle Delamore Partners Ltd	Priority:	High
	PO Box 389	Quote No:	
	CHRISTCHURCH 8140	Order No:	
		Client Reference:	CO1779103
		Add. Client Ref:	
		Submitted By:	J Seale
		Charge To:	Pattle Delamore Partners Ltd

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	TP2/0.2 08-Nov-2011	Soil	GSoil125, cGSoil	Hold Cold
2	TP2/0.4 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS; Total Petroleum Hydrocarbons in Soil
3	TP3/0.2 08-Nov-2011	Soil	GSoil125, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS; Total Petroleum Hydrocarbons in Soil
4	TP3/0.5 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS; Total Petroleum Hydrocarbons in Soil
5	TP3/1.4 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS; Total Petroleum Hydrocarbons in Soil
6	TP4/0.2 08-Nov-2011	Soil	GSoil125, GSoil125	Hold Cold
7	TP4/0.6 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS; Total Petroleum Hydrocarbons in Soil
8	TP4/1.3 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS; Total Petroleum Hydrocarbons in Soil
9	TP5/0.5 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS; Total Petroleum Hydrocarbons in Soil
10	TP6/0.2 08-Nov-2011	Soil	GSoil125, GSoil125	Hold Cold
11	TP6/0.4 08-Nov-2011	Soil	GSoil125, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS; Total Petroleum Hydrocarbons in Soil
12	SS1 08-Nov-2011	Soil	GSoil125, GSoil125	Total Petroleum Hydrocarbons in Soil; Semivolatile Organic Compounds Screening in Soil by GC-MS
13	SS2 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS
14	SS3 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS
15	SS4 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS
16	SS5 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
17	SS6 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
18	SS7 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS

Samples

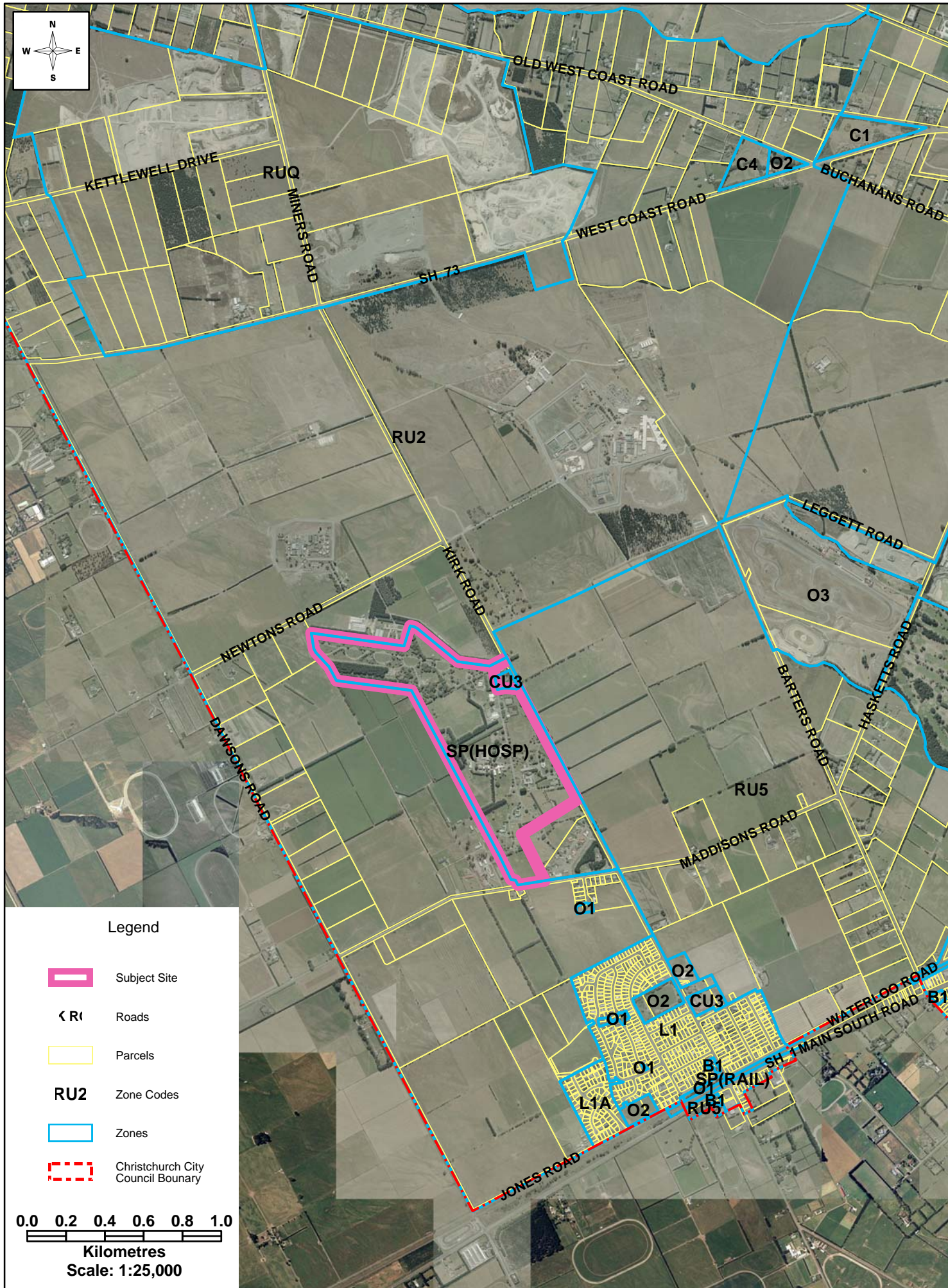
No	Sample Name	Sample Type	Containers	Tests Requested
19	SS8 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS
20	SS9 08-Nov-2011	Soil	cGSoil, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS
21	SS10 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS
22	SS11 08-Nov-2011	Soil	GSoil125, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS
23	SS12 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS
24	SS13 08-Nov-2011	Soil	cGSoil, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS
25	SS14 08-Nov-2011	Soil	cGSoil, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Semivolatile Organic Compounds Screening in Soil by GC-MS
26	SS15 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
27	SS16 08-Nov-2011	Soil	GSoil125, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
28	SS17 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
29	SS18 08-Nov-2011	Soil	GSoil125, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
30	SS19 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
31	SS20 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
32	SS21 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
33	SS22 08-Nov-2011	Soil	cGSoil, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
34	SS23 08-Nov-2011	Soil	GSoil125, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
35	SS24 08-Nov-2011	Soil	GSoil125, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
36	SS25 08-Nov-2011	Soil	GSoil125, cGSoil	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil
37	SS26 08-Nov-2011	Soil	GSoil125, GSoil125	Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn; Organochlorine Pesticides Screening in Soil

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Samples
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation. May contain a residual moisture content of 2-5%.	-	2-5, 7-9, 11, 13-37
Heavy metal screen level As,Cd,Cr,Cu,Ni,Pb,Zn	Dried sample, <2mm fraction. Nitric/Hydrochloric acid digestion, ICP-MS, screen level.	-	2-5, 7-9, 11, 13-37
Organochlorine Pesticides Screening in Soil	Sonication extraction, SPE cleanup, dual column GC-ECD analysis (modified US EPA 8082).. Tested on dried sample	-	16-17, 26-37
Semivolatile Organic Compounds Screening in Soil by GC-MS	Sonication extraction, GPC cleanup (if required), GC-MSFS analysis. Tested on as received sample	-	2-5, 7-9, 11-15, 18-25
Total Petroleum Hydrocarbons in Soil	Sonication extraction in DCM, Silica cleanup, GC-FID analysis US EPA 8015B/MfE Petroleum Industry Guidelines. Tested on as received sample	-	2-5, 7-9, 11-12

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Samples
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. US EPA 3550.	0.10 g/100g as rcvd	2-5, 7-9, 11-15, 18-25
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	2-5, 7-9, 11, 13-37

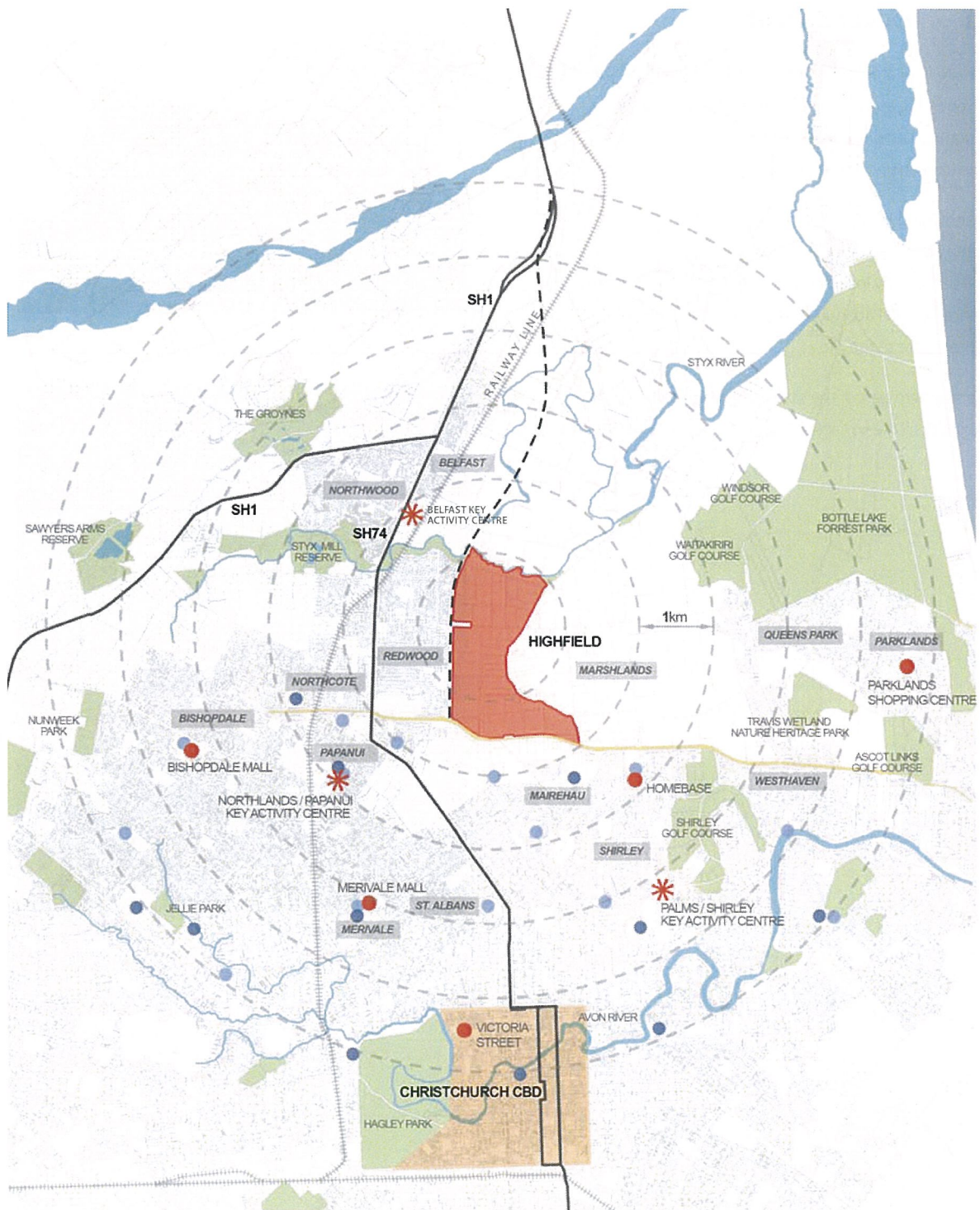


Legend

-  Subject Site
-  Roads
-  Parcels
- RU2** Zone Codes
-  Zones
-  Christchurch City Council Boundary

0.0 0.2 0.4 0.6 0.8 1.0
 Kilometres
 Scale: 1:25,000

CLAUSE 4



- | | |
|---|--|
| ■ PLAN CHANGE SITE | ● OTHER MAJOR SHOPPING AREA |
| - - - PROPOSED NORTHERN ARTERIAL ROUTE | ● PRIMARY SCHOOL |
| ✱ KEY ACTIVITY CENTRE | ● INTERMEDIATE & HIGH SCHOOL |
| — QUEEN ELIZABETH II DRIVE | ■ OPEN SPACE/RECREATION |













Figure 2 - City Context
Scale 1:50,000











Appendix 3xa - Outline Development Plan (Highfield Park) - North

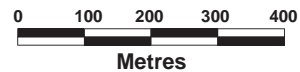
Key

LAND USE

-  Residential Density Area A
-  Residential Density Area B
-  Residential Density Area C
-  Residential Density Area D
-  Neighbourhood Centre / Business Node (Business 1)
-  Open Space Reserve
-  Future Stormwater Management Area
-  Drainage Reserve Associated with Development
-  Reserve Feature / Activity Node - Indicative Location
-  Horners Stream - Indicative Alignment & Associated Drainage Reserve
-  10m Building Setback
-  Planted Bund

MOVEMENT

-  Northern Arterial Designation
-  Central Boulevard
-  Road
-  Road - Indicative Location
-  Future Road Connection
-  Possible Private Laneway
-  Off Road Pedestrian and Cycle Route
-  Possible Bus Route















131630-Highfield Park Outline Development Plan Appendix Drawings v2










Appendix 3xb - Outline Development Plan (Highfield Park) - South

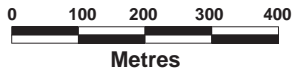
Key

LAND USE

-  Residential Density Area A
-  Residential Density Area B
-  Residential Density Area C
-  Residential Density Area D
-  Neighbourhood Centre / Business Node (Business 1)
-  Open Space Reserve
-  Future Stormwater Management Area
-  Drainage Reserve Associated with Development
-  Reserve Feature / Activity Node - Indicative Location
-  Horners Stream - Indicative Alignment & Associated Drainage Reserve
-  10m Building Setback
-  Planted Bund

MOVEMENT

-  Northern Arterial Designation
-  Central Boulevard
-  Road
-  Road - Indicative Location
-  Future Road Connection
-  Future Road Subject to Resolution of Stormwater Management Issues
-  Possible Private Laneway
-  Off Road Pedestrian and Cycle Route
-  Possible Bus Route



131630-Highfield Park Outline Development Plan Appendix Drawings v2



Highfield Plan Change

Prepared for Highfield Park Limited

March 2012



Davis Ogilvie & Partners Ltd
186 Hazeldean Road
Addington
P O Box 589
Christchurch 8140

P: 03 366 1653 | 0800 999 333
W: www.dop.co.nz

Quality Assurance

Title: Highfield Plan Change

Client: Highfield Park Limited

Filename: T:\projects\28's\28914\Resource Management\Plan Change RFI Response (February 2012)\120306.mc.mm.Revision 4

Version: Revision 4

Date: March 2012

Project No: 28914

Prepared By: Matt McLachlan / Mary Clay

Signature:



Table of Contents

Executive Summary	3
1.0 Introduction	5
1.1 Summary of Applicant and Proposal Details	6
1.2 Existing Christchurch City Provisions	6
1.3 Purpose of Plan Change.....	7
1.4 Reasons for Plan Change Request	7
2.0 Site and Surroundings	10
2.1 Site information	10
2.2 Surroundings.....	19
2.3 Geology.....	21
2.4 Transport and roading infrastructure	22
2.5 Christchurch Northern Corridor.....	25
2.6 Planning History.....	26
3.0 Description of Proposal	33
3.1 Engineering servicing proposal.....	36
3.2 Earthworks.....	36
3.3 Telecommunications and electrical supply	37
3.4 Roading.....	37
3.5 Urban design considerations	37
3.6 Staging.....	38
4.0 Planning Framework	40
4.1 Statutory framework for Plan Change Requests	40
4.2 Proposed framework.....	42
4.3 Master planning	43
4.4 Proposed rules.....	43
4.5 Rules Package - Key Features	46
4.6 Density Compliance.....	63
5.0 Proposed Changes to the Christchurch City Plan	65
6.0 Assessment of Effects	146
6.1 Productivity/versatile soils.....	146
6.2 Contaminated land issues	149
6.3 Geotechnical matters.....	149
6.4 Ecological effects.....	150
6.5 Servicing effects.....	150
6.6 Traffic effects	152
6.7 Reverse sensitivity effects	153
6.8 Cultural and heritage effects.....	154
6.9 Ownership effects	156
6.10 Social effects.....	158
6.11 Retail distribution effects.....	159
6.12 Rural character and amenity.....	159
6.13 Positive effects.....	161
6.14 Effects conclusion.....	162
7.0 Legal Framework	163
7.1 Part 2 - Resource Management Act 1991 Matters	163
7.2 Canterbury Regional Policy Statement (Operative).....	165
7.3 Greater Christchurch Urban Development Strategy.....	167

7.4	Chapter 12A of the Canterbury Regional Policy Statement	168
7.5	Proposed Canterbury Regional Policy Statement	169
7.6	Natural Regional Resources Plan	170
7.7	Mairehau-Cranford Area Plan.....	170
8.0	Section 32 Analysis	172
8.1	Section 32 assessment methodology.....	173
8.2	Objectives and policies assessment.....	173
8.3	Objectives and policies of the Christchurch City Plan	174
8.4	Plan Change 61	189
8.5	Appropriateness of new methods	199
8.6	Consideration of costs, benefits and alternatives	200
8.7	Positive features of the proposed methodology - rules and policy framework	203
8.8	Disadvantages of the proposed methodology - rules and policy framework	204
8.9	Insufficient information - risk of acting or not acting	204
9.0	Consultation	205
10.0	Conclusion	209

Appendix 1 - Certificate of Titles

Appendix 2 - Master Plan

Appendix 3 - Proposed Changes to the Christchurch City Plan

Appendix 4 - Outline Development Plan

Appendix 5 – Outline Development Plan Background Report

Appendix 6 – Geotechnical Report

Appendix 7 – Contamination Report

Appendix 8 – Ecological Assessment

Appendix 9 – Landscape Assessment

Appendix 10 – Transport Assessment

Appendix 11 – Archaeological Assessment

Appendix 12 – Engineering Servicing Proposal

Appendix 13 – Built Form Typologies

Appendix 14 – Retail Assessment - Oculus

Appendix 15 – Consultation Documents

Appendix 16 – NZTA Designations

Appendix 17 – Amended Planning Maps

Appendix 18 – Chorus and Orion Confirmations

Appendix 19 – Proposed Change 1 Decision

Appendix 20 – Christchurch Geological Map

Appendix 21 – Highfield Park Retail Overview – Property Economics

Appendix 22 – Iwi Consultation

Appendix 23 – Airey Engineering Report

Executive Summary

This is a privately requested plan change to rezone an area of approximately 260ha adjoining Redwood from Rural 3 (Styx-Marshland) to *Living G (Highfield)*. The area of land concerned is to be identified as the Living G (Highfield) zone in the Christchurch City Plan, and will provide for a mixed-use residential development.

The boundary of the new Living G (Highfield) area is bounded by Queen Elizabeth II Drive to the south, Hills Road and Hawkins Road to the east, the suburb of Redwood to the west and the Styx River to the north. The plan change will provide for approximately 2100 mixed density residential allotments.

The proposed plan change involves the addition of the Living G (Highfield) zone to the Christchurch City Plan, with a new rules package and policies that better represents the goals of the development and seeks to recognise the potential growth options for the area. 1.6ha of the site is to be developed into two small neighbourhood centres/business nodes (Business 1), and the southern most 81 hectares of the site is to be Living G (Highfield) deferred until such time as stormwater matters are dealt with in this area.

The key mechanism proposed for managing land use and activities within the block is an Outline Development Plan, which shows the proposed roading layout and potential walking and cycling linkages. This plan is the result of a master planning process which has involved a number of iterations in order to provide a plan that represents the best and most efficient long term use of the site.

The applicant is planning to undertake the development of the site in both a developer and builder capacity. This allows for a relatively unique situation, whereby the applicant is able to facilitate best practice building practices, and enable the development to occur in a sustainable manner.

Being in the position of being both developer and builder enables the applicant to achieve cost savings, whilst still providing a high quality product to the market. This position encourages the applicant to seek innovation in building concept and design throughout the site, and ensure that development throughout the site is tailored to mitigate against adverse effects. The development will support the triple bottom line approach, with positive social, economic and environmental benefits.

The ability of the developer to build houses as well will result in significant cost savings to the end user, and will allow for the development to provide for a variety of housing needs at different pricing points to provide for the residents of Canterbury that have been displaced through the February and June 2011 earthquakes. This holistic approach to the provision of high quality housing stock will result in a housing product that can be brought to the market in a timely manner, to support the rebuild of Christchurch.

1.0 Introduction

This report includes the plan change application and Section 32 assessment for a plan change to rezone the area bounded by Queen Elizabeth II Drive to the south, Hills Road and Hawkins Road to the east, Redwood to the west and the Styx River to the north.

The land is currently zoned Rural 3 in the Christchurch City Plan, and it is proposed to alter the zoning of this land to Living G (Highfield), with two neighbourhood centres/business nodes (Business 1) to be included within this area. The southernmost portion of the site will be deferred until stormwater issues are dealt with.

The Living G (Highfield) zone is proposed to be described as:

.... a range of residential densities, enhanced by a comprehensive network of green corridors, infrastructure and open space, with high levels of connectivity, both within the zone and to adjoining land.

The Christchurch City Plan describes the Business 1 zone as:

.... areas dominated by small scale retail shops and service activities, and many are characterised by "strip" development of shops immediately adjoining road frontages. The Business 1 Zone's purpose is to provide for local opportunities for employment, community activities and convenient (often pedestrian) access to goods and services.

Section 73(1) of the Resource Management Act 1991 (the Act) gives a territorial authority the right to change its plan. In addition, the First Schedule of the Act makes provision for requests for changes to a District Plan, and clause 21 provides that any person may request a change to a District Plan.

This application is a request for a change to the Christchurch City Plan and meets all of the relevant requirements of the Act.

1.1 Summary of Applicant and Proposal Details

Applicant:	Highfield Park Limited
District Plan Zoning:	Rural 3 (Styx – Marshland) Zone (Planning Maps 18 and 25)
Current Road Hierarchy:	Queen Elizabeth II Drive – Major Arterial Prestons Road – Minor Arterial Hills Road – Local Road Mills Road – Local Road Hawkins Road – Local Road Selkirk Place – Local Road
Designations:	Northern Arterial (SH 1)
Characteristics:	Notable tree at 10 Selkirk Place as listed within Appendix 4 Heritage/Notable Trees in Part 10 Heritage and Amenities of the Christchurch City Plan Subdivision trees as listed in Landscape Assessment (Appendix 9)
Proposal:	To change the zoning of the subject land to Living G (Highfield), including two small neighbourhood centres/business nodes (Business 1) within this area.

1.2 Existing Christchurch City Plan Provisions

The Rural 3 (Styx-Marshland) Zone extends westwards generally from Marshland Road and the vicinity of Lower Styx Road, to the south-eastern river terrace of the Waimakariri River, and from Spencerville Road in the north to the edge of the urban area south of Winters Road and the Northcote / New Brighton Expressway. It includes the majority of the Styx River catchment.

This zone contains large areas of versatile soils overlying a peat sub strata, as well as more versatile soils towards the western side of the zone.

While the southern and western parts of the zone contain many market gardens and orchards, to the north there is more open pastoral farmland adjoining the Styx River.

As with the Rural 2 Zone, this zone has as its main purpose the maintenance of primary production.

1.3 Purpose of Plan Change

The purpose of this Plan Change is to allow for future residential development within the application site. This site is known as Highfield Park. The Highfield Park site contains approximately 260ha and is currently zoned Rural 3 (Styx-Marshland) under the Christchurch City Plan.

The Plan Change will provide for a large Greenfield development, in close proximity to the city centre, and local areas such as Redwood, Belfast, Papanui and Mairehau. The application site is also located adjacent to the proposed Northern Corridor. The site has been identified within the Urban Limits as shown in Chapter 12A of the RPS, and is specifically shown as a Greenfield site.

The Plan Change provides a mixture of residential densities, allowing for a variety of housing options for potential residents of Christchurch. There are also two neighbourhood centres/business nodes (Business 1) provided for within the Plan Change area.

1.4 Reasons for Plan Change Request

The application site is a Greenfield development area (CN5 and CN6), located within Chapter 12A of the RPS, as shown in the Figure 1 below.

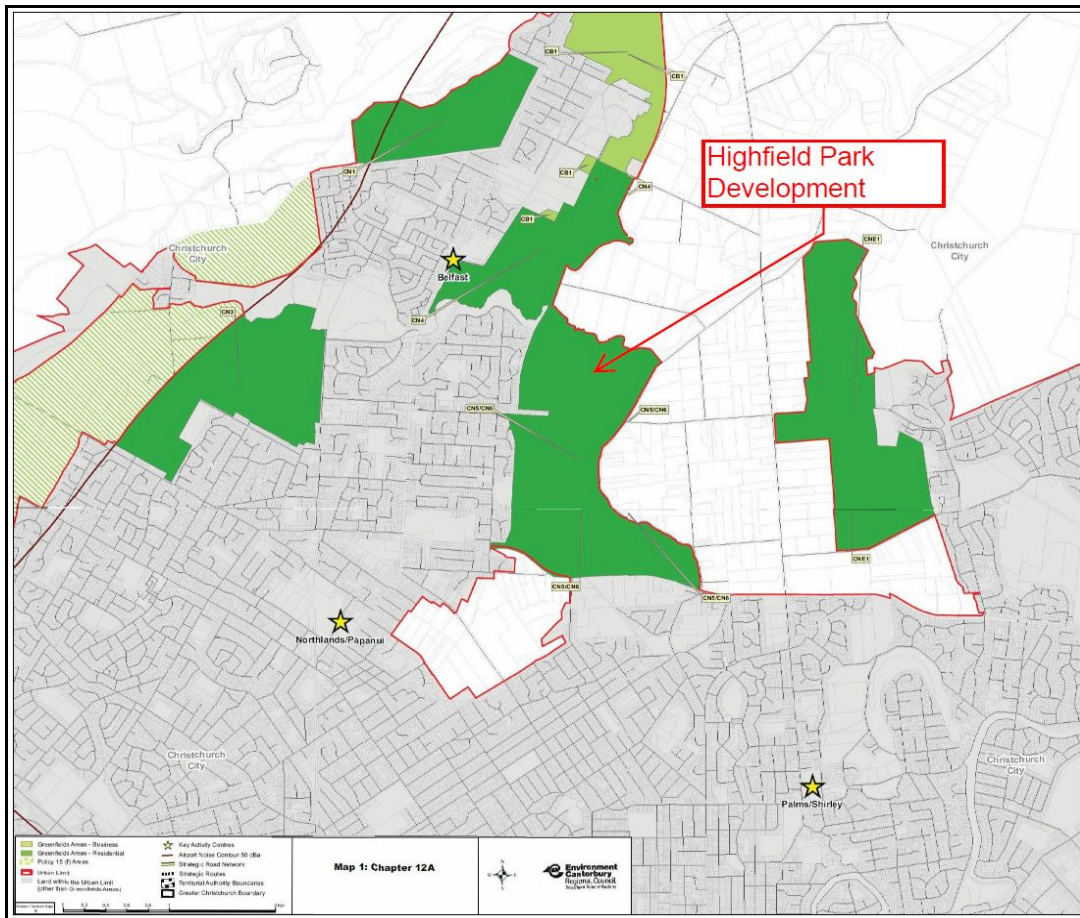


Figure 1 – Greenfield Development Areas

The site is currently zoned Rural 3 (Styx-Marshland), and the current density requirements for the Rural 3 zone would not achieve the minimum density of 15 dwellings per hectare as defined within the recently notified Chapter 12A, which replaced the PC1 process which had been dealing with the issue of the metropolitan urban limits in the Greater Christchurch region for some time. The rezoning of the application site will assist local residents affected by the devastating earthquakes of September 2010, February 2011 and June 2011 in obtaining high quality, sound land to rebuild.

The Plan Change seeks to:

1. Support the needs of displaced residents by providing high quality residential community, in a development that is well connected, well designed, and provides a variety of forms of housing to cater for a range of living needs.

2. Provide certainty to adjoining landowners and occupiers as to the format, design and goals of the development proposed.
3. Allow for the development of a block of well placed Greenfields land.

Therefore, a Plan Change is required to amend the current zoning, as the density now required for the development is not consistent with the relevant objectives and policies of the Rural 3 zoning in the City Plan, and the retention of the Rural 3 zoning would not meet the newly defined requirements of Chapter 12A of the RPS.

2.0 Site and Surroundings

2.1 Site Information

The proposed plan change request applies to a large site referred to as Highfield Park. The plan change site is bounded by Queen Elizabeth II Drive to the south, Hills Road and Hawkins Road to the east, the suburb of Redwood to the west and the Styx River to the north. Prestons Road intersects the centre of the site in an east to west direction, providing connection to Main North Road and Marshland Road. The location of the Plan Change area is shown in Figure 2 below.

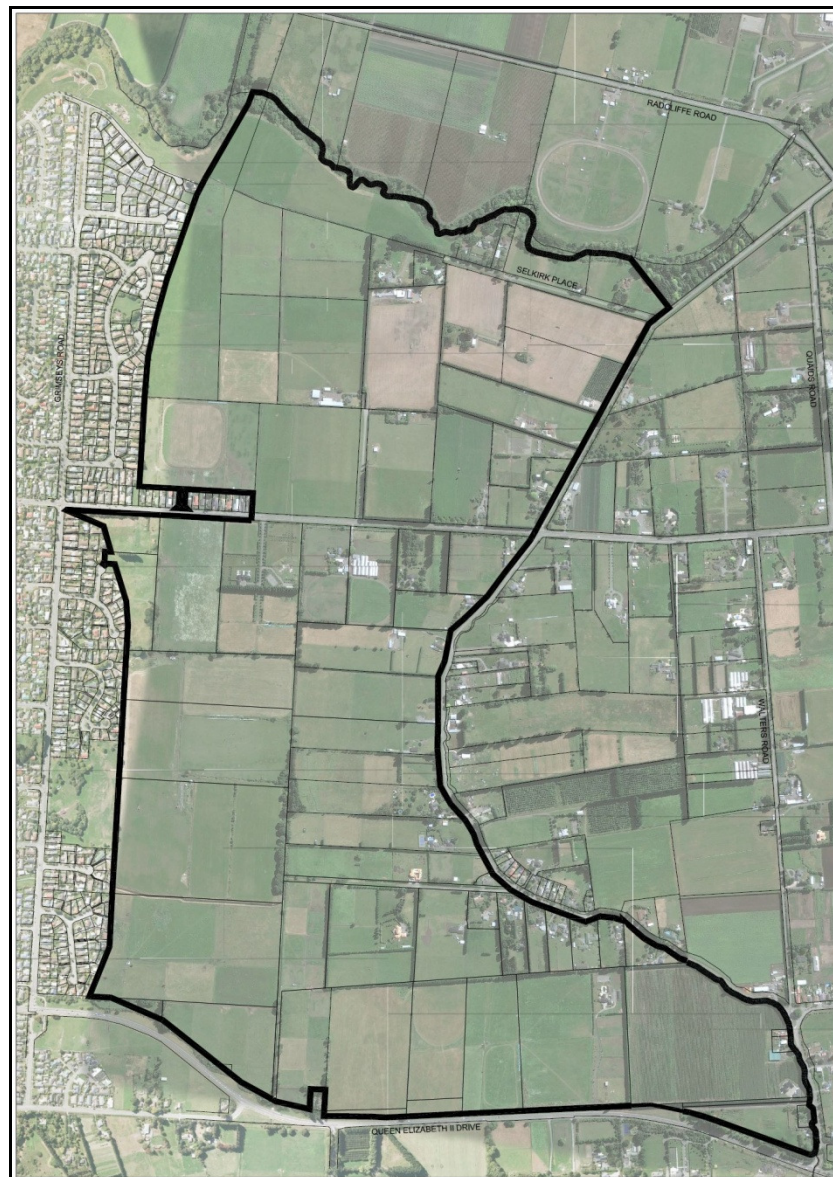


Figure 2 – Location diagram

Figure 3 below shows the perimeter of the plan change area, and also puts the area into context by showing other important community facilities.

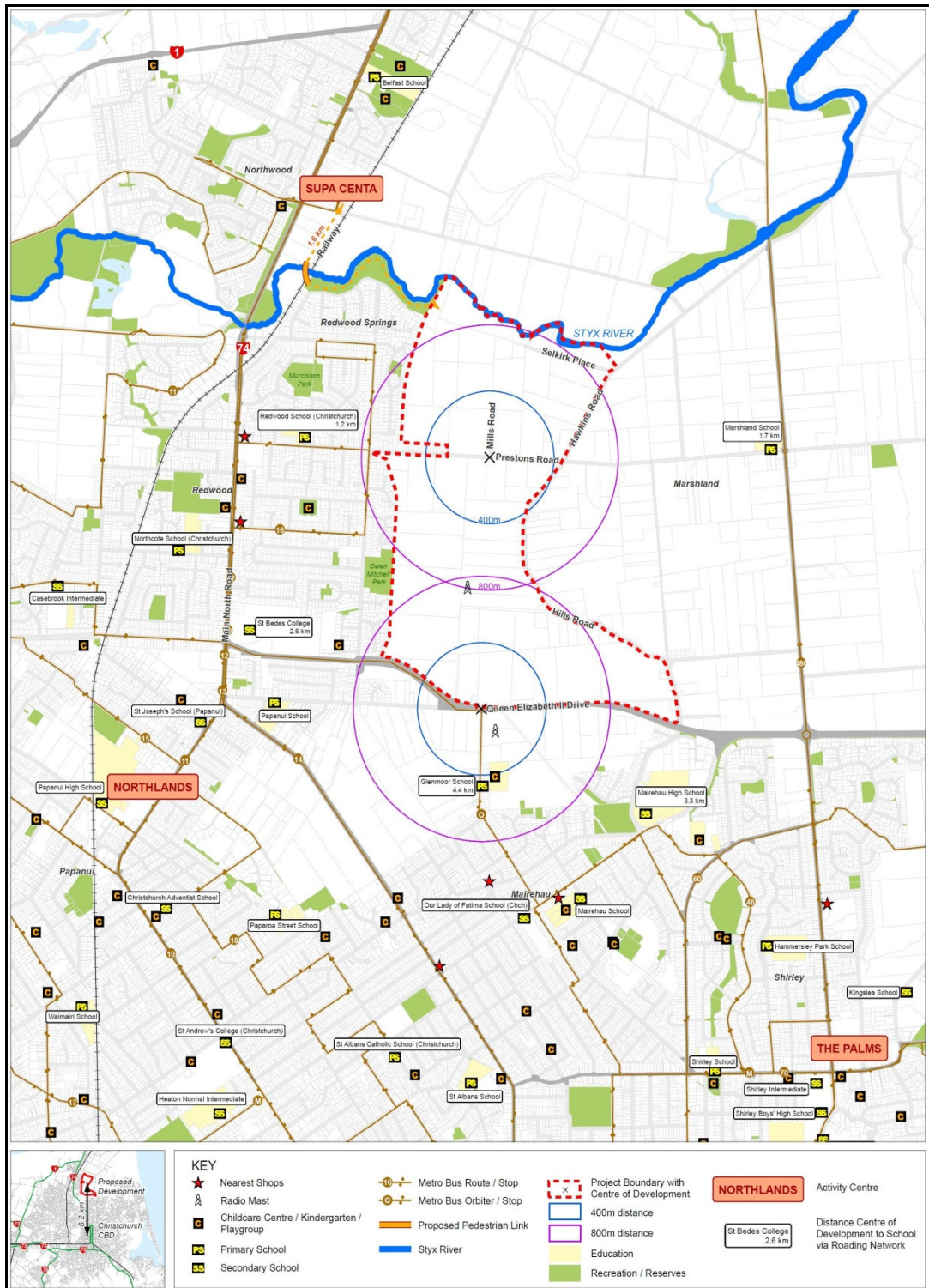


Figure 3 – Neighbourhood context diagram

The plan change site is approximately 6km from the city centre, and lies in close proximity to essential community facilities and amenities, including the Northlands and the Supa Centre Northwood shopping centres. The site is well catered for schools, with Redwood and Marshlands Primary and St Bedes College located nearby. The site also has good access to employment nodes in Papanui, Belfast and the central city.

The plan change site consists of the following parcels of land, as shown in Figure 4 below and identified in Table 1 below:

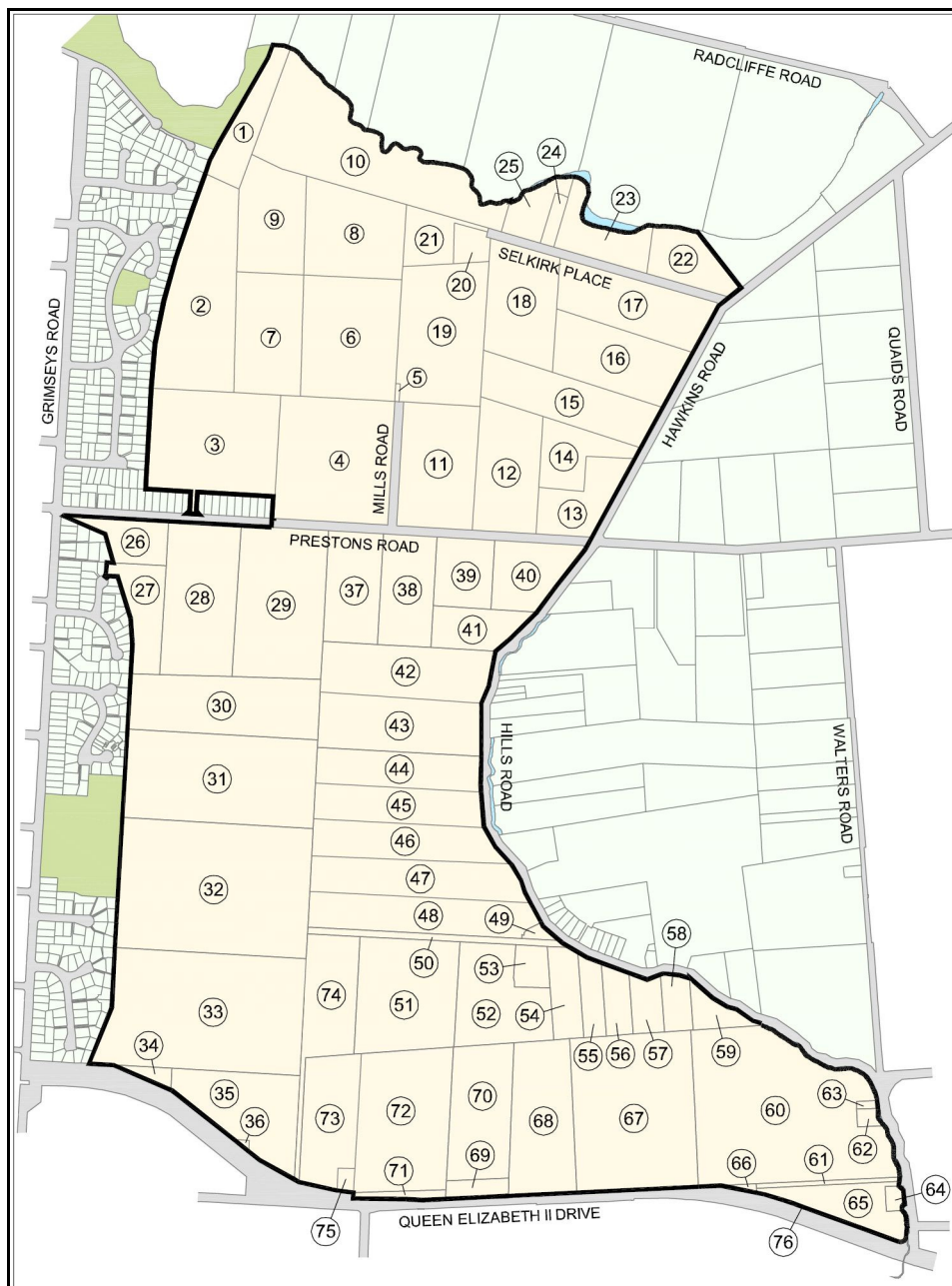


Figure 4 – Ownership Diagram

No.	Address	Legal Description	CT Reference	Owner	Area (ha)
1	-	Lot 3002 DP 323558	94615	Willowlea Limited	2.0842
2	-	Pt Lot 2 DP 36528	NZGZ 1988 p1149	Purposes of Road	6.9512
3	-	Lot 2 DP 26884	CB26F/220	Her Majesty the Queen	6.7886
4	-	Lot 3 DP 5223	CB13K/1477	B.T Moore	7.1755
5	-	Pt Lot 4 DP 1844	CB317/272	B.T Moore	0.0405
6	4 Mills Road	Pt Lot 4 DP 1844	CB20A/338	B.T Moore	5.9792
7	-	Pt Lot 3 DP 1844	CB20A/338	B.T Moore	4.1126
8	-	Pt Lot 4 DP 1844	CB13K/803	B.T Moore	4.4225
9	-	Pt Lot 3 DP 1844	CB13K/803	B.T Moore	3.7180
10	24 & 28 Selkirk Place	Pt Lot 27 DP 699	CB13K/803	B.T Moore	8.2911
11	20 Mills Road	Lot 3 DP 24826	CB19B/557	W.S & S Anstiss	4.8031
12	203 Prestons Road	Lot 1 DP 23089	CB4A/784	B.D & J.D Watson I.M Robertson	4.0620
13	25 Hawkins Road	Lot 1 DP 301363	5922	A.J Maclean R.H Gibson	2.2800
14	31 Hawkins Road	Lot 2 DP 301363	5923	E.H & C.A Racke	2.0016
15	35 Hawkins Road	Lot 3 DP 23089	CB4B/247	G.N & D.M.C Horne	4.0727
16	-	Lot 4 DP 23089	CB2A/1469	G.B Malcolm	4.0721
17	-	Lot 5 DP 23089	CB4A/99	G.B Malcolm	4.0820
18	11 Selkirk Place	Lot 6 DP 23089	CB6A/114	A & J Malcolm Limited	4.0625

19	-	Lot 2 DP 24826	CB15B/1494	Mills Road Investments Limited	6.0589
20	15 Selkirk Place	Lot 2 DP 62747	CB36D/1190	T.R Hitchings R.E Neave T.G.R & B.F Williams	0.6304
21	21 Selkirk Place	Lot 1 DP 62747	CB36D/1189	R.I & K.E Major New Zealand Trustee Services Limited	1.4266
22	10 Selkirk Place	Lot 3 DP 25296	CB37C/1044	A.J & J.R Van Der Leij G.K Riach	2.0234
23	-	Lot 2 DP 25296	CB37C/1043	A.J & J.R Van Der Leij G.K Riach	2.0234
24	18 Selkirk Place	Lot 1 DP 29189	CB11A/1061	N Denton	0.3726
25	20 Selkirk Place	Lot 2 DP 29189	CB11A/1062	J Dimoff	1.2057
26	120 Prestons Road	Pt Lot 1 DP 2901	CB14B/621	Her Majesty the Queen	1.5301
27	12 Edron Place	Lot 26 DP 41897	CB20B/1286	Enterprise Land and Development Limited	2.0606
28	140 Prestons Road	Lot 4 DP 2901	CB19B/756	C.F Xie T.L Zhang	5.6150
29	170 Prestons Road	Lot 5 DP 2901	CB19B/755	K.W & K.D Warner	6.7531
30	-	Pt Lot 6 DP 2901	NZGZ 1981 p262	Christchurch Northern Motorway	5.5943
31	-	Pt Lot 7 DP 2901	NZGZ 1981 p262	Christchurch Northern Motorway	8.6731
32	-	Pt RS 1171	CB22K/940	Her Majesty the Queen	12.6841
33	-	Lot 2 DP 39158	NZGZ 1982 p1562	Christchurch Northern Motorway	11.7150
34	-	Pt RS 1153	NZGZ 1983 p330	Christchurch Northern Motorway	0.3177
35	-	Pt Lot 2 DP 22799	NZGZ 1981 p2379	Christchurch Northern Motorway	4.2242
36	-	Pt Lot 1 DP 17697	NZGZ 1981 p2379	Christchurch Northern Motorway	0.0421

37	180 Prestons Road	Pt Lot 1 DP 958	CB20A/227	R.L & L.S Biggs	3.0515
38	-	Pt Lot 1 DP 958	CB20A/226	R.L & L.S Biggs	3.0515
39	190 Prestons Road	Lot 1 DP 23067	CB3D/908	C.M Andrew L.D Pickering	2.0234
40	849 Hills Road	Lot 2 DP 23067	CB3D/1180	G.W & N.M Thyne	2.4458
41	829 Hills Road	Pt Lot 1 DP 958	CB29F/991	V.M & R Colebourne L.J Evans	1.8008
42	815 Hills Road	Pt Lot 1 DP 958	CB31A/824	Kukuwai Investments Limited	4.4338
43	789 Hills Road	Pt Lot 1 DP 958	CB31A/305	C O S Investments Limited	4.4920
44	769 Hills Road	Lot 1 DP 27675	CB9F/459	Dharma Investments Limited	2.9921
45	759 Hills Road	Lot 2 DP 27675	CB9F/460	759 Hills Limited	3.0569
46	749 Hills Road	Lot 3 DP 27675	CB9F/461	H.H & C.F.A Chima S Patel	3.3500
47	729 & 739 Hills Road	Lot 4 DP 27675	CB9F/462	G.C & A.J Elley Rotunda Trustees 2010 Limited	3.9735
48	715 Hills Road	Lot 2 DP 368441	278101	J.W & L.C Hay E.J Taylor	4.0673
49	711 Hills Road	Lot 1 DP 368441	278100	J.N & N Lingard	0.1763
50	709 Hills Road	PT RS 1134	CB149/126	-	0.8751
51	707 Hills Road	Lot 2 DP 958	CB21F/109	A.J & A.L Dillon K.M McDonnell	5.6630
52	705A Hills Road	Lot 1 DP 380537	322574	G.J & K.L Keown R.W Baird	4.0019
53	705 Hills Road	Lot 2 DP 380537	322575	A.F & K.S Sullivan	0.7246
54	703 Hills Road	Lot 1 DP 14626	CB532/73	T.S Alexander	1.3962

55	689 Hills Road	Lot 1 DP 15566	CB11B/1014	K.J Maxtone J.M Williams-Maxtone L.O Collings	0.9156
56	685 Hills Road	Lot 2 DP 15566	CB11B/1015	H.E Bellingham R.E Jones L.M.C Robinson	0.9181
57	681 Hills Road	Lot 3 DP 15566	CB11B/1016	D.A & E.A Stockdill	0.8979
58	679 Hills Road	Lot 2 DP 15220	CB536/195	T.J & J.I Mooney K.W Clay	0.8271
59	635 Hills Road	Lot 3 DP 15220	CB5C/1259	B.T & A.M Jones	0.8296
60	-	Pt Lot 4 DP 11580	CB36A/188	T.A Mundy	12.7678
61	-	Lot 2 DP 59521	CB36A/188	T.A Mundy	0.3247
62	577 Hills Road	Lot 5 DP 11580	CB461/208	T.A Mundy	0.2023
63	579 Hills Road	Lot 1 DP 21989	CB1B/1334	T.A Mundy	0.0809
64	479 Hills Road	Lot 9 DP 24618	CB20K/533	J.G & M.D Price	0.2144
65	-	Lot 1 DP 59521	CB36A/187	J.G & M.D Price	2.1985
66	301 Queen Elizabeth II Drive	Lot 3 DP 59521	CB36A/189	The Christchurch City Council	0.0812
67	281 Queen Elizabeth II Drive	Lot 3 DP 11580	CB503/183	S.R Sergeant	9.6189
68	253 Queen Elizabeth II Drive	Lot 2 DP 308111	31483	J.D Ahn	4.8491
69	241 Queen Elizabeth II Drive	Section 4 SO 333506	170306	Christchurch City Council	0.5670
70	-	Section 2 SO 333506	170304	Christchurch City Council	4.2060
71	-	Section 3 SO 333506	170305	Christchurch City Council	0.3636

72	-	Section 1 SO 333506	170303	Christchurch City Council	6.5924
73	-	Pt Lot 2 DP 22847	NZGZ 1981 p2379	Christchurch Northern Motorway	2.5163
74	-	Pt RS 1134	NZGZ 1981 p2379	Christchurch Northern Motorway	3.5141
75	163 Queen Elizabeth II Drive	Lot 1 DP 22847	CB3B/460	M.L Adams	0.2752
76	-	Section 3 SO 18591	CB34D/494	The Christchurch City Council	0.0038

Table 1 – Current Landowners

The relevant Certificates of Title are attached as **Appendix 1** to this application.

There are a number of lifestyle blocks located towards the south of the site, and two larger farms to the north. The blocks are generally used for stock grazing or small scale orchards and market gardening. Residential dwellings and small farm buildings are also present on the majority of the blocks.



Photo 1 – Existing dwelling at 170 Prestons Road

A number of drains pass through the plan change site, with the most significant being Horner's Drain. Horner's Drain is classified as an Environmental Asset Waterway in the Christchurch City Plan, and is part of the Styx River Catchment, which is one of the three main spring-fed rivers in Christchurch. The Horner's Drain catchment is a complex network of interconnected drains and ponding areas that flow northwards from the Cranford Basin area to the Styx River. The catchment comprises a mix of residential and rural land use. Horner's Drain and tributaries within the confines of the plan change area have generally low ecological value, but have a high potential for restoration.

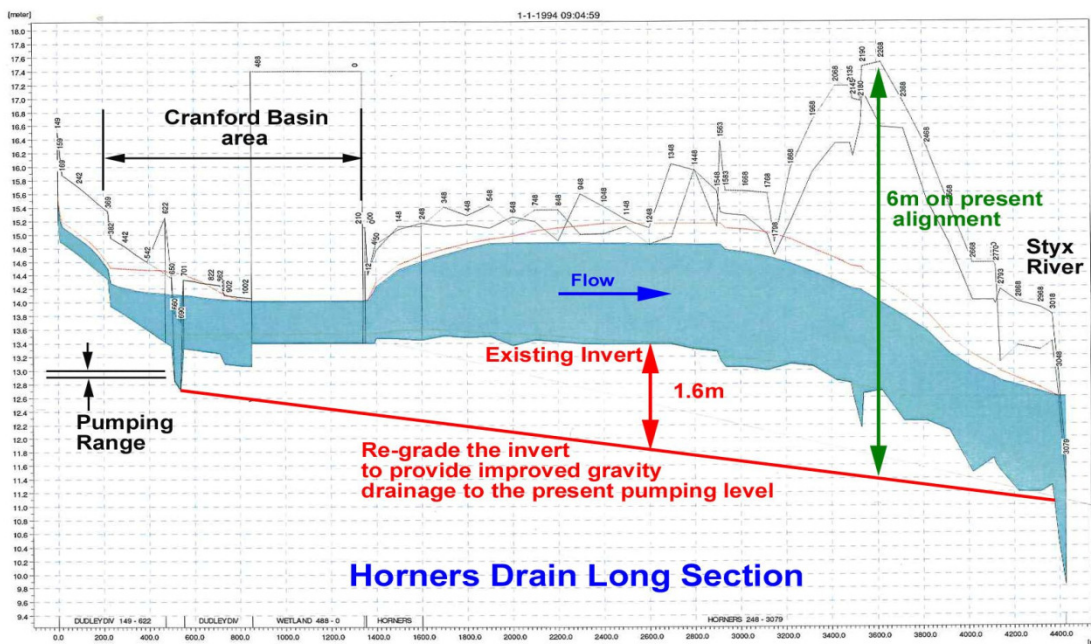


Figure 5 – Horners Drain Long Section

The Styx River, which runs along the northern boundary of the plan change site, is approximately 25km long and is one of several spring fed river systems that originate and flow through the northern suburbs of Christchurch. The spring fed river originates in the suburb of Harewood and meanders north-eastwards through a variety of land uses. The catchment area has been extensively modified through farming and draining practices, as well as residential development.



Photo 2 – The Styx River

2.2 Surroundings

The plan change site is surrounded by a mix of existing residential and rural land, as shown in Figure 6 below. The land directly to the north and east of the site is currently zoned Rural 3 in the Christchurch City Plan, and primarily used for agricultural purposes. The land to the south and west of the site is residential and zoned Living 1, Living 1A and Living 1B in the Christchurch City Plan.

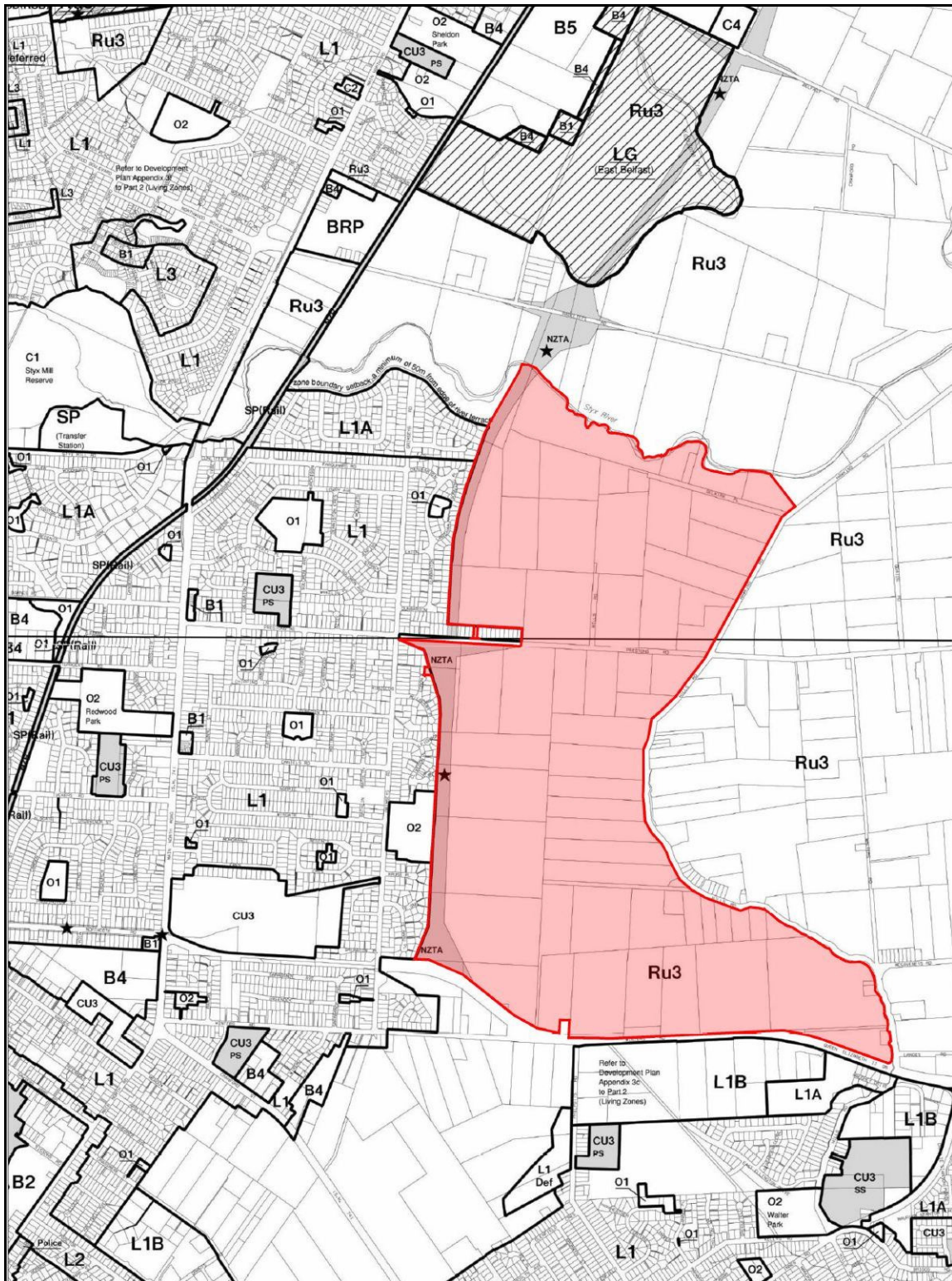


Figure 6 – Christchurch City Planning Map showing the subject site

The adjacent suburb of Redwood is a well established area, with a range of both modest and substantial homes. The most recent development in the immediate area was that of the

Redwood Springs subdivision, which adjoins the Styx River corridor to the north of the site, and is a good example of a well connected subdivision with high amenity values. The reserve within the subdivision has been tastefully developed and contains pedestrian areas and a popular children's play area.



Photo 3 – The Styx River Corridor within the Redwood Springs Subdivision

To the north of the development area, Private Plan Change 43 (Belfast Park) is proposing to rezone around 64ha of land from Rural 3 to Living G (East Belfast), providing for a mixed-density residential development along with small areas of commercial and industrial land. The Commissioners recommendation was adopted by the Council as its decision on the 16th of December 2010. However, further appeals to the Plan Change have been received.

To the north-west of the Plan Change site (approximately 2km), Private Plan Change 22 (Styx Centre) is proposing to rezone around 9ha of land from Rural 3 to Business 2. The rezoning is intended to allow for the establishment of a District Centre, and will include retail, entertainment, administration and professional services. PC 22 is currently under appeal.

2.3 Geology

The underlying geology of the plan change site is shown on the Institute of Geological and Nuclear Science geological map of Christchurch as being alluvial sand and silt overbank

deposits. The area to the east of Hills Road and Hawkins Road is shown as peat swamp, now drained. It is important to note that no peat is shown within the plan change area. A copy of the geological map of Christchurch is attached as **Appendix 20** to this application.

The site received no visible damage as a result of the September, February and June earthquakes. However, the applicant has commissioned a geotechnical assessment to be carried out by Golder Associates to assess the suitability of the site for residential development. This assessment is attached as **Appendix 6** to this application.

In summary, Golder carried out a field investigation, collecting geotechnical data from which they could evaluate the geological layers and engineering properties of the various soil types at the site, and the impact on their suitability for residential development. Based on preliminary results, Golder concludes that:

'...the Highfield Subdivision is geotechnically viable for residential subdivision under the expected design criteria from the Department of Building and Housing for residential developments on liquefaction susceptible soils, given appropriate engineering preparatory works'.

2.4 Transport and roading infrastructure

A full description of the existing roading infrastructure is included in the transport assessment prepared by Abley Transportation Consultants, and is attached as **Appendix 10** to this application.

The plan change site is adjacent to Queen Elizabeth II Drive, which extends along the south of the site. Queen Elizabeth II Drive is a major arterial road, which serves to move traffic quickly around the city and feeds a number of suburbs. It also provides a link to move traffic directly into town, via Marshland Road and Cranford Street.

Prestons Road is minor arterial road and bisects the plan change area in an east to west direction, and provides a connection to Main North Road and Marshland Road. It is intended to function with a moderate to high proportion of through traffic.

The Redwood bus service operates on Grimseys Road, Prestons Road and Main North Road. The Northern Star (Rangiora), Belfast and Northwood bus services also operate along Main North Road. The services do not currently provide convenient service for the plan change area, being located more than 500m from the residential areas proposed.



Photo 4 – Prestons Road looking west towards Redwood



Photo 5 – Prestons Road looking east towards Mills Road



Photo 6 – Intersection of Prestons Road, Hills Road and Hawkins Road



Photo 7 – Hills Road looking south from intersection with Prestons Road



Photo 8 – Hawkins Road looking north from intersection with Prestons Road

2.5 Christchurch Northern Corridor

The Northern Corridor includes the Northern Arterial (SH 1), which will connect the existing Christchurch Northern Motorway with Queen Elizabeth II Drive, bypassing the suburbs of Belfast and Redwood, and the four-laning of Queen Elizabeth II Drive between Main North Road and Innes Road.

The Northern Arterial (SH 1) designation traverses the western side of the plan change site, and is proposed to be a new four-lane, median separated state highway. The widening of Queen Elizabeth II Drive, between Philpotts Road and Hills Road to a 40m corridor will allow for the future four-laning of Queen Elizabeth II Drive. This widening is proposed along the southern boundary of the plan change site. The Northern Arterial and future four-laning of Queen Elizabeth II Drive will improve access to Lyttelton Port, the industrial hubs on the eastern side of Christchurch, the City Centre, and enable further development of the Belfast and Redwood area. Traffic congestion will be reduced and travelling times improved through traffic and local trips. Figure 7 below shows the proposed NZTA designations for the Northern Arterial and four-laning of Queen Elizabeth II Drive.

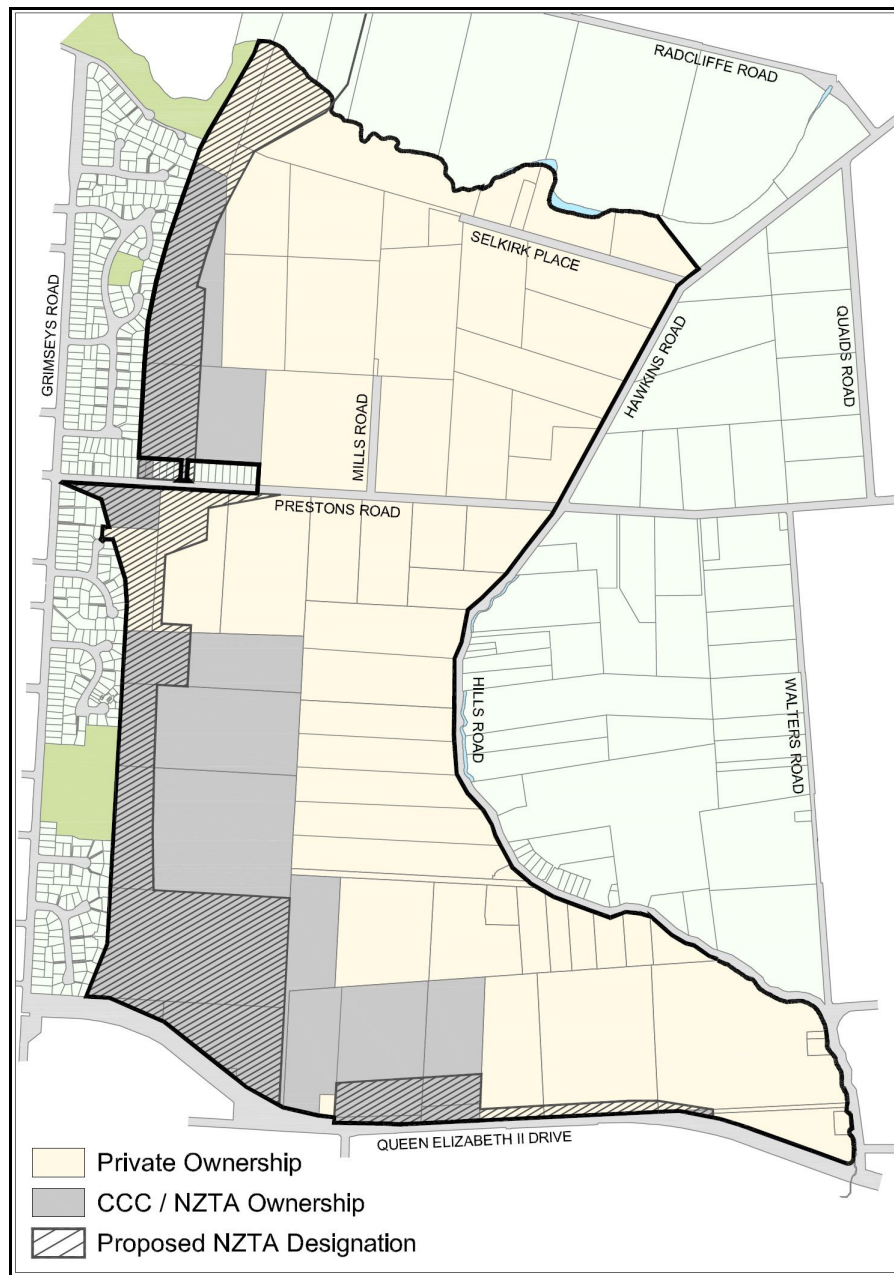


Figure 7 – Proposed NZTA Designation

The Northern Arterial designation, as contained within the Christchurch City Plan, as well as the New Zealand Transport Agency's (NZTA) designation for the Northern Arterial and future road widening of Queen Elizabeth II Drive is attached as **Appendix 16** to this application.

2.6 Planning History

The land was the subject of a series of submissions on Proposed Change 1 (PC1) to the Regional Policy Statement (RPS), culminating in the decision of the PC1 commissioners that

the land was best included within the PC1 urban limits. The full part of the decision that referred to the subject site is included in Appendix 19. The decision contained a useful evaluation of the appropriateness of the site for development. Excerpts relevant to the subject block are included below:

The evaluation considered the limitations in terms of the soil characteristics of the site:

'... it is immediately apparent from the LIDAR mapping that we were provided with, that the peaty soils encountered in the Cranford Basin area extend further to the north right through to the Styx River. The first question to be answered, therefore, is whether, and to what extent, the Mills Road/Hills Road locality is constrained by peaty soils.'

'... In a general sense the two areas can be described as higher land than the land to the east which is comprised predominantly of peat from a former swamp which is now drained. We accept the evidence of the submitters' engineer Mr. Cox's that no peat is shown as being located on the Mills Road/Hills Road block on the geological maps. Evidence was given that that was confirmed by the penetrometer tests and hand auger tests carried out over the whole of the Mills/Hills Rd block. We are satisfied on the evidence that we have heard from Mr. Cox that this area is comprised of predominantly silt topsoils overlaying loamy silts and silty sands. That engineering evidence was supported by the soils evidence given by Mr. A. W. Smith, the very experienced horticultural advisory consultant who gave evidence to us in respect of the area. His description was that approximately one third of the site was Waimakariri soils comprising sandy/silt loam; approximately one third was an interface between that loam and Tai Tapu clay loam; and the balance of the site was Tai Tapu clay loam. His evidence was that the Waimakariri sandy/silt loams are free draining soils, but the Tai Tapu clay loam does have significantly impeded drainage. It underlies much of the Waimakariri sandy/silt loam meaning that there are drainage limitations imposing some difficulties in terms of working of the land through the winter.'

In conclusion the commissioners made the following comments with respect to the geotechnical suitability of the land for development.

'The conclusion we reached from that engineering and soil related evidence is that this land does not suffer the limitations of the low-lying drained peat swamp land to the east around Marshlands Road. One can reasonably assume that it is because of that very height advantage over the adjacent land to the east that historically dictated the line of formation of Hills Road and Hawkins Road which now form the eastern boundary of the two subject blocks of land.'

The commissioners then considered the site in relation to s32:

'The consequence is that if we accepted the recommendations of the report writers, these lands would remain zoned Rural, and it is necessary, therefore, for us to consider the outcome of that in a s.32 RMA cost/benefit sense. In that regard we found Mr. Smith's evidence on market trends and supply sources of agricultural and horticultural produce very informative and compelling. His evidence was of general

application also to some other areas around the periphery of Christchurch. His evidence was also consistent with that of other horticulture/agriculture consultants who gave evidence for other submitters. It also proved to be supported by a host of other individual landowners' descriptions of the economic changes in the horticultural and agriculture scenes on the periphery of Christchurch.'

The commissioners then placed weight on the issue of soil productivity and recognised the economic determinants of a productive soil:

'The thrust of Mr. Smith's evidence was that soil productivity in resource management terms cannot be divorced from an economic perspective because for the activity to be able to continue it must realise an economic return.

He identified for us approximately 20 factors which impact on a site's effectiveness in producing an economic return. While most of those related to site specific matters of relevance to the actual productivity from the soil, a large number were also affected by broader issues such as transportation constraints or costs, labour availability and/or cost, planning impacts, effects of the use on residential neighbours and effects of such neighbours on the use, and, very importantly, economic factors....

...His conclusion, then, was that over the last 40 years or so the use of this area has changed "because the land is no longer competitive". His evidence was that farmers are now able through technical improvements to grow better crops from soils which in the past would rightly be considered to be poorer, but where now greater yields of marketable produce are available from those lighter soils. Cheaper transport and increased irrigation availability have also been major factors. Added to that is the fact that on those lighter soils there is no risk of loss of crop from in-soil excessive wetness, which can occur in the Tai Tapu clay loams, and farmers are able to obtain much larger areas of a single soil type. Mr Smith also stressed that soil-borne pests and diseases are rarely encountered on those lighter soils at the same level as on the soils of the Mills Road/Hills Road areas. Finally, because of the more outlying nature of those larger land areas, leases and property servicing costs are lower, and any increased cost of transport to Central Christchurch is more than offset by much greater reliability of increased production. As we have said that evidence or parts of it was reflected repeatedly throughout the hearings in evidence we heard from other submitters, who had to face the reality that particularly with the market closures in Christchurch, the economics had largely disappeared from the smaller units around the Christchurch urban fringe.

That of course is not the end of the matter in a planning sense because this Regional Policy Statement is addressing the future 35 year term – which raises the question of what changes are likely over that term? Mr. Smith went on to consider the possibility of intensive cropping returning, but concluded that the balance of economic return lay so heavily with sites more distant from Christchurch, that he could see no prospect at the moment of economic conditions changing sufficiently for growers to try and move back onto these areas with more constrained soil conditions in close proximity to Christchurch. His conclusion was that the present use pattern was likely to remain for the foreseeable future.

Moreover, he also addressed the concept of the productivity of land and the importance of trying to retain this land in close proximity to Christchurch as a rural resource in case economic conditions changed. His conclusion in that regard was that in recent decades productivity from horticulture and agriculture cropping has increased on lighter soils to such an extent that the potential productivity of that land has increased very significantly in the past and is still increasing. The conclusion that Mr. Smith reached based on his own extensive horticultural advisory experience and economic background, was that there is no particular aspect of the productive capacity of the Mills Road/Hills Road areas that would warrant protecting it as a resource into the future.'

The commissioners then examined the s42A reports rationale for recommending that the Mills/Hills Block be excluded from the urban limits:

'The most effective way of further addressing the cost/benefits assessment required by s.32, is probably by returning to the report writers' reasons for excluding these areas from the Urban Limits. Those reasons become particularly important given that the areas were acknowledged in the IBD Report as being areas that appeared suitable for urban development.

The principal reason why these areas were not included was because they would provide for an extra greenfields household supply of approximately 2000 households, which on the report writer's recommendations relating to the required household provision would not be warranted. So the first ground was that there was no need for the number of households, and that to allow an over-supply of household provision would undermine the intensification objectives within the City for increased growth...

'In relation to the impacts on movement networks, the evidence of Mr. Penny, the traffic engineer called by the submitters, was that there was sufficient capacity within the general transportation network to accommodate full development of the land. He expressed the view that there were even some significant transport advantages due to the Mills Road Group land being so proximate to the proposed Belfast Key Activity Centre. That in his view led to an ability to utilise local road network, and cycle and pedestrian routes to access the Centre. He satisfied us that there was enough scope for linkages between the east and west of the Northern Arterial to ensure that there was not unacceptable severance.'

'The evidence of the economist/planner Mr. Shaw, and the social assessment specialist Mr. Baines, focused on the concept of an "urban village" effect arising from the Northern Arterial, which to some extent would make this Mills Road/Hills Road area a self-sustaining urban area. However, it would still be one, with the links that Mr. Penny had described underneath the Northern Arterial, ensuring that the necessary inter-connectivity for traffic, pedestrians and cyclists was much improved. The detailed plans presented by the urban designer Mr. Wade, and commented on by Ms. Clay the planner for the submitters, demonstrated those aspects of interconnectivity in graphic form. They showed not only how those "blue" and "green" networks could integrate with adjacent areas, regardless of the existence of the Northern Arterial, but also how self-sufficiency could be obtained in terms of local amenities and a distinct community identity. That was shown as being capable of being achieved while at the same time maintaining the links to the proposed Key Activity Centre at Belfast for community services and broader employment opportunities. We prefer the outcome described in all of that evidence to the suggestion of

the report writers that there would be such a severance caused by the Northern Arterial that urban development should not be considered at this locality.'

Moreover, in an urban form sense the addition of a substantial extra resource of residents to the east would in our view support the Key Activity Centres at both Belfast and at Papanui/Northlands. Development of this area would add population substance to the 'catchments' serviced by those KACs. From an urban design standpoint the outcome would ensure that a useful purpose was served in an overall urban consolidation sense by the use of this land for urban purposes, rather than endeavouring to force it to remain rurally zoned against the reality that the economics of that type of activity in this area have long gone.'

Furthermore, there are other added benefits from allowing this land to come within the Urban Limits. Those include the significant improvement that urban development of this area would ensure in the drainage patterns related to Horners Drain and its upstream contributing catchments. (That will be addressed below in detail as part of the consideration of infrastructure servicing capacity in the area.) A further benefit arising from the development of this area is that it will enable another link in the chain of the Styx 'source to sea' project to be met in terms of ecological and environmental outcomes, by enabling the further development of reserves and walkways linked into those goals.'

It is clear from the words above, that the commissioners were not convinced by the S42A report writer's rationale.

Finally, the commissioners considered the ability to provide infrastructure to service the site. With regard to sewerage disposal they noted:

'...it seems that there are at least two viable options that we consider favourably. That being the position there can be no valid ground for refusing to include this area within the Urban Limits because of limitations as to sewerage capacity.'

In respect of stormwater disposal, they recognised the beneficial implications of the development of the site for residential purposes:

... In other words the improvement of Horners Drain and Kruses Drain has been recognised in principle as being required. The reasons for that include the ongoing flooding issues that arise in heavy rainfall events from the significant catchments which flow into Cranford Basin, and then flow into Horners Drain itself for conveyance to the Styx River. That is exacerbated at present when backflow occurs in major rainfall events and Horners Drain actually backs up into Cranford Basin causing flows to spill to the south into the Bullers Drain overloading its capacity also. Moreover, Horners Drain is incised some 4 to 5 metres deep directly adjacent to Prestons and Hawkins Roads and as Mr. Cox pointed out it presents a significant hazard to any vehicle that might leave the road.

In a broader catchment sense, the outcome would be very beneficial, providing a free outfall for stormwater emanating from Cranford Basin, Kruses Drain from Redwood, Mills/Hills Blocks and the proposed new Arterial. In our view, that is a significant benefit that would flow from development of this land providing improvement of stormwater management in the whole of the Cranford Basin, Hill Road/Mills Road areas. The major works intended for the Northern Arterial will obviously assist in the ability to plan if not immediately carry out the associated drainage works. A major advantage of bringing the Hills Road/Mills Road block into the Urban Limits, then, is that as part of the urban development that results, significant areas will become available for stormwater retention and management in the manner just outlined.'

What Mr. Wade's draft design concept plan for development of both the Mills Rd and Hills Rd blocks showed was that the stormwater retention ponds could be provided for in a way that achieved a desirable naturalisation of the alignment of Horner Drain. The outcome would be that a very attractive overall network of walkways/cycle ways could be achieved in conjunction with ecologically valuable and environmentally pleasant centralised development running in a south to north direction through the two blocks to the Styx River, and linking in with the Styx River walkways. There is much to commend that type of approach and the benefits that would flow.

That is particularly obvious in comparison with the cost, in a s32 RMA sense, of what would essentially be a default type of almost 'non-planning', failing to address the significant stormwater management problems in the broader area, and leaving the land zoned rural.

Finally, in terms of reducing public cost, the broader benefit is that a significant part of that major drainage work, which otherwise in the long term would fall solely upon the Christchurch City Council ratepayers, would be carried by private developers, and in turn the persons who acquire the developed land, thus relieving existing ratepayers of a significant future burden.'

With regards to water supply, the commissioners accepted that there were no limitations on the ability to supply water to the site.

In terms of traffic effects, the commissioners recognised that the future traffic environment would include the northern motorway corridor and agreed with Mr Penney that the surrounding roading network was able to cope with the potential increase in traffic movements:

'His evidence was that that capacity will more than adequately service the extra household supply that will be derived from bringing this land within the Urban Limits.'

Finally, the commissioners carried out an assessment of the Mills/Hills Block whilst having regard to other proposed development areas:

'A major matter we need to address is the issue of whether or not the inclusion of this area within the Urban Limits is necessarily linked in with the future treatment of the lands further to the east, including that

fronting Marshlands Rd and the Prestons Road submitters' land. In our view there are some significant considerations that apply to this Mills Rd/Hills Rd area which distinguish it from those more eastern areas.

The first distinction, and the most important one, is the major role that development of this area would play in solving the major drainage issues at present plaguing the Cranford Basin area and causing risk exposure as a consequence to other areas such as those urban areas serviced by Bullers Drain. Those issues, as we have identified in the Cranford Basin section of this decisions report, arise in large part as a consequence of historical development of urban areas of St Albans and other urban catchment areas serviced by Kruses Drain with limited regard for the sustainable management of the downstream drainage system which is simply not working. The inclusion of all those areas in the Urban Limits enables the comprehensive resolution of those problems, hand in hand with the development that is necessary to provide the land resources required for stormwater retention and improved drainage, and the considerable capital funding required for drainage works on those sites. That broader need for comprehensive catchment management works, and the ability to achieve that through integrated urban development does not exist to that extent in the more easterly Prestons Rd area or in the Marshlands area.

The next significant distinction is that the narrowing of the urban form to the north of Christchurch caused by the 'pinch' effect of the airport noise contours is able to be mitigated substantially by including the Mills Rd/Hills Rd areas within the Urban Limits thus adding population substance to the Belfast/Styx area serviced by the Belfast KAC, and further south by the Papanui/Northlands KAC. Those features are lacking in the Marshlands/Prestons Rd areas.

Finally, development of the Mills Rd area in particular will further, in ecological and environmental terms, the Styx 'source to sea' project, which again is a feature that distinguishes that area from areas distant from the Styx. On its own, this would not be compelling, but as part of an integrated group of benefits, it can be counted.

Decisions on PC1 were notified. Since this time, appeals were made on the decision. Then, on the 14th October 2011, the Minister for Canterbury Earthquake Recovery, announced the amendment of the RPS. The amendment adds a new Chapter 12A to the RPS and officially revokes PC1.

3.0 Description of Proposal

The purpose of this Plan Change is to allow for future residential development within the area of land bounded by Queen Elizabeth II Drive, Hawkins Road, Hills Road, the Styx River and the suburb of Redwood, and intersected by Prestons Road. This area is to be known as Highfield Park.

The Plan Change provides for the rezoning of this land (approximately 260ha) from Rural 3 (Styx-Marshland) to Living G (Highfield), and within this area, two small neighbourhood centres/business nodes (Business 1) will be located. An area located to the south of the development area will be zoned Living G (Highfield) deferred. This area will be deferred until a solution to the stormwater issues is resolved. As is usual when land carries a deferred zoning, the underlying zoning (Rural 3) will apply to any development of that land until the deferral is lifted.

It also serves to incorporate an Outline Development Plan (ODP) into the Christchurch City Plan, attached as **Appendix 4** to this application. The purpose of this ODP is to provide an overall concept, with a range of residential sites and densities, providing a mixed-use residential development with a variety and choice in the current housing market.

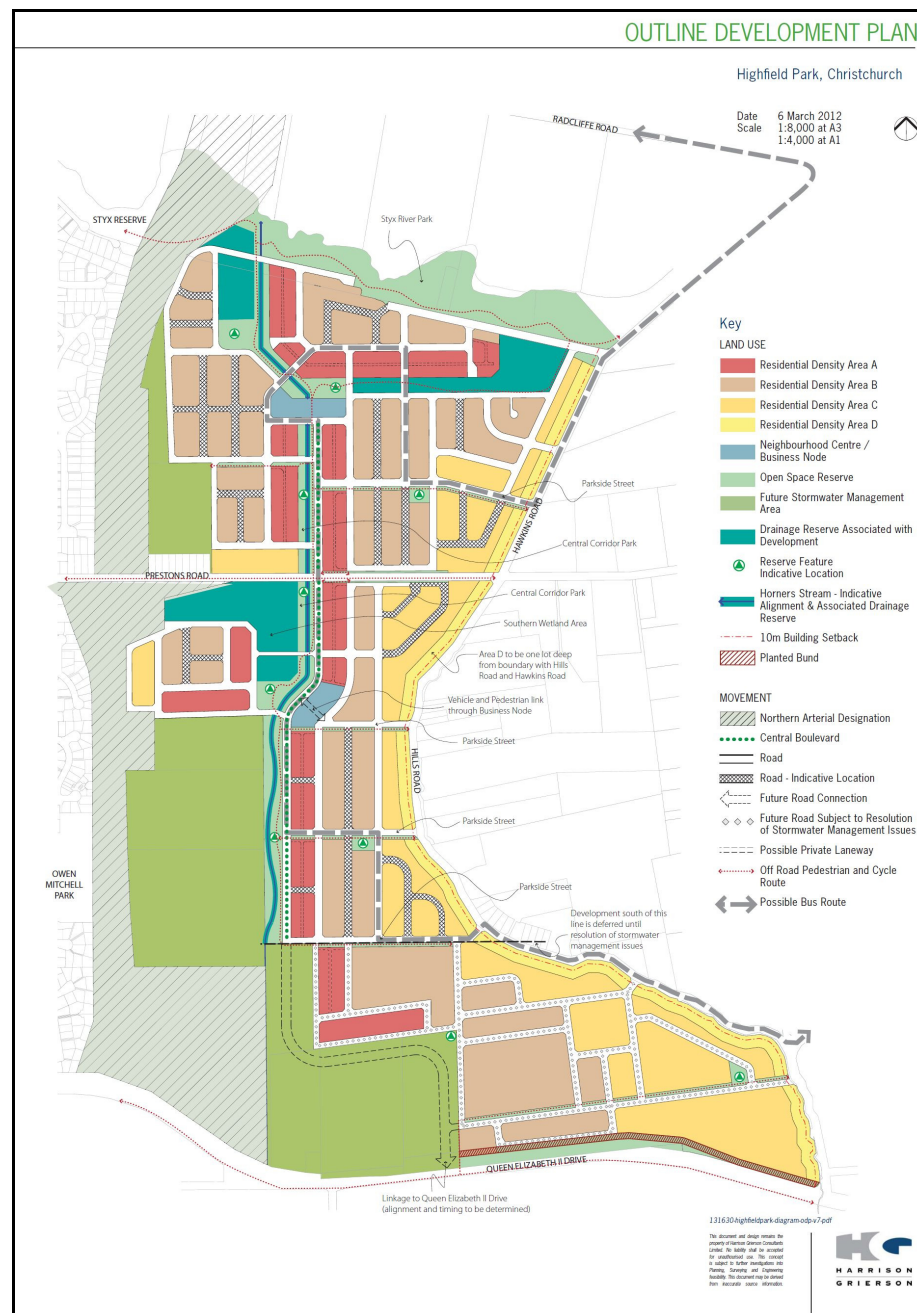


Figure 8 - Outline Development Plan

A new Living G (Highfield) zone is considered to be the most appropriate District Plan rules package, providing a mixed-density zoning framework. The Living G (Highfield) zone will allow for a range of residential densities, enhanced by a comprehensive network of green corridors, infrastructure and open space, with high levels of connectivity, ensuring integration internally within the development, as well as the wider Redwood community. The environmental outcomes anticipated for the Living G (Highfield) zone include:

- An urban form which creates a sense of place and encourages a community to develop.
- A safe and comfortable living environment.
- The integration of new roads within the site and with the existing roading network.
- A roading network that has been designed for public transport.
- An efficient and effective pedestrian and cycle network that utilises careful design to ensure the provision of a usable and safe pedestrian and cycle network.
- Ample provision of open spaces for recreational use.
- Opportunities for a wide variety of residential development, including a range of densities.
- An allowance for higher density development within the centre of the site, away from the urban rural interface.
- Higher density development in locations in close proximity to open space and public transport networks.
- A development that meets City Plan and Regional Policy Statement objectives to achieve an overall increase in residential density, urban consolidation and a compact urban form.
- A high level of urban design and amenity for buildings established within the zone.
- Medium density development, including opportunity for elderly person housing, being located in conjunction with a core of community facilities and able to obtain easy access to public transport and open space.

While the development area will be rezoned Living G (Highfield), there are two different types of activities provided for:

Living areas

Work undertaken on the Master Plan, attached as **Appendix 2** to this application, has revealed that there is approximately 96.7ha of land suitable for residential development within the initial development area, providing approximately 1527 residential units at 15.8 dwellings per hectare. Within the deferred area, there is approximately 43.6ha of land available for residential development, providing 581 residential units at 13.3 dwellings per hectare. Overall, the Master Plan demonstrates that the proposed Plan Change site is able to provide 2108 residential units at 15.0 dwellings per hectare. Other rules within the Plan Change application in respect of average lot size will enable greater yields than this.

Neighbourhood centres/business nodes (Business 1)

There is approximately 1.6ha of land available for commercial use. There will be a northern business node and a southern business node. These areas will contain small-scale retail shops and service activities. The proposed commercial area will be zoned Living G (Highfield), but will be subject to the Business 1 zone provisions under the Christchurch City Plan. However, there are two key site specific requirements to the proposed neighbourhood centres/business nodes:

- Residential activity shall not be located on the ground floor of any building
- The erection of new buildings, and additions exceeding 100m² in floor area to existing buildings, shall be a restricted discretionary activity, with the exercise of the Council's discretion limited to the design and amenity of the site and development.

3.1 Engineering servicing proposal

A detailed servicing strategy for the provision of sewer, stormwater and high pressure water for the future development of the land to Living G (Highfield) zone standards is included as **Appendix 12** and **Appendix 23** to this application.

3.2 Earthworks

Earthworks will be undertaken across the entire site. The purpose of the earthworks is to provide suitable building platforms and to ensure adequate drainage of the site during storm events. In general it is proposed to take cut from the higher areas of the site to the north and raise the area to the south.

Minimum ground levels for building platforms will be above the 2% AEP flood levels calculated adjacent to the overland flow paths. The grade of the overall site will be shaped in such a way that water is able to flow through the road network and drain into the central corridor.

The site falls within the area of the Waimakariri River Regional Plan. It is understood that an Integrated Catchment Management Plan application has been made to Environment Canterbury that would cover the stormwater discharge for the Highfield Park site. It is anticipated that this would negate the need to apply for stormwater consent.

It is proposed to place a wetland in the Styx River Corridor north of the site. This is a high part of the site and will require substantial earthworks.

Building platforms are required to remain clear of 2% AEP flood plain elevations and maintain a 0.25m freeboard above predicted 2% AEP flood plain elevations for habitability.

Consents to carry out earthworks over the full development site will be required from Environment Canterbury. The consent will consider erosion and sediment controls for the site during development.

3.3 Telecommunications and electrical supply

Chorus has provided confirmation that its network can be extended to provide connections for any future development that may occur within the Plan Change area.

Orion New Zealand Limited has also confirmed that any future development within the Plan Change area has the ability to connect to Orion's existing high voltage network.

Copies of these confirmations are attached as **Appendix 18** to this application.

3.4 Roading

The proposed road network is well connected with linkages and multiple access points. The roads are generally linear in form with some curved sections. Major intersections will be controlled with roundabouts and minor intersections with give way controls.

The Central Boulevard forms the major access through the site, linking Prestons Road and the development to both the Northern and Southern Business Nodes and to Queen Elizabeth II Drive. It is proposed to have an intersection at Queen Elizabeth II Drive, with the provision for left-in, left-out only, with the intersection potentially being upgraded in the future to a grade separated interchange with a link to East Ellington Drive to the south-east. Further discussions with NZTA will be required to confirm this.

With the size of the proposed development and the possible traffic generated, the inclusion of public transport is being considered. Prestons Road and the Central Boulevard have the potential to become future bus routes.

Abley Transportation Consultants have assessed the traffic issues and roading hierarchies, and their assessment is attached as **Appendix 10** to this application.

3.5 Urban design considerations

Outline development plans (ODPs) are generally considered to be the simplification of the development framework. In this case, a master planning process has been undertaken to identify a solution by which a mixed-use development can be created, with an area of the Living G (Highfield) zone to the south to be deferred until stormwater issues are resolved, whilst ensuring that in the long term, development options for the site and the land surrounding it are not precluded.

The ODP incorporates the whole site subject to this plan change, and is attached as **Appendix 4** to this application. It comprises an area that is largely delineated by the land shown as areas CN5 and CN6 within the urban limits, identified within Chapter 12A, and also by existing roading patterns and the Styx River.

The ODP attached identifies the key transport links, the zoning proposed and mitigation measures such as buffer zones and landscape amenity strips. As part of the plan change process, the ODP will be incorporated into the Plan, and will represent a blueprint for the development of the area. Any future development of the subject site will be required to occur in general accordance with the ODP, as reflected in the new rules proposed within the Plan, which refer specifically to the ODP. Harrison Grierson has led the design and preparation of the ODP, with input from Oculus. Harrison Grierson has produced a background urban design report to the ODP. A copy of the outline development plan background report (ODPBR) is attached as **Appendix 5** to this application. The key conclusions of this report are summarised in Section 4 of this proposal.

The ODP is in keeping with the design qualities of the Ministry for the Environment's Urban Design Protocol, and with the principles, objectives, policies and rules of the Plan. It confirms the validity and suitability of the site for Living G and Business 1, residential and business activities, and provides a workable coordinated concept for the development of a practical and useable residential environment whilst providing mechanisms to mitigate potential adverse effects.

An assessment of effects on the environment likely to result from development under the amended zonings is provided in Section 6 of this application. Similarly, a Section 32 analysis outlining the reasons for seeking the zone change and the alternative methods considered is provided in Section 8.

3.6 Staging

Any development resulting from the plan change will occur in stages. This is inevitable in a large scale development such as is proposed. Staging is usually determined at subdivision consent stage, and is dependent on a number of factors including the landowner's financial ability to develop, the development of servicing for a site, and most importantly is determined by the market.

It is considered that no detailed staging is necessary at Plan Change stage. The key benefit of an ODP is that it ensures that the final layout of the development is anticipated.

However, significant progress has been made into the form of staging that is likely to occur at subdivision stage. All staging will be developed to ensure that the development functions effectively throughout development and that adequate servicing is available throughout the development.

In any case, land to the north of the site will be developed first, and in accordance with the deferred status of the southernmost portion of land, it will be developed later as stormwater solutions permit. Given this, the proposed rule that relates to the deferral, notes that the exact locations of roading and stormwater areas within this deferred area is indicative, and it is acknowledged that until stormwater needs are finalised in this area, that the amount of land required for different land uses in the deferred area is not determined.

4.0 Planning Framework

4.1 Statutory framework for Plan Change requests

Under subsection 2 of Section 73 (Preparation and Change of District Plans) of the Resource Management Act 1991 (the Act),

“Any person may request a territorial authority to change a District Plan, and the Plan may be changed in the manner set out in the First Schedule.”

Also, under Schedule 1, Clause 21, any person may request a Territorial Authority to change a District Plan, and the plan may be changed in the manner set out in Schedule 1 of the Act. Clause 22 of Schedule 1 states that:

- 1) *A request made under Clause 21 shall be made to the appropriate local authority in writing and shall explain the purpose of, and reasons for the proposed plan change to a policy statement or plan and contain an evaluation under Section 32 for any objectives, policies, rules or other methods proposed.*
- 2) *Where environmental effects are anticipated, the request shall describe those effects, taking into account the provisions of Schedule 4, in such detail as corresponds with the scale and significance of the actual and potential environmental effects anticipated from the implementation of the change, policy statement or plan.*

The purpose and reasons for this Plan Change request have been outlined under Section 1 of this application, and have been further supported by the assessment of actual and potential effects within Section 6 and the Section 32 analysis within Section 8.

Sections 74 and 75 of the Act must also have regard given to them in relation to Territorial Authorities decision making.

Section 74 states that:

- 1) *A territorial authority shall prepare and change its district plan in accordance with its functions under section 31, the provisions of Part 2, a direction given under section 25A(2), its duty under section 32, and any regulations.*

- 2) *In addition to the requirements of section 75(3) and (4), when preparing or changing a district plan, a territorial authority shall have regard to—*
 - (a) *any—*
 - (i) *proposed regional policy statement; or*
 - (ii) *proposed regional plan of its region in regard to any matter of regional significance or for which the regional council has primary responsibility under Part 4; and*
 - (b) *any—*
 - (i) *management plans and strategies prepared under other Acts; and*
 - (ii) *relevant entry in the Historic Places Register; and*
 - ...
 - (c) *the extent to which the district plan needs to be consistent with the plans or proposed plans of adjacent territorial authorities.*
- (2A) *A territorial authority, when preparing or changing a district plan, must take into account any relevant planning document recognised by an iwi authority and lodged with the territorial authority, to the extent that its content has a bearing on the resource management issues of the district.*
- 3) *In preparing or changing any district plan, a territorial authority must not have regard to trade competition or the effects of trade competition.*

Section 75 states that:

- 1) *A district plan must state—*
 - (a) *the objectives for the district; and*
 - (b) *the policies to implement the objectives; and*
 - (c) *the rules (if any) to implement the policies.*
- 2) *A district plan may state—*
 - (a) *the significant resource management issues for the district; and*
 - (b) *the methods, other than rules, for implementing the policies for the district; and*
 - (c) *the principal reasons for adopting the policies and methods; and*
 - (d) *the environmental results expected from the policies and methods; and*
 - (e) *the procedures for monitoring the efficiency and effectiveness of the policies and methods; and*
 - (f) *the processes for dealing with issues that cross territorial authority boundaries; and*

*(g) the information to be included with an application for a resource consent; and
(h) any other information required for the purpose of the territorial authority's functions, powers, and duties under this Act.*

- 3) *A district plan must give effect to—
 - (a) any national policy statement; and
 - (b) any New Zealand coastal policy statement; and
 - (c) any regional policy statement.*

- 4) *A district plan must not be inconsistent with—
 - (a) a water conservation order; or
 - (b) a regional plan for any matter specified in section 30(1).*

This plan change application comprises all the necessary documents and information as required by the Act, and given this, is able to be accepted by the Council and notified.

4.2 Proposed framework

A new set of rules are proposed to establish the new zone. The format and content of the new chapter has been made consistent with the existing chapters of the Christchurch City Plan. New site specific objectives and policies are proposed and these will provide the framework and direction for the future development of the Highfield block.

The new policies seek to:

- Ensure that the subdivision of land occurs in a comprehensive and integrated manner and is appropriately connected to the wider urban environment
- Ensure that subdivision of land is avoided until such time as sites are able to be efficiently serviced
- To establish strong connections to the adjacent residential land to the south and west
- To establish a well connected and comprehensive movement network which enables public transport linkages and safe pedestrian and cycle networks
- Allow the creation of high quality open space, particularly with respect to the Styx River and Horners Drain corridors
- Allow for a range of residential densities in appropriate locations
- To effectively manage the rural- urban interface
- To provide a diverse range of soft and hard landscaping solutions

The accompanying policies provide guidance on how the objectives are to be achieved and include:

- A requirement for subdivision and land development of the Highfield Block to proceed in accordance with an Outline Development Plan.
- To provide for an integrated network of walkways and cycleways
- To protect and enhance the existing ecological values of Horners Drain and the Styx River

4.3 Master Planning

The master planning process undertaken has been further developed from the initial work carried out to support the PC1 process.

The master planning process has been informed by technical assessments relating to landscape, ecology, geotechnical values and infrastructure capability etc. These assessments identified that the development of the site from a rural to a largely residential environment has possible impacts on the environment and recommended mitigation where impacts are unavoidable. These mitigation measures have been incorporated into the rules and overall design of the project. The master plan and layers now form the basis for the Outline Development Plan.

The Outline Development Plan methodology is focused on ensuring certainty in respect to the layout and potential effects of development. A rule requiring that development must proceed in accordance with the Outline Development Plan will provide this certainty.

4.4 Proposed rules

A new set of Living G rules are proposed for the Highfield area. These represent a comprehensive set of requirements for the development of the site and include rules relating to both subdivision and land use matters.

These rules require all development to be in general accordance with an outline development plan and define the general location of different activities within the site. The rules differentiate between different densities, with higher densities having more strict urban design and amenity requirements, whilst medium and low density development does not have the same restrictions.

The rules package has the following structure:

Policy 10.3.6 Sustainable subdivision design within Living G (Highfield)

General policies – Living G (Highfield) zone

Green Network Policies

Blue Network Policies

Movement Network Policies

Living Zones – Zone description and purpose

Zone purpose – aims and principles

Environmental Outcomes Anticipated**Living G (Highfield)****Development Standards:**

- Residential site density
- Open space
- Building height
- Sunlight and Outlook
- Street scene
- Street frontage landscaping and fencing
- Separation from neighbours
- Continuous building length – ridgelines and parapets
- Continuous building length – walls
- Outdoor living space
- Family flats
- Screening from neighbours – other activities
- Service and storage spaces – density A
- Fencing adjoining green and blue networks
- Restrictions on outdoor activities
- Noise from preschools
- Ground floor habitable room and street orientation – Density A and B
- Development plan
- Urban design and amenity – density A
- Retailing
- Road access

Community Standards

- Scale of activities
- Site size
- Hours of operation
- Traffic generation
- Building size and separation
- Residential coherence

Critical Standards

- Residential site density
 - Open space
 - Noise sensitive activities
 - Building height
 - Boarding of animals
 - Dismantling and repair of motor vehicles
 - Development plan
-

-
- Retailing
 - Residential activities

Assessment matters

Updates to assessment matters proposed to reflect new Living G rule package

Reasons for rules

Updates to reasons for rules to reflect new Living G rule package

Business zone rules**Development standards**

- Residential activities
- Urban design and amenity
- Design and amenity

Assessment matters

Updates to reflect new Business 1 zone rule

Reasons for rules

Updates to reflect new Business 1 zone rule

Transport rules

Development standard

- Minimum parking requirement

Subdivision**Development standards**

- Business 1
- Residential allotment size and site density

Community Standards

- Conformity with Outline Development Plan – comprehensive subdivision
- Conformity with Outline Development Plan – other subdivision

Critical Standards

- Allotment sizes
- Conformity with Outline Development Plan
- Residential allotment size and site density
- Control of stormwater
- Provision of public transport
- Sanitary sewer and potable water supply
- Site contamination
- Information to be supplied
- Development of deferred land

Assessment matters

Updates to reflect new Living G (Highfield) zone rule

Reasons for rules

Updates to reflect new Living G (Highfield) zone rule

Amend planning maps

4.5 Rules Package – Key Features

The rules package contains a collection of rules that seek to ensure that development within the proposed Living G (Highfield) zone will provide a living environment that is liveable, functional and pleasant. The following section of the plan change application reviews the proposed rule package and summarises the key features of the package:

The rules package follows the typical format of the Christchurch City Plan in that rules are developed to be either development, community or critical standards, which in turn determines the status of a future application for resource consent. In addition, the current City Plan is quite prescriptive in its determinations of when persons are considered to be adversely affected, and when approvals either are or are not necessary. This rules package continues these traditions and reflects the characteristics of recent greenfields rules packages in this regard.

Each rule relates to either 'residential' activities or 'other' activities or can cover both types of activity. In recently promulgated Living G zones, different zones have slightly different bulk and location requirements that reflect the proposed character of the future living environment. This plan change proposal is no exception.

Table 2 below summarises the proposed bulk and location requirements for each density area.

RULES MATRIX

6.1.1 Living G (Highfield)

The Table below summarises the proposed Development Controls within the Living G zone at Highfield. These controls are adapted from those proposed within other communities at the rural fringe of Christchurch City that are zoned Living G.

Living G (Highfield)	Site density		Building coverage (development standard)	Building Coverage (critical standard)	Impermeable (ex. building)	Max building height	Max Building height (critical)	Recession planes	Road boundary setback			Outdoor living space	
	Site area (min-max)	Site area average (min-max)							Building	Garage	Internal boundary setback	Min area	Min dimension
Density A (High density)	150m ² - 300m ²	200m ² - 250m ²	—	60%	25%	11m	14m	Diagram C (part 2, app1)	2m	5.5m	0m or 1.5m	40m ² of which 20m ² may be integrated living space	4m
Density B (Medium density)	200m ² - 450m ²	275m ² - 350m ²	55%	60%	30%	9m	9m	Diagram B (part 2, app1)	3m	5.5m	0m or 1.5m	40m ² of which 20m ² may be integrated living space	4m
Density C (Low density)	400m ² - 750m ²	425m ² - 550m ²	40%	45%	30%	8m	9m	Diagram A (part 2, app 1)	3m	5.5m	1.5m	75m ²	4.5m
Density D (Low density with Buffer)	min 750m ²	—	35%	40%	25%	8m	9m	Diagram A (part 2, app 1)	10m from Hills or Hawkins Roads, 3m from other roads. 5m of the 10m setback must be landscaped.	10m	1.5m	80m ²	6m

Table 2 – Living G (Highfield) Rules Matrix

Density A

Density A is the high density area within the development area. The proposed rules that relate to this density require a minimum site area of 150m², with an average lot size to be contained within a range of 200m² to 300m². It is anticipated that dwellings within the Density A area will be generally attached or semi-detached and will be comprehensively designed and built in order to ensure high quality design and useable space. The rules reflect the necessary setback requirements to achieve this form of development, and the bulk and location rules are therefore similar to other Density A areas in Christchurch. Figures 9 and 10 below show a typical dwelling typology for Density A.

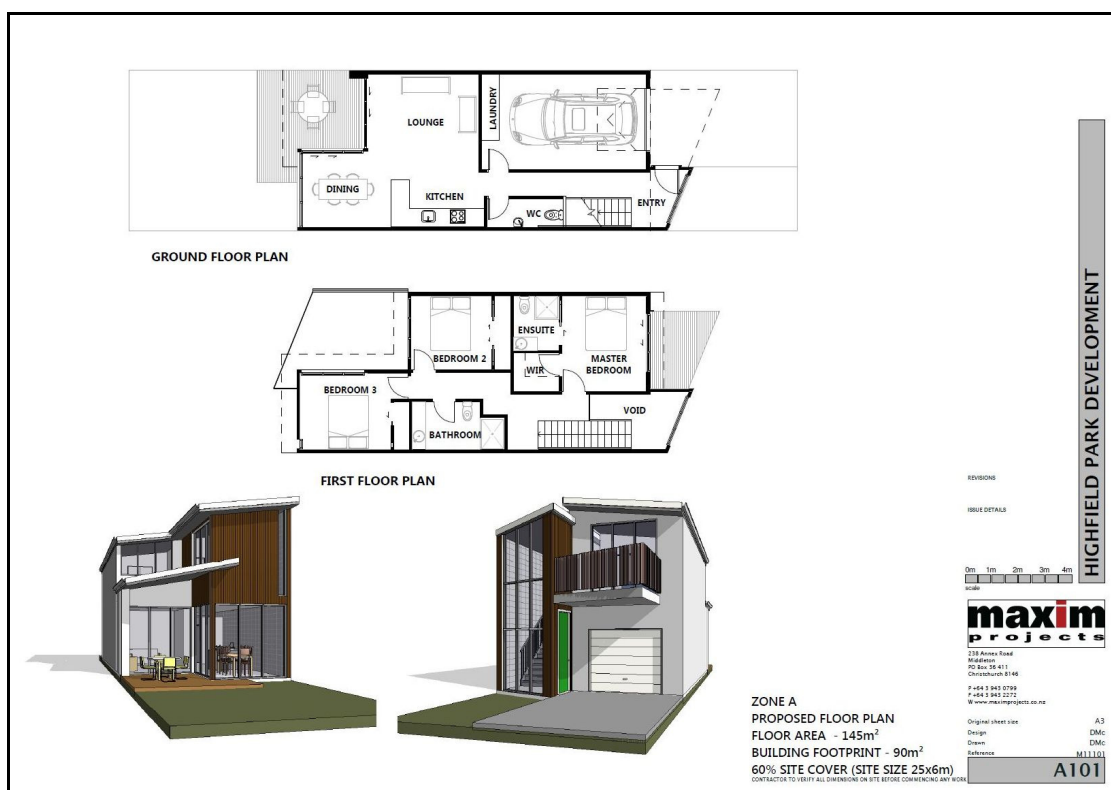


Figure 9 – Example of Density A Typology



Figure 10 – Example of Density A Typology

Buildings within Density A areas may extend up to three storeys in height and will be designed to maximise solar gain. The rules package requires that all Density A development is assessed against a set of urban design criteria as a restricted discretionary activity. This will ensure that design standards for the Density A area will be extremely high.

The concept of integrated outdoor living

The Density A areas, whilst not having large private areas of open space, will benefit from their proximity to the green corridors, and in addition to this, a part of the private open space apportioned to each dwelling (20m²) will be able to be provided as ‘indoor/outdoor’ or ‘al fresco’ living with a specific rule to enable this.

This indoor/outdoor integrated living concept is common overseas and allows inhabitants to enjoy outdoor living that is sufficiently protected from the elements, to enable inhabitants to enjoy it on a year round basis and a feeling of the outdoors. This form of outdoor/indoor living is characterised by semi-enclosed decks and verandahs with outdoor style flooring such as decking timber or concrete, coupled with louvres opening to the sky and walls.

By allowing for horizontal flow between indoor and outdoor living, via ‘integrated living,’ the ability of inhabitants to use more of their private space throughout the year, enables more choice and a better living environment for inhabitants of dwellings with smaller sections. It enables space to be closed off from the outdoors when weather is inclement, while still having an outdoor character, and then when weather is pleasant, enables the integrated area to be utilised in an outdoor context. An example of integrated living is shown in Figure 11 below.

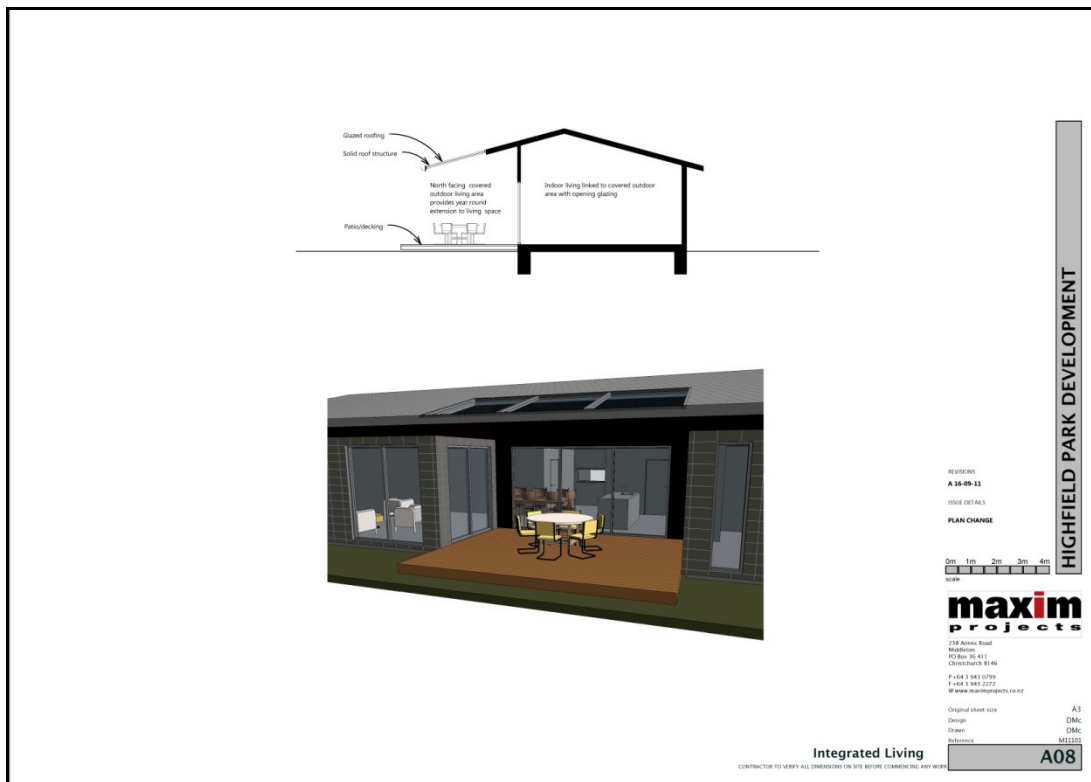


Figure 11 – Example of Integrated Living

Density B

Density B areas comprise the majority of the land within the proposed Highfield development. Density B allotments will have a minimum net site area of 275m² and a site area average of between 300m² and 450m². Dwellings within the density B areas will be a mixture of attached or semi detached dwellings and detached townhouses. Permitted site coverage is typically lower than expected in Density A areas, and reflects a more open character. Density B dwellings also benefit from the context of integrated outdoor living, ie, living space that has both indoor and outdoor characteristics. Typical dwelling typologies are included in Figures 12, 13 and 14 below.

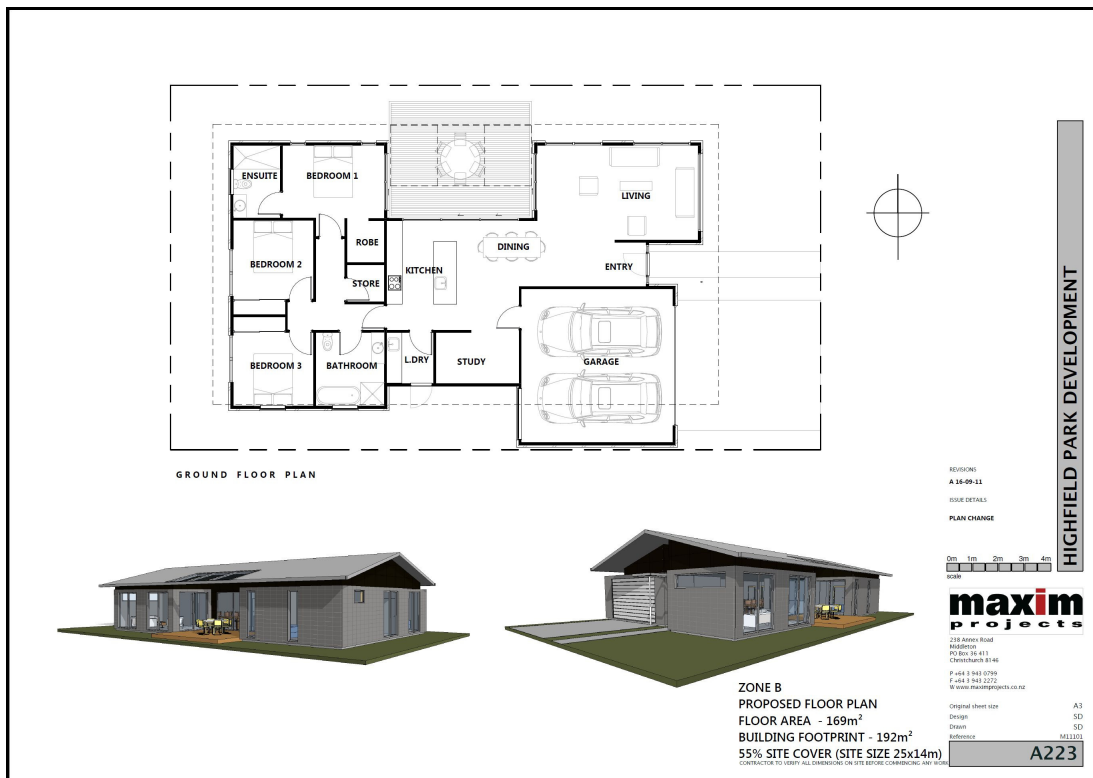


Figure 12 – Example of Density B Typology

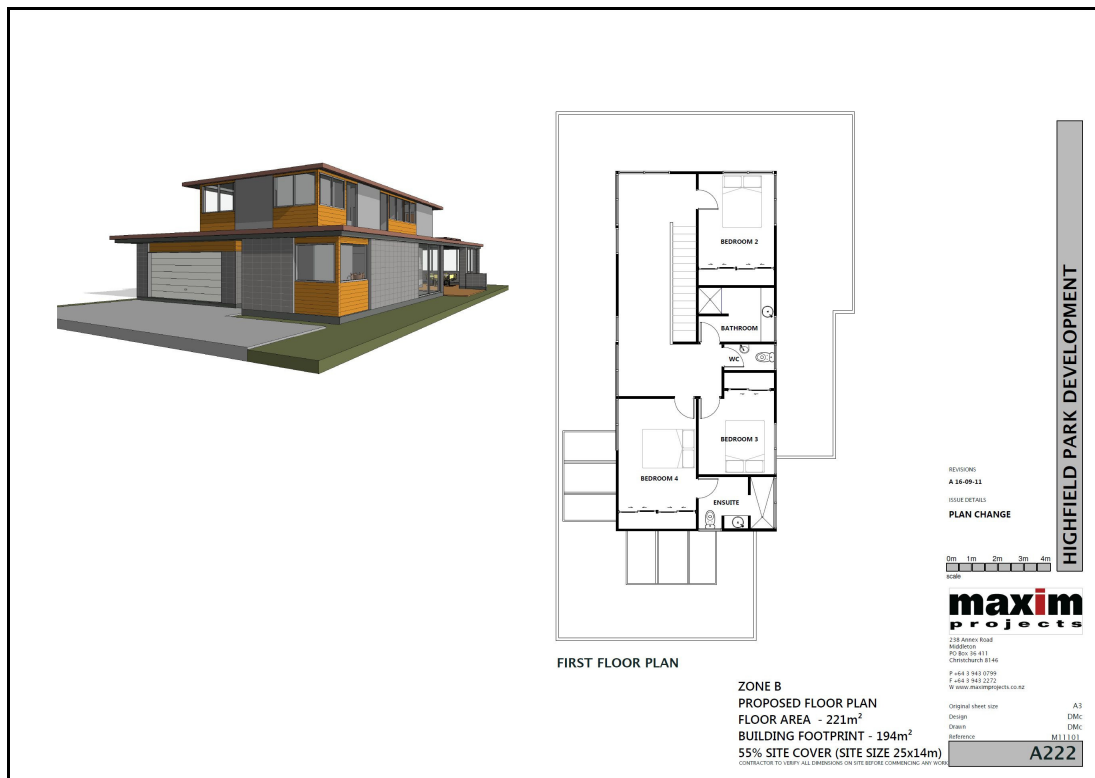


Figure 13 – Example of Density B Typology

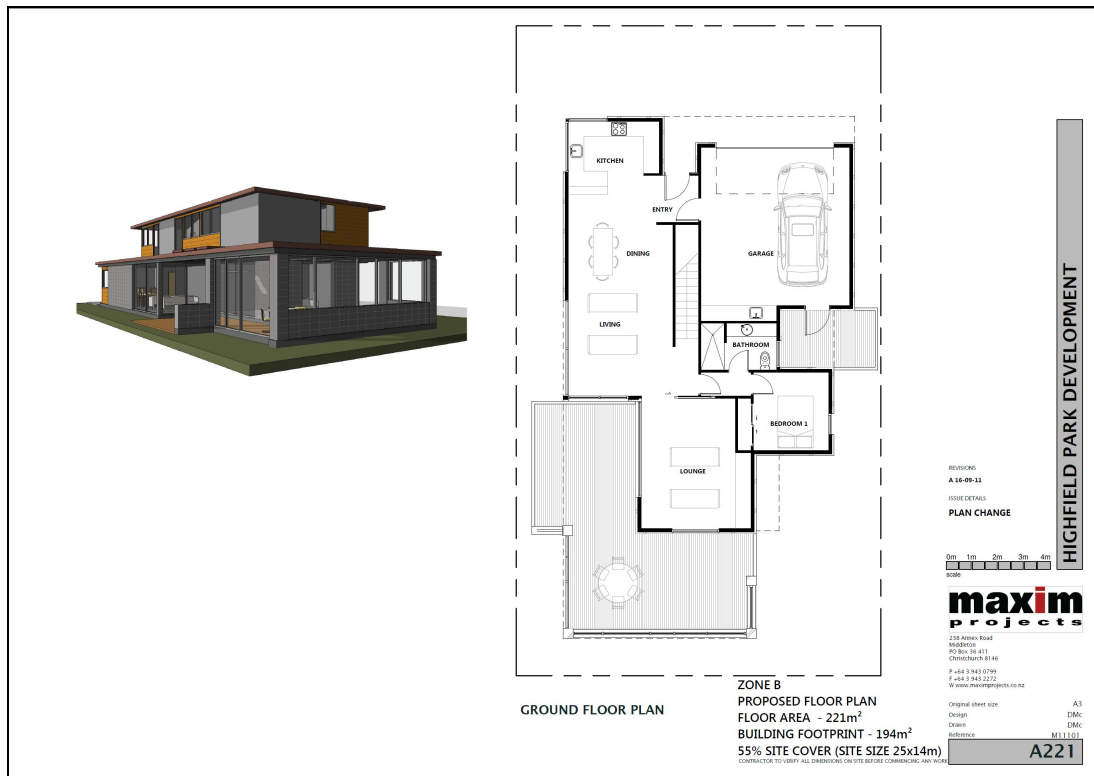


Figure 14 – Example of Density B Typology

Density C

Density C comprises the medium – low density development proposed within the plan change area. It extends across the eastern part of the site, excluding land that directly adjoins Hills and Hawkins Road. Density C allotments will have a minimum net site area of 400m² and a site area average of between 450m² and 750m². Density C rules reflect a proposed low density housing environment, which will be characterised by open space and gardens. The building height requirements are lower than that permitted in the higher density zones, and site coverages are lower. Setbacks from road boundaries are similar to other zones, enabling occupiers to retain most of their outdoor living space at the rear of their properties for the benefit of enhanced privacy. A typical dwelling typology is shown in Figures 15, 16 and 17 below.

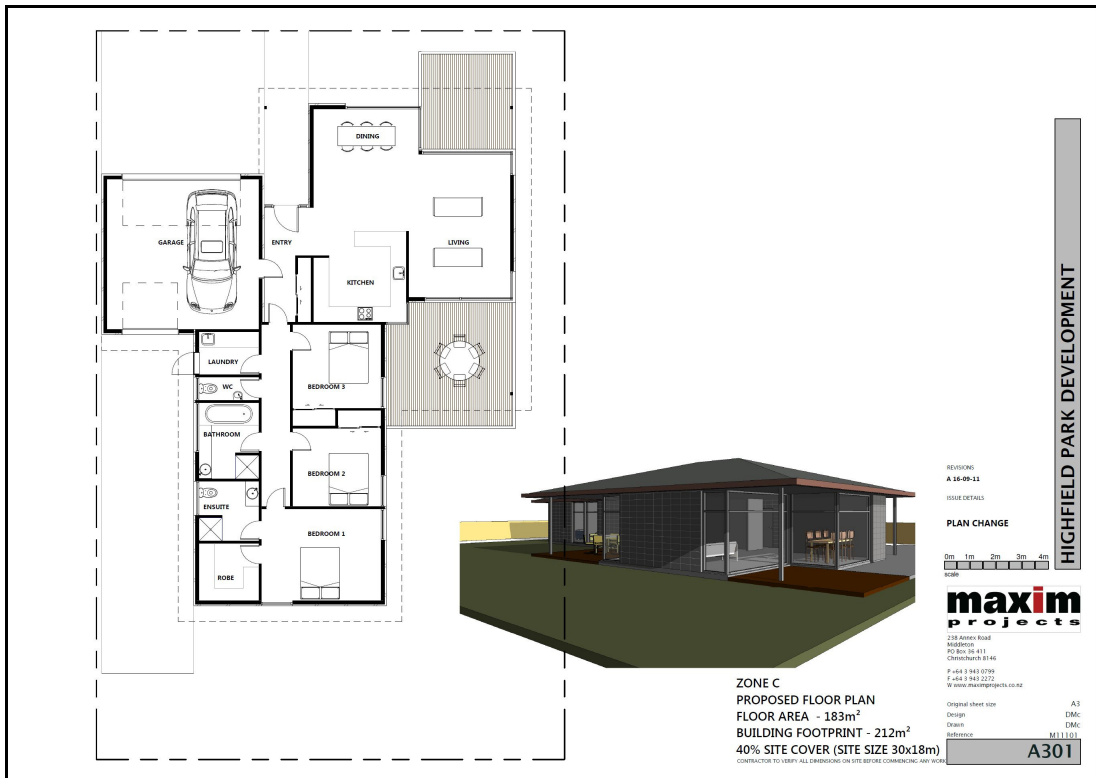


Figure 15 – Example of Density C Typology

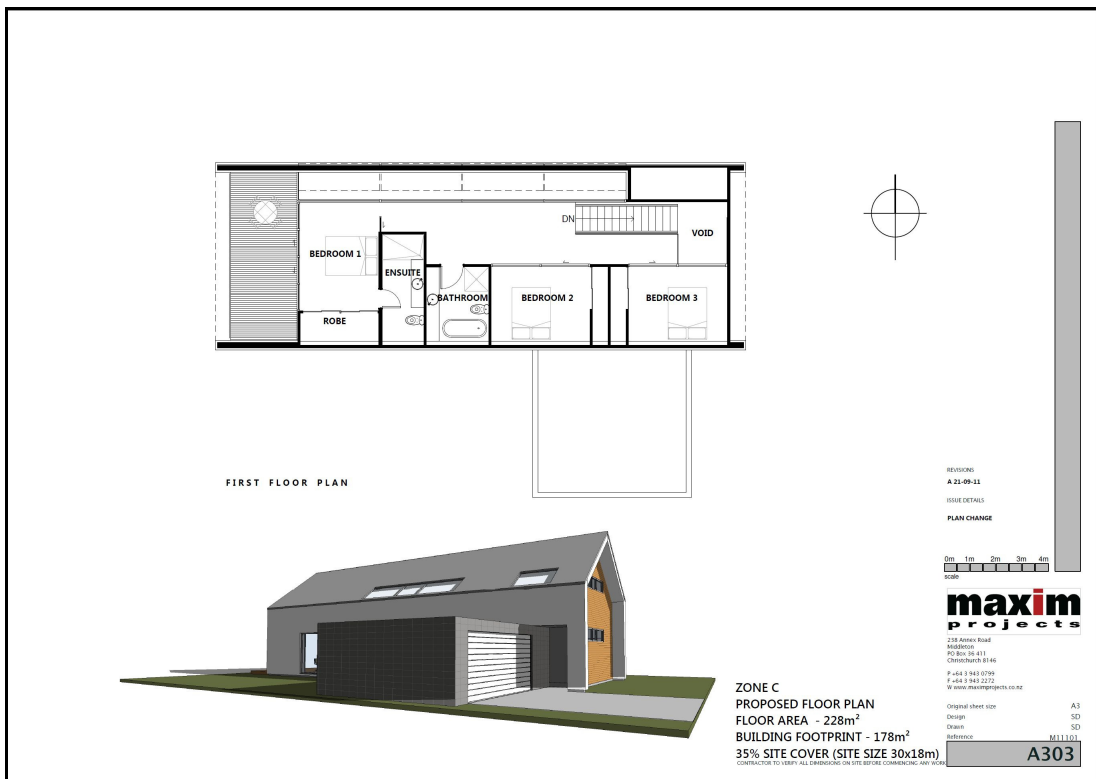


Figure 16 – Example of Density C Typology

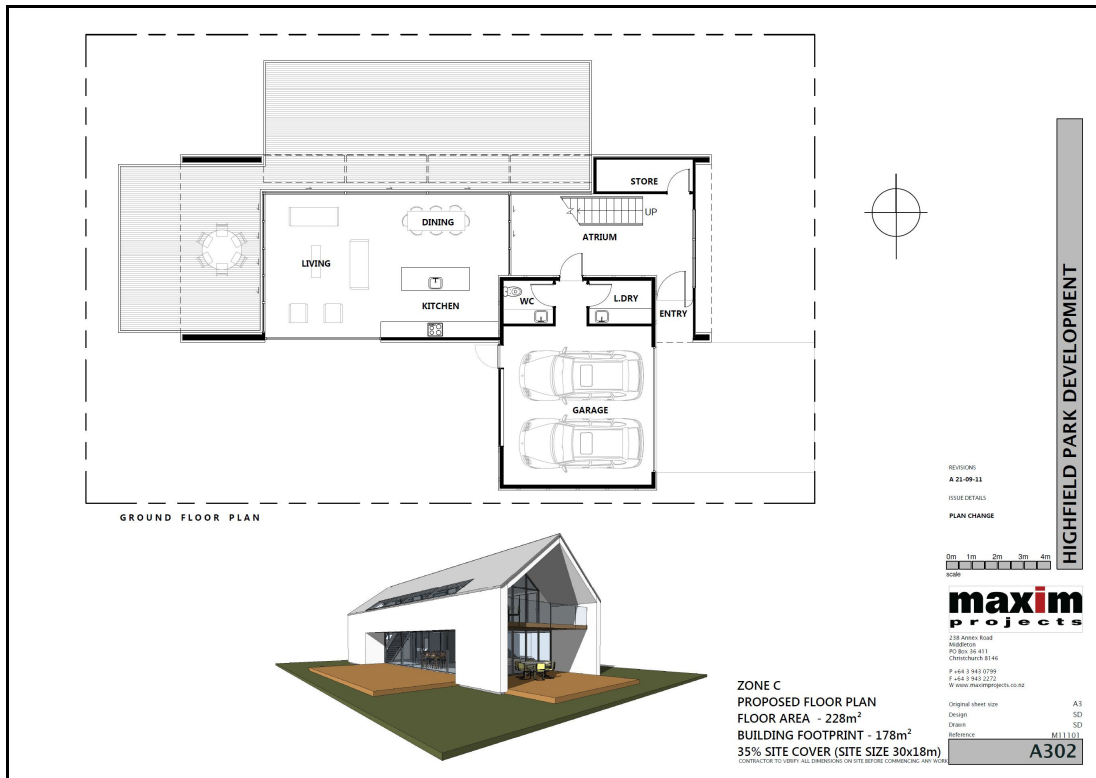


Figure 17 – Example of Density C Typology

Density D

The Density D area recognises the need for an interface between the rural and urban zones with unique characteristics. The Density D zone extends to 'one section deep' only from Hills and Hawkins Road boundary. Therefore the indicative density lines as shown on the ODP are approximate. The Density D area is a low density area with a minimum allotment size of 750m² and bulk and location rules that reflect this minimum size. A typical dwelling typology is shown Figures 18 below.



Figure 18 – Example of Density D Typology

Copies of these built form typologies are attached as **Appendix 13** to this application.

Assessment matters

The proposed assessment matters are generally similar to existing Living G zones. As with other Living G zones, assessment matters are particularly necessary for the Density A zone, in which all development is ‘restricted discretionary’ with discretion limited to urban design and amenity matters.

Some assessment matters also relate specifically to the Highfield zone, such as the specific setbacks and access limitations required, as well as the concept of outdoor/indoor outdoor living space opportunities.

Assessment matters are also proposed to support the rules requiring consideration of urban design matters for commercial buildings and additions exceeding 100m² in floor area. These assessment matters seek to ensure the consideration of architectural treatments, passive surveillance, landscaping, security fencing, signage and outdoor storage, loading and parking areas.

Assessment matters recognise the potential impacts of residential accommodation within Business zones and seek to ensure that on site amenity for both residential units and commercial units are maintained. Assessment matters also require the consideration of the location of residential units in commercial areas and indicate that residential activity in Business zones should only be located at first floor level or above to preserve commercial opportunities at ground floor level.

Subdivision matters are also further defined by assessment matters. The subdivision assessment matters proposed are site specific and refer directly to the Living G (Highfield) Zone rules. They, in conjunction with the site specific policies, make the methodology and requirements for the future subdivision of the Highfield block easy to understand and will ensure that subdivision consents are focused on those matters considered appropriate in the Plan. They include:

- Density
- Connectivity
- Rooding
- Access to public open space
- Street trees
- Stormwater
- Street scene
- Location of high density sites
- Mix of densities
- Sanitary sewer
- Contaminated sites
- Unanticipated discovery of archaeological sites

Planning Maps

Updated planning maps are proposed that show the site and rezoning in a manner consistent with the existing planning map design utilised by the current Christchurch City Plan.

Outline Development Plan

An outline development plan reflects the final result of a comprehensive master planning process. The details of development considered and provided for in the master planning process are pared down to result in a clear concise outline development plan that nevertheless identifies clearly the form and functions of the future development of the site in all its

components. The outline development plan identifies the proposed layout of densities, roading, connections, green space and infrastructure networks.

Movement Network

The movement network outlines all the key movement networks throughout the site, identifies the roading hierarchy, and illustrates how the movement network integrates with the green network.

The key road through the site is the central boulevard, which extends towards Queen Elizabeth II Drive in the south, and towards the northern business node in the north. It is anticipated that this road will be a defining feature within the subdivision, and with its location adjacent to the central corridor park, it is well placed to be of importance both functionally and visually. The central boulevard is to be wide, with a central planted median, and will connect with the central corridor park. No dwellings are to have a vehicular access from the Boulevard, instead gaining access from rear access lanes. Figure 19 below shows a typical cross section of the central boulevard.

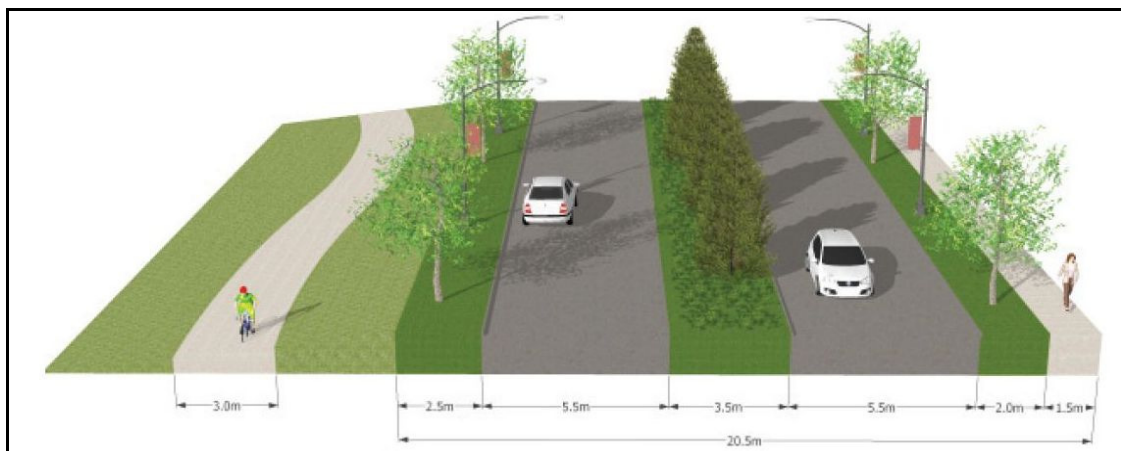


Figure 19 – Central Boulevard

In terms of movement across the site, parkside streets extend across the site in an east-west direction. These parkside streets are characterised by a green network that extends along adjacent to the street, and will provide visual as well as practical connections to the central corridor and boulevard. Figure 20 below shows a typical cross section of a parkside neighbourhood street, and Figure 21 shows a parkside local street.

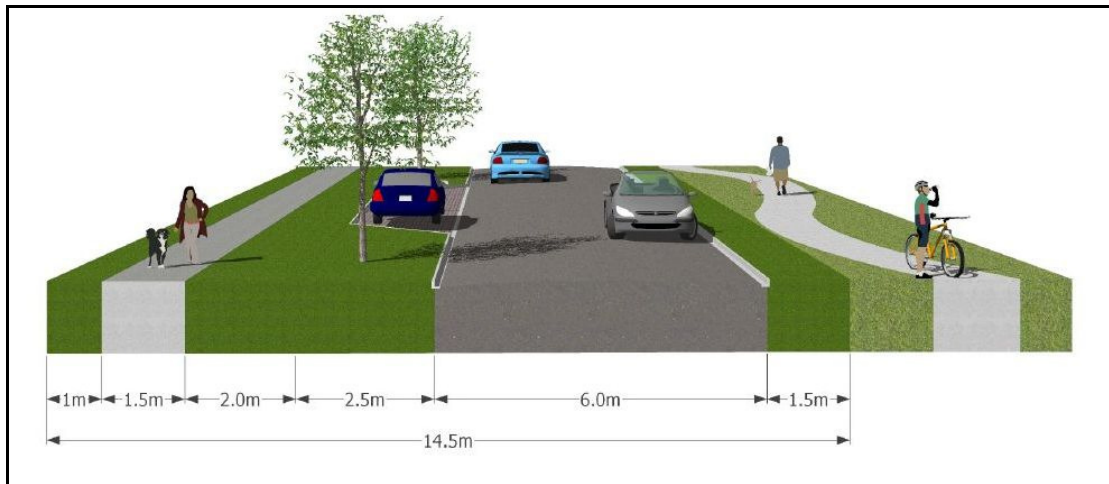


Figure 20 – Parkside Neighbourhood Street

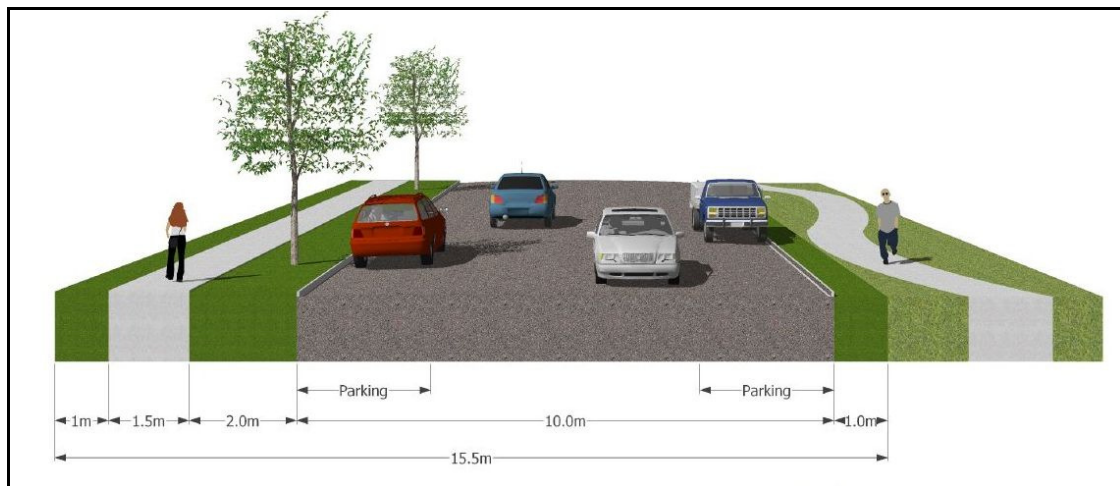


Figure 21 – Parkside Local Street

Smaller roads within the subdivision are not required to be indicated on the ODP but the roading pattern has been determined following a masterplanning process that has provided a framework and some certainty as to where roading will be placed. Figure 22 shows a typical cross section of a local street and Figure 23 shows a neighbourhood street.

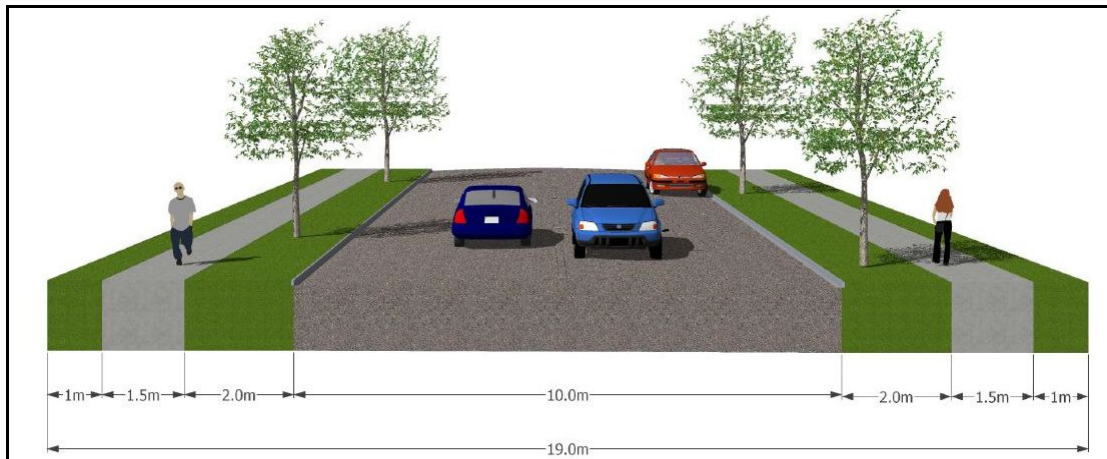


Figure 22 – Local Street

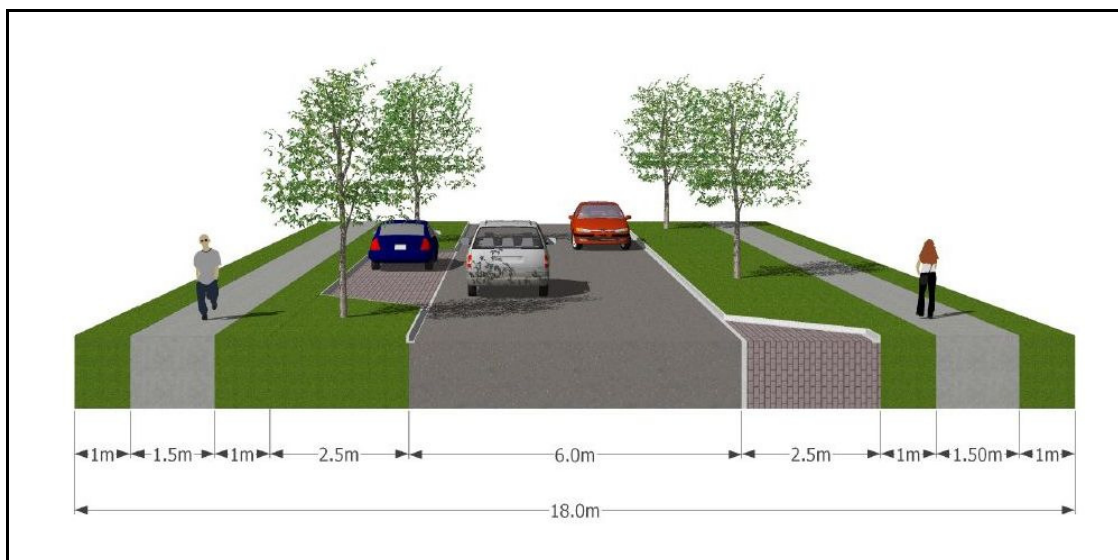


Figure 23 – Neighbourhood Street

Lanes are provided to improve the permeability and walkability of the Outline Development Plan. They provide access to limited numbers of residential properties. Links are specific to areas adjacent to Prestons Road, where road access is constrained due to Horner's Drain. They provide access to a few properties and a link between turning heads on north-south roads that terminate adjacent to Prestons Road. Figures 24 and 25 show typical cross sections of lanes and link roads.

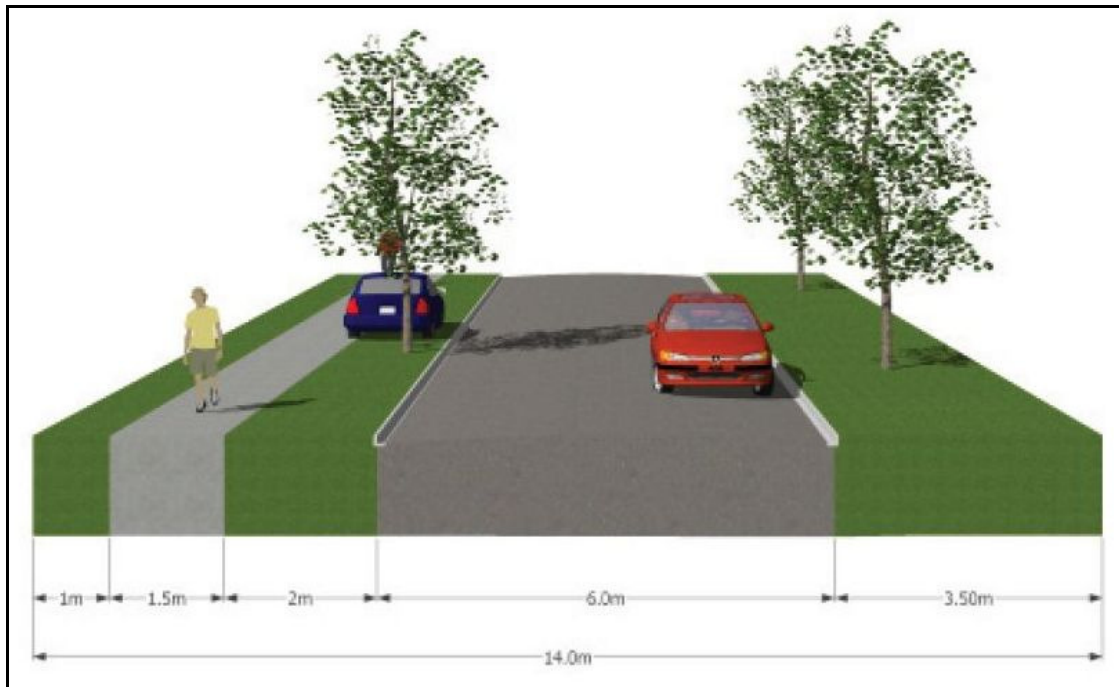


Figure 24 – Typical Lane

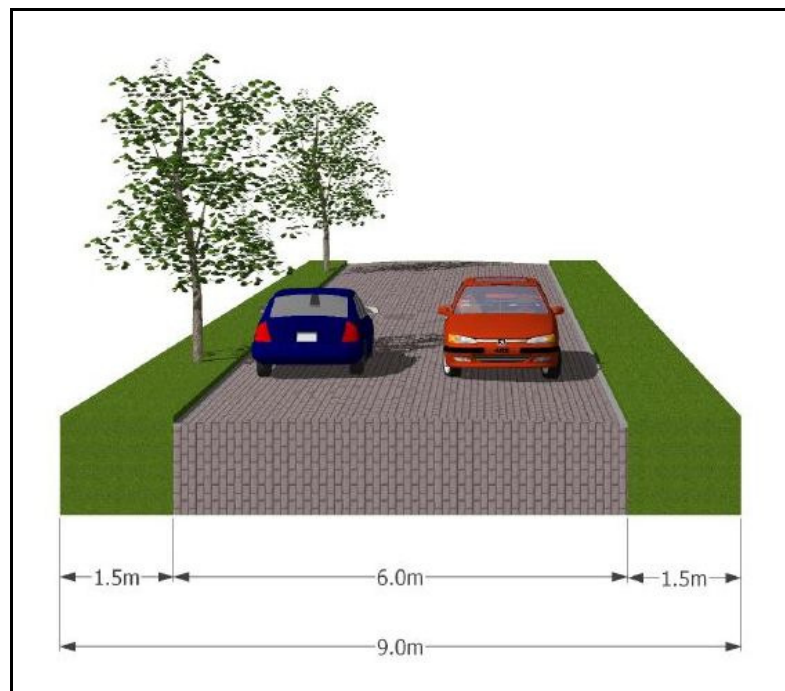


Figure 25 – Typical Link

The movement network also indicates where pedestrian and cycle linkages are to be located, and in particular indicate where the site connects with surrounding land, most importantly to the Redwood Springs subdivision. The movement network is shown in Figure 26 below.

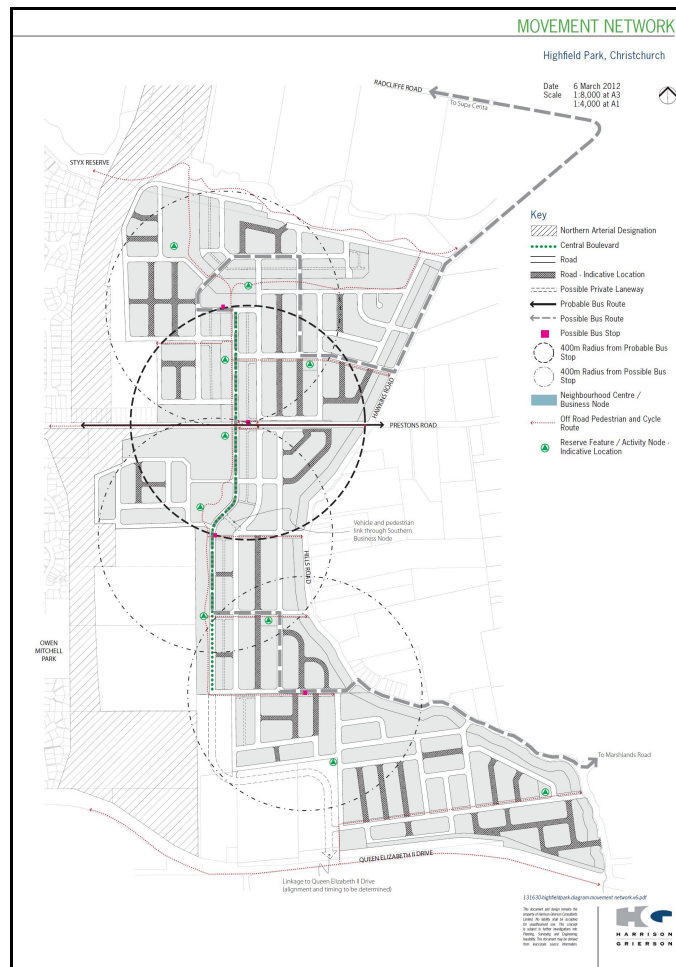


Figure 26 – Movement network

Table 1: Minimum Design elements for Local Roads in residential areas

Street Type	Minimum legal road width	Minimum carriageway width	Minimum number of footpaths	Minimum footpath width	Provision of street trees
Central Boulevard	20.5	Dual carriageway 5.5m each	1*	1.5m	Yes
Parkside Local Street	15.5m	10m	1*	1.5m	Yes
Local Street	19m	10m	2	1.5m	Yes
Parkside Neighbourhood Street	14.5m	6m	1*	1.5m	Yes
Neighbourhood Street	18m	6m	2	1.5m	Yes
Lane	14m	6m	1	1.5m	Yes
Link	9m	6m	None	-	Yes

Table 1 Notes:

* Except where roads adjoin a public open space on one side, an additional second footpath shall be located within that open space.

Terminology

Central Boulevard	Runs in a north-south direction along the central open space system, and will be a collector road.
Parkside Local Street	This street type always edges a reserve on one side.
Local Street	The main north-south roads within the development.
Parkside Neighbourhood Street	Similar to a parkside local road but with a narrower carriageway.
Neighbourhood Street	These roads make up the largest proportion of streets within the development and are intended to carry only local traffic.
Lane	Provide access to a limited number of residential properties.
Link	Specific to areas adjacent to Prestons Road. They provide access to a limited number of properties and link between turning heads on north-south roads.

Green network

The green network provides detail as to what amount of land has been set aside for open space purposes. The green network closely aligns with the blue network in that frequently space is shared. Indeed, while land for stormwater management is utilised for that purpose, it is practical to locate it near to green space so that the open character of stormwater management areas can enhance the open character of the site.

The key green network features are the Central Corridor Park, the Styx River Corridor and the southern stormwater ‘wetland’ area. Assisting with drawing green space through the site are the parkside streets which interconnect with the main networks. The green network is shown in Figure 27 below.



Figure 27 – Green network

The green network comprises all the components of open space throughout the plan change area. Technically, it does not include land available for solely stormwater processes, but the

high quality stormwater designs that are now the benchmark for residential subdivisions within Christchurch, mean that in reality, stormwater management areas are multifunctional and multifaceted. The diagram below indicates the range of different 'green' components of the development.

Blue network

The blue network defines the key stormwater infrastructure based features of the site. Existing waterways through the site include Horners Drain and the Styx River, which will, through the process of development of the site, be enhanced to ensure they become both ecological and amenity assets to the community. The southernmost part of the site is to be zoned Living G (Highfield) but a deferral is proposed until such time as the stormwater solution for the southern part of the site is agreed. It is fair to assume that a large stormwater area will be developed on the NZTA and CCC land at the south of the site.

It is anticipated that eventually, this will be able to be integrated with the land set aside for stormwater treatment and disposal further north, and that a key wetland asset will be able to be created. The blue network extends north through the site and is integrated with the green network where appropriate. The blue network will be utilised to create amenity features in conjunction with the northern business node, and the design of the subdivision has occurred in such a way so as to ensure that significant numbers of inhabitants will benefit from the amenity created. The blue network is shown in Figure 28 below.

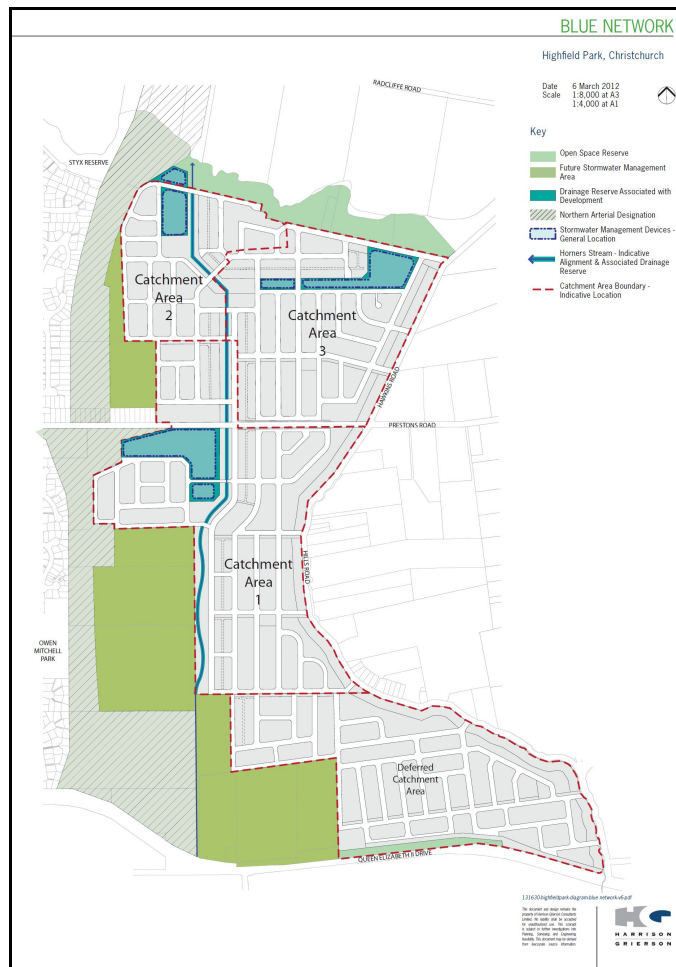


Figure 28 – Blue network

4.6 Density compliance

Policy 11, under Chapter 12A of the RPS relates to residential density. It states that:

Residential subdivision and development shall generally achieve the following minimum net densities, averaged over the whole of an Outline Development Plan area shown on Map 1 and for intensification developments:

b) 15 lots or household units per hectare in Greenfields Areas in Christchurch City except in Hendersons Basin.

Chapter 12A of the RPS defines net density as being:

The number of lots or household units per hectare (whichever is the greater). The area (ha) includes land for:

- *Residential purposes, including all open space and on-site parking associated with residential development;*
- *Local roads and roading corridor, including pedestrian and cycle ways, but excluding State Highways and major arterial roads;*
- *Local (neighbourhood) reserves*

The area excludes land that is:

- *Stormwater retention and treatment areas;*
 - *Geotechnically constrained (such as land subject to subsidence or inundation);*
 - *Set aside to protect significant ecological, cultural, heritage or landscape values;*
 - *Set aside for esplanade reserves or access strips that form part of a larger regional or sub-regional reserve network;*
 - *For local community services and retail facilities, or for schools, hospitals or other district, regional or sub-regional facilities.*

Calculations have been carried out to ensure that the rules package that forms the framework of this plan change ensures that the proposed development of the land will meet the requirement for 15 households per hectare. The rules ensure this by providing for a minimum and maximum average site size for subdivisions. This will ensure that across the whole site, and having regard to the minimum site sizes and other bulk and location rules, that the proposal will meet this requirement.

5.0 Proposed Changes to the Christchurch City Plan

Note: For the purposes of this plan change, any text amended as a result of other decisions is shown as 'normal text'. Any text proposed to be added by the plan change is shown as **bold and underlined** and text to be deleted as ~~**bold strikethrough**~~.

Amend the City Plan as follows:

Volume 2: Section 10 Subdivision and Development

Add new Policy 10.3.9 after Policy 10.3.8

Policy: Sustainable subdivision design for Living G (Highfield) Zone

10.3.9(a) To ensure the subdivision of land in the Living G (Highfield) zone occurs in a comprehensive and integrated manner and is appropriately connected to the wider urban environment, by ensuring that the overall design and layout gives effect to:

- i. **Key structuring elements and network objectives specified in the relevant objectives and policies of the City Plan;**
- ii. **The overall pattern of development shown on the Outline Development Plan (Highfield) in Appendix 3xa and 3xb Part 2, Volume 3; and**
- iii. **Provision of small scale neighbourhood centres/business nodes (Business 1) with a maximum land area of 1.6 hectares that provides for the day to day convenience shopping needs of the local community and developed in such a manner that it is designed in accordance with good urban design principles and achieves a high standard of visual character and amenity.**
- iv. **Provision of a mixed density residential environment that meets the requirement of 15 households per hectare.**

10.3.9(b) To avoid subdivision in the Living G (Highfield) zone until such time as sites are able to be serviced by the City's reticulated water and waste water supply system and stormwater facilities

10.3.9(c) To avoid the subdivision of land in the southern most portion of the site identified as deferred on the ODP, until such time as a stormwater management solution has been prepared for the land to deal with stormwater in a comprehensive and integrated manner.

10.3.9(d) To avoid subdivision for residential purposes unless risks associated with potentially contaminated land are avoided, remedied or mitigated if necessary.

Explanation and Reasons

The Living G (Highfield) Zone provides for a comprehensive and integrated mixed density residential urban community with a primary emphasis on urban consolidation and sustainable development. An Outline Development Plan provides the framework for the future development of the block, and seeks to ensure that key elements of the subject site such as Horners Drain and the Styx River are treated appropriately and in such a way that these elements are enhanced and form a focus for development. The above policies support the design framework for the site and reflect the overall environmental outcomes sought for the block.

The application of the Outline Development Plan, and other associated documents also provide a degree of flexibility.

For example:

- Only key roads are identified on the ODP. The exact locations of other local roads (shown as 'Road Indicative Location' on the ODP, will be determined at subdivision stage.
- A variety of living environments can be accommodated within the development
- The density framework can be reallocated where appropriate, subject to key density parameters being met.
- The main aim of this zone is to accommodate residential development at levels of residential density that is consistent with the long term strategic goals for the greater Christchurch area. The zone has been designed to be

able to incorporate a small scale business area and community facilities within an attractive living environment.

There are a number of existing constraints on the development of the block. These relate to the servicing for waste disposal of the site and the issue of stormwater treatment and disposal for the southernmost portion of the site. For this reason, rules are provided to ensure that adequate servicing can be provided, prior to development occurring in the block. In terms of the issue of stormwater disposal for the southernmost part of the site, a deferral is proposed to restrict development in part of the site until a comprehensive plan for the use of the area and integration of stormwater infrastructure has been developed.

Volume 2: Section 11 Living

Add new Policy 11.7.13 after Policy 11.7.12

11.7.13 General Policies : Living G (Highfield) Zone

11.7.13(a) To establish strong connections to the adjacent existing residential community of Redwood and land to the south across Queen Elizabeth II Drive.

11.7.13(b) To establish a well connected and comprehensive movement network within the site which enables public transport routes and safe pedestrian and cycle movements.

11.7.13(c) To create high quality open space, being the Green Network which is made up of a variety of different sizes and shapes of open space, with differing functions, but all located in readily accessible areas.

11.7.13(d) To establish a high quality system for the management of stormwater which defines the key stormwater infrastructure connecting to Horners Drain.

11.7.13(e) To require at least 60% of the residential units to be of high and medium density (Density A and Density B Residential). High density residential areas shall be located to provide opportunities for residents to reside and work in areas which are well-serviced by neighbourhood centres/business nodes (Business 1), recreation, open space, public transport and community facilities. High density areas should be located within 500m of the following:

- (i) A public transport route
- (ii) Public open space such as the 'Central Corridor', Styx River Corridor, southern stormwater area.
- (iii) The allocated areas for neighbourhood centres/business nodes (Business 1).

Explanation and Reasons

The provision of the above elements is key to creating the structure and form of this integrated new residential development. Where densities proposed are inconsistent with the Outline Development Plan, alternative locations within the zone, on land where the applicant is the registered proprietor, need to be identified where compliance with the overall densities requirements of Policy 11.7.13(e) can be achieved.

11.7.13(f) To manage the rural urban interface through the use of appropriate landscaping treatments, low density residential sections and building setback requirements.

11.7.13(g) To ensure that Density A Residential Areas identified on the Outline Development Plan are developed in accordance with the principles of good urban design and amenity including:

- (i) that development considers the amenity of residents, neighbours and the wider community;
- (ii) that residential units are designed to enable connection with the street ensuring community safety, social interaction, and visual interest;
- (iii) that development avoids excessive bulk or repetition and is of a domestic appearance, human scale, visually interesting, and not dominated by car parking and garaging;
- (iv) that development is softened by trees and other landscaping;

- (v) that development provides accessible and integrated utility areas and accessible, usable and attractive outdoor living spaces that achieve levels of privacy, access to sunlight and insulation from traffic noise.

Explanation and Reasons

In the Density A residential area, it is recognised that the bulk and scale of new buildings will often be greater than in lower density areas. While a higher density character is anticipated in Density A it is important to ensure that new development is designed in accordance with principles of good urban design and amenity. The Plan's rules therefore, seek to ensure that a good standard of design and amenity is achieved while providing freedom of choice in specific architectural styles. The policy does not seek to assess 'architectural styles' or 'taste' but to ensure that basic principles of good urban design are taken into account in the design of buildings in the Density A areas. In addition, the Christchurch City Council is a signatory to the Urban Design Protocol and is committed to achieving good environmental outcomes for built forms.

11.7.14 Policy : Green Network within the Outline Development Plan - Living G (Highfield) Zone

11.7.14(a) To provide a public open space within 400m walking distance of all residential development – Open space includes all parks, corridors and neighbourhood parks.

11.7.14(b) To allow for continuous public open space corridors from the Styx River Corridor to Queen Elizabeth II Drive. It is expected that this green network will operate in conjunction with the Blue Network and Movement Network. Wherever possible public access in the form of roads, cycle ways or pedestrian footpaths will be required along the lengths of the Styx River Corridor Park and the Central Corridor Park.

11.7.14(c) To provide green links from the Central Corridor Park to the Redwood Springs /Styx River (northwest) corner of the zone, and in a northerly direction to the Styx River in conjunction with the expected stormwater management and treatment corridor. It is expected that integration will occur between the networks, and that this will allow for maximised movement opportunities for fauna along this urban/rural interface and will connect these links with the important Styx River corridor to improve both ecological and recreational opportunities.

Explanation and Reasons

A green network refers to the 'system' of public open space provisions throughout the site. These spaces offer a wide range of amenity/recreational experiences and their location and alignments are intrinsically linked to the movement network, underlying land uses, ecological features and the blue network in respect to stormwater management and public access.

11.7.14(d) To provide diverse and strategically located soft and hard landscaping treatment. While possessing an overall character and identity, the Green Network comprises a range of green/ open space concepts, that reflect their function and usability. Soft and hard landscape treatments shall be carefully considered to reflect the use and character of each different green area.

11.7.14(e) To provide linked linear parks as shown on the ODP, to act as key recreational routes for walking and cycling, integrated wherever possible with the blue waterway network. Each linear park is to have a landscape character reflective of its surrounding area as follows:

- (i) The Central Corridor Park which extends in the linear open space that provides a link from Queen Elizabeth II Drive northwards to the Styx River Corridor Park beyond, with opportunities for passive and active recreational uses.
- (ii) The Styx River Corridor following the existing Styx River, which is to be enhanced, and to ensure this park is linked with the existing open space that adjoins the Styx River in adjacent Redwood Springs. The long edges of the park will be defined by higher density urban form which will reinforce the view corridor along the river.
- (iii) The Parkside Streets, which are extended and specially treated landscaped open spaces along linear east-west movement linkages, provide both visually expansive and functional open space, that will assist in encouraging people to utilise the Central Corridor Park.
- (iv) The Southern Wetland Area, which, while having its primary function as a drainage reserve, will provide the opportunity for the viewing and

interaction with nature. Indigenous vegetation will be prominent within this park to help enhance ecosystems.

11.7.14(f) To provide open space areas within 400 metres of 90% of residential areas.

Explanation and Reasons

Creating a network of high-quality public spaces which provide for a range of active and passive recreational opportunities to be enjoyed and easily accessed by future residents.

11.7.15 Policy : Blue Network within the Outline Development Plan – Living G (Highfield) Zone

11.7.15(a) To provide an integrated approach for stormwater attenuation, incorporating stormwater treatment and peak discharge attenuation which reflects both sound engineering and environmental sensitivity. The integrated solution reflects a connected surface water conveyance drainage network.

11.7.15(b) To create high value amenity areas by using best practice engineering solutions, resulting in an aesthetically pleasing environment through a programme of indigenous vegetation and enhancement of existing watercourses. All watercourses on the site are to be integral components of the open space network.

11.7.15(c) To create a clear drainage strategy that will focus on the collection, storage and movement of water in a sustainable manner that is both beneficial to the local ecology and educational for the community.

11.7.15(d) To seek to provide a stormwater solution for the zone which allows for the integration of stormwater from upstream catchments such as Kruses Drain, Horners Drain and the Cranford Basin, but does not preclude the ability of stormwater from the northern motorway extension to be effectively managed and discharged.

11.7.15(e) To ensure that adverse downstream effects on the Styx River catchment are avoided, remedied or mitigated.

Explanation and Reasons

Effective stormwater management has the potential to be an integral component of the overall development of the site, enhancing the natural environment, natural ecology, landscape and recreational opportunities.

11.7.16 Policy : Movement Network within the Outline Development Plan – Living G (Highfield) Zone

11.7.16(a) To establish Prestons Road as a primary east-west collector road and as the main movement route through the site in accordance with the Movement Network and a network of secondary and local roads providing access to new neighbourhoods and open spaces. The Central Boulevard is also a key feature of the site, and should be treated in such a way that it is visually and functionally outstanding.

11.7.16(b) To establish an attractive space for pedestrians and vehicles at the neighbourhood centres/business nodes (Business 1). This shared space will;

- be visually interesting and vibrant,
- allow the community a place to meet and socialise,
- provide for the reasonable needs of cyclists,
- provide an enhanced pedestrian environment, and
- support the role of the neighbourhood centres/business nodes (Business 1).

11.7.16(c) To establish a well connected cycle and pedestrian network in accordance with the Movement Network, centred around the Green Network and green links, catering for leisure activities as well as more direct access.

11.7.16(d) The movement network pedestrian and cycle features must be designed to fully integrate with adjoining land uses, to create a usable and functional pedestrian and cycle network that has destinations, as opposed to a network that has no destination and no real function.

11.7.16(e) To establish a public transport node adjacent to the neighbourhood centres/business nodes (Business 1) in accordance with the ODP.

11.7.16(f) To ensure the layout is easily understood by users, routes will be relatively direct and vistas and key junctions will be marked by elements such as open space, or special landscape features.

11.7.16(g) To create urban development blocks (the area of land enclosed by public space or streets) that are relatively small to facilitate and encourage walking.

11.7.16(h) To establish a safe, efficient, walkable and legible movement network hierarchy through:

- (i) Through creating shared access (pedestrian and cycle) links throughout the site to facilitate walking and cycling to and along the green network and to the neighbourhood centres/business nodes (Business 1).
- (ii) The shared access links allowing for safe walking and cycling along the green network linking reserves and activity areas.

Explanation and Reasons

There is a need to establish an attractive, safe and efficient network for all forms of movement. This includes pedestrians, cyclists, and motor vehicles, including public transport. Special consideration needs to be given to the design of the collector roads through the neighbourhood centre, so that they provide for safe and reasonable efficient through vehicle traffic movement while also enhancing the environment of the centre as a place for people to shop, meet and socialise.

Volume 3: Part 2 Living Zones

Insert in Volume 3: Part 2 Living Zones a new clause after Clause 1.19 Living G (Halswell West) Zone:

1.20 Living G (Highfield) Zone

Zone Description and Purpose

The Living G (Highfield) Zone provides a mixed density residential zoning framework for the land bordered by Redwood to the west, the Styx River to the north, Hills and Hawkins Roads to the east and Queen Elizabeth II Drive to the south.

The zone allows for a range of residential densities, enhanced by a comprehensive network of green corridors, infrastructure and open space, with high levels of connectivity, both within the zone and to adjoining land. The zone rules also seek to ensure that edge treatments between various interfaces are appropriate, having regard to adjoining land uses.

The land within the zone contains rural-residential allotments, and small scale rural activities at present. Land to the west and south is designated for motorway use and some is owned by the Council with the view to being available for stormwater management purposes.

A number of drains cross the site, the most significant being Horners Drain which drains the land and land upstream, in a south to north direction. The Styx River extends across the northern boundary of the site. There is a significant ecological opportunity to integrate a modern urban environment with both the Styx River and Horners Drain riparian corridors.

The site lies in convenient and close proximity to essential community facilities and amenities, including the shopping centres at Northlands and Northwood, and is also located within close proximity from The Palms Shopping Centre. It also has good transport access to major employment nodes at Belfast, Papanui and the Central City. The zone provides for small scale neighbourhood centres/business nodes (Business 1), where opportunities for business activities, possibly in conjunction with live-work units, are designated areas within the zone. These neighbourhood centres/business nodes (Business 1) shall be designed to ensure that effects on residential activity are avoided, remedied or mitigated, and should relate and connect well to open space areas.

The site is separated from the suburb of Redwood, by a designation that identifies the route for the northern motorway extension. It is important that the level of separation is minimised through the construction of linkages to Redwood from the zone, particularly

along the Styx corridor at the Prestons Road link, and in appropriate locations in the southern portion of the zone.

The development form is to be aligned with an Outline Development Plan and associated rules that have been designed to ensure that the mix of densities can be established in such a way that a range of integrated outcomes can be achieved. Outcomes for the Outline Development Plan include the provision of a range of residential densities, and allowance for a high degree of connectivity between open spaces, community facilities and an urban environment that has been designed to consider the needs of residents and visitors.

The ability to undertake development is dependent on a number of key infrastructure issues. Development of the land should only be undertaken at such time as an integrated and modern approach to sewerage disposal can be established. It recognises that the disposal of sewerage should occur in a best practice manner, however advantage should be taken of new techniques where appropriate.

Development of the southern end of the site is subject to the successful mitigation of stormwater issues in the area, and given that the stormwater issues of the Cranford Basin are strongly linked to the development of the southern portion of the site, it is proposed to defer the development of the southern portion of land shown on the ODP, until such time as a coordinated approach can be taken to stormwater matters in the area.

Overall, it is anticipated that the Living G (Highfield) Zone will provide the opportunity to consolidate and integrate new and existing development in an integrated and comprehensive manner.

Zone purpose – aims and principles

i) The purpose of this zone is to provide for urban development while allowing maximum flexibility and incentive for developing the zone in accordance with the framework of the ODP in the Appendix to this part of the City Plan:

a) Outline Development Plan (Highfield) (Appendix 3xa and 3xb);

ii) The zone seeks to provide for:

- Higher density housing in close proximity to open space areas and corridors and near focal points
- Medium density housing being a significant portion of the residential development in the area.
- Provision of neighbourhood centres/business nodes (Business 1) in appropriate locations to service day to day needs.
- A well connected comprehensive and well organised movement network which provides the ability for a public transport route, and provides a clear hierarchy of roading with different functions.
- Safe pedestrian and cycle connections.
- A comprehensive, integrated and superior stormwater treatment and management framework that allows for both Horners Stream and the Styx River to be enhanced and protected.
- A high quality open space network that is focused around the waterway corridors through the site. The open space network is to provide both passive and activity functions. It must be connected with both stormwater networks and pedestrian/cycle networks.
- A one allotment deep Density D zone to provide a buffer.

Environmental outcomes anticipated:

- An urban form which creates a sense of place and encourages a community to develop
- A safe and comfortable living environment
- The establishment of an overall development concept that provides a defined basis for integrated development of the zone.
- The integration of new roads within the site and with the existing roading network
- A roading network that has been designed to provide for public transport
- An efficient and effective pedestrian and cycle network that utilises careful design to ensure the provision of a usable and safe pedestrian and cycle network
- Provision of open spaces for recreational use
- Opportunities for a wide variety of residential development with generally compact densities
- An allowance for higher density development within the centre of the site, away from the urban rural interface

- Higher density development in locations in close proximity to open space and public transport networks
- A development that meets City Plan and Regional Policy Statement objectives to achieve an overall increase in residential density, urban consolidation and a compact urban form.
- Provisions to enable neighbourhood retail that meets day-to-day needs, community and/or medical facilities to be located within a walkable distance (400-800 metres) of any part of the zone, or be within walkable distance of a bus stop in the zone (400-500 metres).
- A sustainable and attractive stormwater disposal system that is fully integrated with the open space network
- Protection of the groundwater resource from contamination
- A high level of urban design and amenity for buildings established within the zone.
- Medium density development, including opportunity for elderly persons housing, being located in conjunction with a core of community facilities and able to obtain easy access to public transport and open space
- Opportunities for a wide variety of residential development forms and scales.

Insert in Volume 3: Part 2 Living Zones after clause 11, Rules - Living G (Highfield) Zone

12.0 Rules – Living G (Highfield) Zone

12.1 Categories of activities

12.1.1 Residential activities

a) Any residential activity which complies with:

- All of the development standards under clause 12.2; and
- All of the community standards under clause 12.3; and
- All of the critical standards under clause 12.4

and is not a prohibited activity, shall be a permitted activity.

b) Any residential activity which complies with all of the critical standards in clause 12.4, but does not comply with any one or more of the development standards in

clause 12.2 shall be a restricted discretionary activity with the exercise of the Council's discretion limited to the matter(s) subject to these development standards.

- c) Any residential activity that does not comply with any one or more of the community standards in Clause 12.3 shall be a discretionary activity.
- d) Any residential activity that does not comply with any one or more of the critical standards in Clause 12.4 shall be a non-complying activity.
- e) Clarification of categories of activities:
The standards may also specify that an activity is discretionary or controlled (where there is a non-compliance with development standards) with the exercise of the Council's discretion limited to the matter(s) subject to that development standard.

12.1.2 Other Activities

- a) Any other activity which complies with:
- All of the development standards under Clause 12.2; and
 - All of the community standards under Clause 12.3; and
 - All of the critical standards under Clause 12.4
and is not a prohibited activity, shall be a permitted activity.
- b) Any other activity which complies with all of the community standards and critical standards, but does not comply with any one or more of the development standards in Clause 12.2 shall be a restricted discretionary activity with the exercise of the Council's discretion limited to the matter(s) subject to that standard.
- c) Any other activity other than a prohibited activity, which complies with all of the critical standards, but does not comply with any one or more of the community standards in Clause 12.3, shall be a discretionary activity.
- d) Any other activity other than a prohibited activity, which does not comply with any one or more of the critical standards in Clause 12.4, shall be a non-complying activity.

12.1.3 Deferment

In the Living G (Highfield) Zone the standards applicable to the Rural 3 zone shall apply until a stormwater solution is agreed for the land identified as deferred on the Outline Development Plan (Highfield) (Appendix 3xa and 3xb).

(Note: the exact locations of residential and stormwater components within this area will depend on the final stormwater solutions agreed).

12.2 Development Standards – All Residential Areas

a) Any application arising solely from the following clauses will not require the written consent of the other persons and shall be non-notified.

12.2.5 - Street scene – residential and other activities

12.2.6 - Street frontage landscaping and fencing

12.2.10 - Outdoor living space – residential activities

12.2.12 - Screening from neighbours – residential sites

12.2.14 - Fencing on sites adjoining the Green Network and Blue Network – residential and other activities

12.2.17 - Ground floor habitable room and dwelling orientation to the street

12.2.19 - Urban design and amenity for Density A residential sites – residential and other activities

b) The development standard rules do not apply to the land identified as neighbourhood centres/business nodes (Business 1) on the Outline Development Plan (Highfield) (Appendix 3xa and 3xb). For those areas the Business 1 Zone rules shall apply.

12.2.1 Residential Site Density

a) From residential units located in areas marked ‘Density A’ residential area as shown on the Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2), the minimum net site area shall be 150m² and the minimum average net site area shall be 200m² and the maximum average net site area shall be 300m².

b) From residential units located in areas marked ‘Density B’ residential area as shown on the Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2),

the minimum net site area shall be 275m² and the minimum average net site area shall be 300m² and the maximum average net site area shall be 450m².

- c) From residential units located in areas marked 'Density C' residential area as shown on the Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2), the minimum net site area shall be 400m² and the minimum average net site area shall be 450m² and the maximum average net site area shall be 750m².
- d) For residential units located in areas marked 'Density D' residential area, the minimum net size shall be 750m².
- e) Each residential unit shall be contained within its own separate site.

See also Clause 12.4.1 Critical Standards

12.2.2 Open Space – Residential and other Activities

The maximum percentage of:

- a) The net area of any site covered by buildings shall be:

	<u>Residential activities with garage provided</u>	<u>Other activities and residential activities without garage provided</u>
<u>Density B residential area</u>	<u>55%</u>	<u>55% less 18m²</u>
<u>Density C residential area</u>	<u>40%</u>	<u>40% less 18m²</u>
<u>Density D residential area</u>	<u>35%</u>	<u>35% less 18m²</u>

- b) The portion of the site covered by paved impermeable surface (excluding garage and dwelling) shall be :

Density A 25%

Density B 30%

Density C 30%

Density D 25%

Refer also to critical standards for open space – Clause 12.4.2

12.2.3 Building height – residential and other activities

The maximum height of any buildings shall be:

<u>Density A residential areas</u>	<u>11m</u>
<u>Density B residential areas</u>	<u>9m</u>
<u>Density C and D residential areas</u>	<u>8m</u>

except that:

- (i) where there is an internal boundary that is within a different density area as specified in Clause 6A.2.1 the more restrictive maximum height shall apply to both sites.

Refer also to critical standards for building – Clause 12.4.3.

12.2.4 Sunlight and outlook for neighbours – residential and other activities

- a) Buildings shall not project a building envelope constructed by recession planes from points 2.3 metres above ground level on internal boundaries, as shown in Part 2, Appendix 1, as follows:

<u>Density A residential areas</u>	<u>Part 2, Appendix 1, Diagram C</u>
<u>Density B residential areas</u>	<u>Part 2, Appendix 1, Diagram B</u>
<u>Density C and D residential areas</u>	<u>Part 2, Appendix 1, Diagram A</u>

except that:

- (i) Where an internal boundary of a site immediately adjoins an access or part of an access the recession planes shall be constructed from points 2.3m above the far side of the access.
- (ii) Where buildings on adjoining sites have a common wall along an internal boundary the recession plans shall not apply along that part of the boundary covered by such a wall.
- (iii) Where buildings are on adjoining Density A residential sites, recession planes shall not apply along that part of the boundary between those sites covered by either a common party wall or immediately adjoined by a zero building setback boundary wall.

- (iv) Other than where (iii) above applies where there is an internal boundary that directly abuts a different density area as specified in Clause 12.2.1 the more restrictive recession plane shall apply to both sites.
- b) The level of internal boundaries shall be measured from filled ground level except where the site on the other side of the internal boundary is at a lower level, than that lower level shall be adopted.

12.2.5 Street scene – Residential and other activities

Minimum building setbacks from road boundaries shall be as follows:

<u>Density A residential area</u>	<u>2m</u>
<u>Density B residential area</u>	<u>3m</u>
<u>Density C residential area</u>	<u>3m</u>
<u>Density D residential area</u>	<u>3m except all buildings shall be set back by at least 10m from the Hills and Hawkins road boundaries.</u>

except that:

- (i) in all Density areas where a garage has a vehicle door generally facing a road or shared access, the minimum setback of the garage door shall be 5.5m from the road boundary or shared access.

12.2.6 Street frontage landscaping and fencing

- a) The full length of the road frontage shall be landscaped to a depth of 2m except across those parts of the road boundary used as a vehicle or pedestrian crossing, or where necessary to ensure safety/visibility or security surveillance of the public spaces, any fence located on the road boundary or within the minimum building setback specified in Rule 12.2.5 shall have a maximum height of 1.2m.
- b) Except where required for screening of outdoor storage areas, any fence located on the road boundary or within the minimum building setback specified in Rule 12.2.5 shall have a maximum height of 1.2m

- c) Residential driveways shall be a maximum width of 4.5m at the property boundary for a depth of at least 2 m at the entrance (in order to facilitate landscaping) and allow clear visibility above 1m for a width of 1.5m either side of the entrance.
- d) Except in the Density D area, at least 5m of the required setback shall be landscaped with trees across the width of the frontage, excluding the driveway.

12.2.7 Separation from neighbours – residential and other activities

The minimum building setback from internal boundaries shall be 1.5m; except that:

- a) In all Density areas except Density A, accessory buildings may be located within 1.5m of internal boundaries where the total length of walls or parts of accessory buildings facing, and located within 1.5m of each internal boundary, does not exceed 10.1m in length.
- b) On sites that have been identified on the Outline Development Plan (Highfield) (Appendix 3x, Part 2) as Density A, all residential units, including units with attached garages, shall be built to the internal boundaries.

except that:

- (i) Where the end facade of a row of terraced residential units face internal boundaries, no part of the building shall be located within 1.5m of those internal boundaries.
 - (ii) Where the end facade of a row of terraced residential units faces a front or rear boundary the applicable front and rear boundary setbacks shall apply.
 - (iii) There shall be no living area windows at ground floor level on the wall at internal boundary permitted in any such building.
- c) On sites that have been identified on the Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2) as Density A no accessory buildings, except garages attached to residential units, shall be located within 1m of an internal boundary.

- d) Where an internal boundary of a site immediately adjoins an access or part of an access the minimum building setback (except accessory buildings) from that internal boundary shall be 1m. For the Density A residential area, no setback is required where a building adjoins an access lot or access strip on the same site, provided that any windows on the ground storey façade facing and within 1m of the access lot or strip are non-complying.
- e) Where buildings on adjoining sites have a common wall along an internal boundary, no setback is required along that part of the boundary covered by such a wall.
- f) For all residential activities, any part of any balcony or any window of a living area at first floor level or above shall not be located within 4m of any internal boundary provided that:
- (i) this shall not apply to a window at an angle of 90 degrees or greater to the internal boundary; and
 - (ii) the first floor level shall not include any part of a window or balcony within 1.2m of ground level (such as above a garage which is partly below ground level. For explanation see the diagram in relation to Clause 2.2.6 in this part of the City Plan).
- g) For all residential activities, where a window of a ground floor living area of a residential unit faces an internal boundary, the window shall set back a minimum of 1.2m from the internal boundary provided that:
- (i) Where an internal boundary of a site immediately adjoins an access or part of an access, the set back shall be 1m measured from the internal boundary; and
 - (ii) this shall not apply to a window at an angle of 90 degrees or greater to the boundary. For explanation see the diagram in relation to Clause 2.2.6 in this part of the City Plan,

except that:

- (i) A 1.5m setback from an internal boundary is allowed where the land between the wall and the boundary is planted.

12.2.8 Continuous building length – ridgelines and parapets – residential and other activities

No length of any ridgeline/s and/or horizontal parapet/s of a building, or buildings separated by a length of less than 3.6m (from ridgelines and/or parapets to ridgeline and/or parapet), combined with the length of any distance/s between the ridgeline/s and/or horizontal parapet/s shall exceed 20m without providing either a horizontal step of at least 2m, or a vertical step of at least 1m. The minimum length of all steps shall be 6m.

except that:

- (i) **This rule shall not apply to any part of a ridgeline and/or horizontal parapet which is more than 10m from every internal boundary and more than 6m from every road boundary;**
- (ii) **Where a step occurs within 6m of the end of the ridgeline and/or horizontal parapet at the end of the building, the length of that step need equal only the remaining length of the ridgeline and or horizontal parapet. Refer to Appendix 1A and the definitions of step, length and ridgeline for further clarification of this rule. This rule does not apply to any development in the Density A Residential area subject to the urban design and amenity Rule 12.2.19.**

12.2.9 Continuous building length – exterior walls – residential and other activities

- a) **Subject to (b) below, steps shall be provided along the length of exterior walls in accordance with the following table:**

<u>Length of exterior wall</u>	<u>Minimum number of steps</u>
<u>≤20m</u>	<u>0</u>
<u>>20m ≤ 24m</u>	<u>1</u>
<u>>24m ≤ 28m</u>	<u>2</u>
<u>>28m ≤ 32m</u>	<u>3</u>
<u>>32m =</u>	<u>4 + 1 for every additional 10m of length over 32m</u>

b) Where steps are required by (a) above:

- (i) One step shall have a minimum depth of 2m. Any steps required thereafter shall have a minimum depth of 1m.
- (ii) One step shall have a minimum length of 2m. Any steps required thereafter shall have a minimum length of 4m.
- (iii) No length of any exterior wall shall exceed 20m without a step of the required dimension having commenced.
- (iv) The required steps shall be provided at all levels of the exterior wall,

except that:

- (i) This rule shall not apply to any part of an exterior wall which is more than 10m from every internal boundary and more than 6m from every road boundary.
- (ii) Where no part of a building exceeds 5.5m in height, this rule shall not apply to any exterior wall of less than 28m in length. Refer to Appendix 1A (pg 2/76a and 2/76b) and the definitions of step, length and ridgeline for further clarification of this rule.

This rule does not apply to any development in the Density A Residential area subject to the urban design and amenity Rule 12.2.19.

12.2.10 Outdoor living space – residential activities.

- a) Each residential unit with a room or garage on the ground floor shall be provided with an outdoor living space in a contiguous area, contained in the net area of the site with a minimum area and dimension as follows:

<u>Minimum area</u>	<u>Minimum dimension</u>
<u>Density A 40m²</u>	<u>4m</u>
<u>Density B 40m²</u>	<u>4m</u>
<u>Density C 75m²</u>	<u>4.5m</u>
<u>Density D 80m²</u>	<u>5.5m</u>

- b) The required minimum area shall be readily accessible from a living area of each unit. At least half of the required minimum area shall be able to receive sunshine on the shortest day of the year.
- c) Except that in the Density A and B Zones, 20m² of the outdoor living space can be integrated living space, that can contain any building or part of a building without walls on at least a quarter of its perimeter.

Note for clarification: This rule applies only to structures on the same site.

Outdoor living spaces in the Density A area are also subject to assessment criteria under Rule 12.2.19.

- d) The required minimum area shall not be occupied by any building, access or parking space, other than;
- An outdoor swimming pool; or
 - An accessory building of less than 8m²; or
 - Any building or parts of a building without walls (other than a balustrade) on at least a quarter of its perimeter, and which occupies no more than 30% of the area of the outdoor living space.

12.2.11 Family flats – residential activities in Density B and C only.

- a) Family flats shall have a maximum gross floor area, excluding terraces, garages, sundecks and verandahs, of 65m².
- b) Once the building is no longer being used as a family flat and where the family flat does not comply with all the standards for a residential unit:
- (i) the family flat shall be relocated from the site; or

12.2.12 Screening from neighbours – other activities.

Parking and outdoor storage areas shall be screened from adjoining sites by landscaping, wall(s), fence(s) or a combination thereof to a height of at least 1.5m along the length of the parking or storage area. Where the screening is to be provided

by way of landscaping, the 1.5m minimum height standard is to be achieved at the time of planting.

12.2.13 Service and storage spaces for Density A residential area – residential activities.

- a) Each residential site in Density A residential area shall be provided with:
- (i) outdoor service, rubbish, and recycling space of 5m² with a minimum dimension of 1.5m; and
 - (ii) a single, indoor storage space of 4m² with a minimum dimension of 1m; Except that if a communal outdoor service, rubbish, and recycling space with a minimum area of 10m² is provided in the site, the outdoor service, rubbish and recycling space may reduce to 3m² for each unit.
- b) Each outdoor service, rubbish, and recycling space shall not be located between the road boundary and any habitable room and shall be screened to a height of 1.5 metres from adjoining sites, conservation or open space zones, roads, and adjoining outdoor living spaces.

12.2.14 Fencing on sites adjoining the Green Network and Blue Network within the Outline Development Plan – residential and other activities.

Fencing of sites that adjoin the Green Network, shall have a maximum height of 1m, except that where a fence is over 1m in height, then the whole of that fence shall be at least 50% visually permeable/semi-transparent. No fencing shall exceed a height of 2m.

12.2.15 Restrictions on outdoor activities – other activities.

All manufacturing, altering, repairing, dismantling or processing of any materials, goods or articles shall be carried out inside a building.

12.2.16 Other activities – Noise from pre-schools

Pre-schools shall be a discretionary activity with the exercise of the Council's discretion limited to consideration of the effects of noise from the location of outdoor activities and facilities associated with this activity.

12.2.17 Ground floor habitable room and orientation to the street, Density A and Density B Residential area – residential activities

- a) **Each residential building shall have a habitable room located at the ground level.**
- b) **Each of the habitable rooms located at ground level shall have a minimum floor area of 12m², a minimum internal dimension of 3m and be internally accessible to the rest of the unit.**
- c) **The ground floor habitable rooms shall provide a total window area of at least 3m² that overlook the setback, if any, from the road boundary.**

12.2.18 Outline Development Plan – residential and other activities.

- a) **Any developments of land shall be in accordance with:**
 - (i) **Outline Development Plan (Highfield)(Appendix 3xa and 3xb);**

Refer also to critical standards for Development Plans – Clause 12.4.7.

12.2.19 Urban design and amenity for Density A Residential Area – residential and other activities.

- a) **Except where new buildings have been included as part of a subdivision consent granted pursuant to clause 28.2.1 Part 14, Volume 3, the erection of new buildings, including accessory buildings, shall be a restricted discretionary activity with the exercise of the Council's discretion limited to matters of urban design and amenity of the site and development thereon as set out in Assessment Matters 13.2.60 to 13.2.64.**
- b) **Alterations or additions to existing buildings, including accessory buildings, shall be a restricted discretionary activity with the exercise of the Council's discretion limited to the urban design and amenity of the site and development thereon as set out in Assessment Matters 13.2.60 to 13.2.64. Note: Refer also to Assessment Matters 13.2.60 for a description of how applications under this rule will be assessed.**

12.2.20 Retailing – other activities

Retail activities involving the sale of goods grown or produced on the site shall be a discretionary activity with the exercise of the Council's discretion limited to the impact on the surrounding living environment. This rule does not apply to those areas of land identified as neighbourhood centres/business nodes (Business 1) on the Outline Development Plan (Highfield)(Appendix 3xa and 3xb).

(Refer also to the critical standards for retailing – Clause 12.4.8 which means that the sale of goods other than those grown or produced on the site is a non-complying activity).

References to other development standards

Clarification of rules

(refer Part 9, Clause 2)

Excavation and filling of land

(refer Part 9, Clause 5)

Financial contributions on land use activities

(refer Part 9, Clause 7)

Outdoor advertising

(refer Part 10, Clause 30)

Sale of liquor

(refer Part 10, Clause 4)

Relocated buildings

(refer Part 10, clause 6)

Transport (parking, access and manoeuvring)

(refer Part 13)

Subdivision

(refer Part 11, clause 18)

12.3 Community Standards

The community standards do not apply to the land identified as being neighbourhood centres/business nodes (Business 1) on the Outline Development Plan (Highfield)(Appendix 3xa and 3xb). For those areas, the Business 1 Zone rules shall apply.

12.3.1 Scale of activities – other activities

- a) The maximum gross floor area of buildings plus the area of any outdoor storage, used for activities other than residential activities, shall be 40m² or 30% of the gross floor area of all buildings on the site, whichever is the larger, except where an activity is an educational, spiritual, day-care, or health facility.
- b) No more than one full-time equivalent person, who resides permanently elsewhere than on the site may be employed in undertaking any activity on the site except where the activity is an educational, spiritual, day-care, or health facility; or where the activity is undertaken in a community footprint.

12.3.2. Site size – other activities

The maximum net area of any site for activities other than residential activities shall be 1100m² except:

- a) where the activity occupies no more than 40m² of the floor space and at least one person engaged in the activity resides permanently on the site, the maximum net area of any site for activities other than residential activities shall be 1375m².

or

- b) where the activity is located in an area shown as neighbourhood centre/business node (Business 1) on Outline Development Plan (Highfield)(Appendix 3xa and 3xb, Part 2).

12.3.3 Hours of Operation – other activities

- a) The maximum total number of hours the site shall be open to visitors, clients or deliveries or any activity other than a residential activity shall be 50 hours per week except where located in a community footprint.

b) Hours of operation, including all related visitors, clients and deliveries to the site, shall be limited to between the hours:

0700 – 2300 Monday to Friday, and
0800 – 2300 Saturday, Sunday and public holidays,

except that:

- (i) where the activity occupies not more than 40m² of floor space, and
- (ii) where each person engaged in the activity outside the above hours resides permanently on the site, and
- (iii) there are no visitors, clients or deliveries to or from the site outside the above hours.

Refer also to city rules – (Part 11, Clause 1 – Noise)

12.3.4 Traffic generation – other activities

a) The maximum number of vehicle trips per site shall be:

(i) Sites where access is shared with at least one other site:

<u>Heavy vehicles</u>	<u>2 per week</u>
<u>Other vehicles</u>	<u>16 per day</u>

(ii) Sites with frontage to local roads, other than (i) above:

<u>Heavy vehicles</u>	<u>2 per week</u>
<u>Other vehicles</u>	<u>32 per day</u>

(iii) All other sites:

<u>Heavy vehicles</u>	<u>4 per week</u>
<u>Other vehicles</u>	<u>50 per day</u>

Except that for educational, spiritual, daycare and health facilities, and all other activities in a community footprint the maximum number of vehicle trips per site shall be:

<u>Collector and arterial roads</u>	<u>100 per day</u>
<u>Community footprint</u>	<u>200 per day</u>

- b) Vehicles, other than heavy vehicles, associated with any residential activity on the site shall be included in determining the number of vehicle trips to and from any site. Vehicles parking on the street or on any other site, in order that their occupants can visit the site, shall also be included in determining the number of vehicle trips to and from any site.

12.3.5. Building Size and Separation – residential and other activities

- a) the maximum gross floor area of any single residential unit shall be 550m².
- b) Where buildings located on the same site each have a gross floor area of greater than 100m², they shall be separated from each other by not less than 3.6m except where the building is located in the Density A areas shown on Outline Development Plan (Highfield)(Appendix 3xa and 3xb, Part 2) in which case the setback shall be not less than 1.8m from the site boundaries, unless such buildings share common party walls, or zero building boundaries can be achieved.

12.3.6. Residential coherence – other activities.

At least one person engaged in the activity shall reside permanently on the site, except where the activity is an educational, spiritual, day-care or health facility and is located:

- a) On a front site with frontage to a collector, arterial road or a road identified on the Outline Development Plan (Highfield)(Appendix 3xa and 3xb, Part 2).
- b) Any residential activity on an adjoining front site or front site separated by an access with the frontage to the same road is left with at least one residential neighbour. For the purpose of this clause, the residential neighbour shall be on an adjoining front site or front site separated by an access and have frontage to the same road.

- c) The residential block is not left with more than two non-residential activities in that block (for an explanation of this Clause, see the diagram in Part 2, Clause 2.3.7).

Reference to other community standards

Noise

(refer Part 11, Clause 1)

Glare

(refer Part 11, Clause 2)

Hazardous substances

(refer Part 11, Clause 3)

Transport (parking, access and manoeuvring)

(refer part 13).

Reference to other community standards.

12.4. Critical Standards

The critical standard rules do not apply to the area of land identified as neighbourhood centres/business nodes (Business 1) on the Outline Development Plan (Highfield)(Appendix 3xa and 3xb). For those areas, the Business 1 Zone rules apply.

12.4.1. Residential site density

- a) Notwithstanding Clause 12.2.1, any residential activity located within an area marked 'Density A', 'Density B', 'Density C' and 'Density D' as shown on the Outline Development Plan (Highfield)(Appendix 3xa and 3xb, Part 2), where the minimum average net site area and the maximum average net site area are not complied with, shall be a non-complying activity.

- b) Each residential unit shall be contained within its own separate site.

12.4.2. Open space – residential activities

- a) In the Living G (Highfield) zone the maximum percentage of the net area of the site covered by buildings shall be:

	<u>Residential activities with garage provided</u>	<u>Other activities and residential activities without garage provided</u>
<u>Density A residential areas</u>	<u>60%</u>	<u>60% less 18m²</u>
<u>Density B residential areas</u>	<u>60%</u>	<u>60% less 18m²</u>
<u>Density C residential areas</u>	<u>45%</u>	<u>45% less 18m²</u>
<u>Density D residential areas</u>	<u>40%</u>	<u>40% less 18m²</u>

- (i) For elderly persons housing complexes located in the Density A, B and C residential areas, the percentage coverage by buildings shall be calculated over the net area of the site of the entire complex, rather than over the net area of the site of any part of the complex.
- b) For residential sites in Density B and C residential areas, the maximum percentage of the site covered by paved impermeable surface shall be 30%.
- c) For residential sites in Density A residential areas, the maximum percentage of the site covered by paved impermeable surface and buildings shall be 80%.
- d) For residential sites in Density D residential areas, the maximum percentage of the site covered by paved impermeable surface shall be 25%.

Refer also to the development standards for open space – Clause 12.2.2

12.4.3. Special setback provisions – residential and other activities

- a) In the Living G (Highfield) Zone any rooms used for living or sleeping purposes in a residential unit, family flat or accessory building, or internal area of other noise sensitive activity (e.g. in a preschool), located closer than 80m from the edge of the land designated for the northern motorway extension, shall be protected from excessive noise effects by acoustic insulation or a combination of acoustic insulation, external mounding and/or other physical noise attenuation measures

so that the internal noise levels in such rooms, with all external doors and windows closed, resulting from traffic using the Northern motorway extension no greater than the noise levels set out in Table 1: internal Noise levels below.

Table 1: Internal Noise Levels

	<u>Daytime 0700 – 2200 hours</u>	<u>Night-time 2200 – 0700 hours</u>
<u>Within bedrooms</u>	<u>35dBA (leg 1 hour)</u>	<u>30dBA (leg 1 hour)</u>
<u>Within any living areas</u>	<u>40dBA (leg 1 hour)</u>	<u>35dBA (leg 1 hour)</u>
<u>Noise sensitive activities</u>	<u>40dBA (leg 1 hour)</u>	<u>35dBA (leg 1 hour)</u>

And

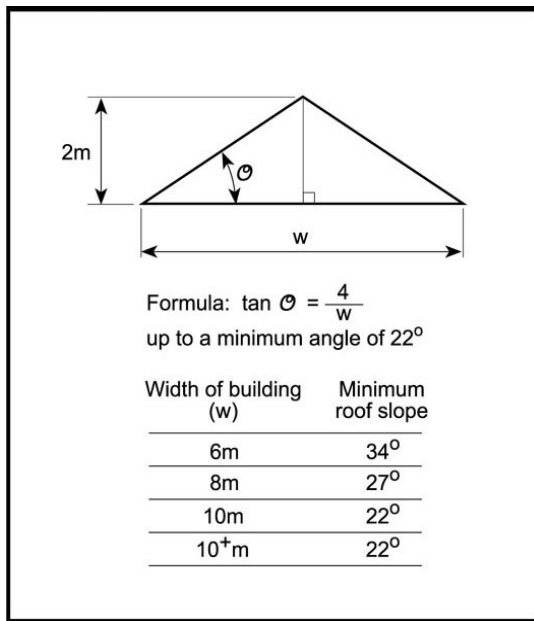
- b) Prior to the construction of any building subject to (i) above, a report from an accredited acoustic expert specifying the type and extent of sound insulation required to meet the internal noise levels shall be provided to the Christchurch City Council.
- c) In relation to buildings on sites adjoining the Green Network that, in turn, adjoins to the Northern Motorway Extension:
- i. In Living G (Highfield) Zone any rooms used for living or sleeping purposes in a residential unit, family flat or accessory building, or internal areas of other noise sensitive activities, shall be located no closer than 20m from the edge of the land designated for the Northern Arterial.

12.4.4 Building height – residential and other activities

Maximum height of any building shall be

<u>Density B, C and D residential areas</u>	<u>9m</u>
<u>Density A residential area</u>	<u>14m</u>

Except that for sites in the Density A residential area where the roof of the building has a slope less than the minimum slope determined by the diagram below, the maximum height shall be 13m.



Refer also to the development standards for the building height – Clause 12.2.3

12.4.5 Boarding of animals – other activity

Boarding of animals on a site shall be limited to a maximum of four animals in the care of a registered veterinarian for medical and surgical purposes only.

12.4.6 Dismantling or repair of motor vehicles – other activities

There shall be no dismantling or repair of motor vehicles, including the storage of such vehicles except where vehicles being dismantled or repaired are privately owned and used by people who live permanently on the same site are exempt from this standard.

12.4.7 Development Plan – residential activities

Any development of land shall be in accordance with the key elements identified in the Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2).

12.4.8 Retailing – other activities

Retail activities shall be limited to the sale of goods grown or produced on the site. (Refer also to the development standard for retailing - Clause 12.2.20 which means that the sale of goods grown or produced on the site is a discretionary activity in respect of that standard).

12.4.9 Residential Activities

- a) Within the Outline Development Plan (Highfield)(Appendix 3xa and 3xb, Part 2) residential activities shall be non-complying activity where provision is not made for the following:
- (i) The disposal of waste water via the Christchurch City Council waste water system; and
 - (ii) Connection to a potable water supply via the Christchurch City Council urban reticulated system via a service main.

Sub Clauses a), i) and ii) regarding servicing constraints shall cease to apply when the capacity and servicing constraints within the Christchurch City Council waste water system and water service main have been overcome, and the Unit Manager – Asset and Network Planning (or equivalent Council Officer) is satisfied that there is capacity in the reticulated waste water system for further development to occur and further development can be adequately provided with a safe potable water supply.

12.4.10 Staged Development – Residential and other activities

- a) That no more than 25% of the residential and non-residential activities within the Living G (Highfield) Zone shall be developed before upgrades of the Grimseys Road / Prestons Road intersection (including traffic signals) and Main North Road / Prestons Road intersection have been commenced.
- b) That no more than 65% of the residential and non-residential activities within the Living G (Highfield) Zone shall be developed before upgrades of the Hawkins Road/ Hills Road / Prestons Road intersection (including a roundabout) have been commenced.
- c) That no more than 80% of the residential and non-residential activities within the Living G (Highfield) Zone shall be developed before a connection to Queen Elizabeth II Drive or an underpass or overpass traversing Queen Elizabeth II Drive has been commenced.

12.4.11 Heritage and Archaeological Matters

In the event of the accidental discovery of any archaeological site within the Living G (Highfield) zone, the procedures listed in Appendix 3V/8 shall be carried out.

12.4.12 Conformity with Outline Development Plan

Any development that is not in accordance with the Outline Development Plan (Highfield) (Appendix 3xa and 3xb) is a non-complying activity.

Refer to other critical standards.

Excavation and filling of land

(refer Part 9, Clause 5)

Outdoor advertising

(refer Part 10, Clause 3)

Fortified sites

(refer Part 10, Clause 5)

Noise

(refer Part 11, Clause 1)

Subdivision (including prohibited activities)

(refer Part 14)

Hazardous Substances

(refer Part 11 Clause 3.3.5)

Changes to Clause 13 Assessment matters for resource consents.

Amend clauses as follows:

13.2 Living 1, 1F, H, RS, RV, TMB, 2, 3, 4A, 4B, 4C, and G Zones.

13.2.1 Site density and open space.

(...)

- (l) In the Living G (Yaldhurst) (Awatea) (Wigram) (Prestons) **and** (Halswell West) **and (Highfield)** Zones, the extent to which the minimum site density and 'green network' provisions indicated in the Outline Development Plan and supporting principles for this zone are given effect to.
- (m) In the Living G (Yaldhurst) **Z**one, and the Living G (Awatea) Zone, and the Living G (Wigram) Zone, and the Living G (Prestons) Zones, and the Living G (East Belfast) Zone, and the Living G (Halswell West) Zones, **and the Living G (Highfield) Zone** the extent to which high density (A) or (B) (Yaldhurst) areas, and Density A areas and residential activities in the Urban Village (Prestons), Density A areas (Awatea), and Density A and B areas (Wigram), and Density A areas (East Belfast), and Density A and B areas (Halswell West) **and Density A areas (Highfield)** are located adjacent to areas of green-space so as to provide for compensating open space amenity.

13.2.2 Building height, and outlook for neighbours.

(...)

- (l) In the Living G (Yaldhurst) Zone and the Living G (East Belfast) Zone and the Living G (Awatea) Zone, and the Living G (Wigram) Zone and the Living G (Prestons) Zone and the Living G (Halswell West) Zones, **and the Living G (Highfield) Zone**, the extent to which the character of the living areas surrounding high density (A) or (B) (Yaldhurst) and the High Density A (Awatea), and the Density ATC and A (Wigram) and Density A areas and residential activities in the Urban Village (Prestons) and Density A and B (Halswell West), **and Density A (Highfield)** development remains reasonably open rather than being dominated by buildings.

13.2.3 Street scene

(a)

(...)

- (xii) In the Living G (Yaldhurst) (East Belfast) (Awatea) (Wigram) (Prestons) **and** (Halswell West) **Zones and (Highfield) Zones**, the provision of street trees on both sides of roads, corresponding in scale to the significance of the road in the roading hierarchy for interest and differentiation.
- (xiii) In the Living G (Yaldhurst) (East Belfast) (Awatea) (Wigram) (Prestons) **and** (Halswell West) **and (Highfield)** Zones, the extent to which the street scene is not dominated by fenced areas, and/or access drives to rear lots.

(...)

(xvi) **In the Living G (Highfield) Zone the extent to which species are included in Appendix A – Plant Species for Living G (Highfield) Zone.**

13.2.5 Separation from neighbours.

(...)

- n. In the Living G (Yaldhurst) Zone and the Living G (East Belfast) Zone and the Living G (Awatea) Zone and the Living G (Wigram) Zone and the Living G (Prestons) Zone and the Living G (Halswell West) Zones ~~and the Living G (Highfield) Zones~~, the extent to which buildings designed to achieve higher densities (A) or (B) (Yaldhurst) and High Density A (Awatea) and Density ATC, A or B (Wigram) and Density A areas and residential activities in the Urban Village (Prestons) and High Density A and B (Halswell West) **and Density A (Highfield)** may dictate that setbacks are either unnecessary and/or may be dispensed with.

13.2.12 Outdoor living space.

(...)

- (f) In the Living G (Yaldhurst) (East Belfast) (Awatea) (Wigram) (Prestons) **and** (Halswell West) **Zones and (Highfield) Zones**, the extent to which any outdoor living space or fenced court area intrudes in front of any residential unit to the detriment of the street scene.
- (g) In the Living G (Yaldhurst) (East Belfast) (Awatea) (Wigram) (Prestons) **and** (Halswell West) **Zones, and (Highfield) Zones**, the ability of any outdoor living space or fenced court area to receive a minimum of 2 hrs continuous sunlight, measured on the winter solstice between the hours of 10.00 am and 2.00 pm. When assessing the adequacy of sunlight access, regard should be had to the bulk and height of any building that could be constructed as of right on any adjoining site.

13.2.25 Residential coherence.

(...)

- (b) In the Living 1, H, RS, RV, 2, 3 and the Living G (Yaldhurst) (Awatea) (Wigram) (Prestons) **and** (Halswell West) **Zones, and (Highfield) Zones**, the extent to which the activity provides a local function by meeting the needs of residents principally within the surrounding residential environment.

13.2.60 Urban design and amenity – Density A residential areas and Neighbourhood Centre/Business Node (Business 1) areas within the Living G (Highfield) Zone

The criteria below set out expectations for the design of new residential development in Density Area A of the Living G (Highfield) Zone. They provide an assessment framework for consenting officers and expert advisers when considering resource consent applications.

General matters allow for assessment to be undertaken of each development on a case by case basis. This allows flexibility of design while controlling developments to avoid poor design. It is expected that as a minimum, developments will fulfil the matters that are 'shoulds', except where some competing or conflicting design objectives arise, in which case compromises may have to be made between assessment matters to achieve a better overall balance of development outcomes. Under each section heading a brief explanation provides additional information on meaning and intent behind the assessment matters. Applicants are also encouraged to provide written and graphic evidence of their design rationale to accompany site specific proposals. Any proposal shall be assessed against the extent to which the development addresses the following principles:

(i) Site and context

- a. Developments should consider local environmental conditions including but not limited to the position of the sun and prevailing winds.
- b. Developments should, where possible, create views to the Central Corridor

Explanation

Proposals are encouraged to demonstrate how the development responds to constraints and opportunities in and beyond the site. Developments should consider amenity for residents, neighbours and the wider community.

Christchurch's climate is temperate with distinctive weather patterns (e.g. prevailing winds and cool, damp winters). Building design should respond to these conditions to ensure comfort for residents.

Subdivision pattern and building design should allow for utilisation of passive solar energy. Thus, buildings should be oriented and located to create sheltered external spaces allowing adequate daylight and sunlight to main living rooms and private outdoor spaces. Main living rooms should include openings located generally on the

northern side of dwellings and buildings should be positioned to minimise overshadowing or visual dominance of adjoining private outdoor spaces.
Developments should create views to the Central Park Corridor where possible, to provide amenity and assist with orientation from blocks nearby.

(ii) Relationship with street, public open spaces and shared rear lanes and access ways

- a. **Building design should achieve an appropriate consistency of setback from the street boundary, taking into account the setback from the street boundary on adjacent sites.**
- b. **Building frontages should encourage visual and physical interaction with the street or any adjacent public open space. This includes providing appropriate architectural detailing, and providing opportunities for passive surveillance by maximising doors, windows and balconies fronting onto and overlooking the street or public open space.**
- c. **Developments should place active areas of buildings, such as habitable rooms and entrances, along the street and public open spaces, particularly at ground level.**
- d. **Every dwelling should have a sheltered pedestrian entry that is clearly visible, identifiable and directly accessible from the street or, in the case of dwellings on rear sites , shared access ways.**
- e. **Fences and landscaping between the building and any road or open space boundary should be concentrated along the boundary of the public space using fencing at or below 1.2m in height and plant species that maintain sight lines between the 1.2m and 2.0m heights.**
- f. **The style and materials used for any walls or fences forward of the front face of a building should relate to or compliment the style and materials of the building.**
- g. **Buildings on sites adjacent to parkside streets should have their entrances facing towards the park wherever possible.**

- h. Building design and location should provide opportunities for passive surveillance in relation to shared access ways and rear lanes.**
- i. For shared rear lanes, fences and gates at the rear of properties should provide varying degrees of solidity and transparency, while maximising occupants' safety and opportunities for passive surveillance.**

Explanation

Boundary treatments have an impact on adjacent streets and public open spaces. A coordinated approach to buildings, landscaping and boundary edges is important to help set the overall appearance for the neighbourhood. It is also important that developments enhance the definition of the street through the continuity of the building edge to promote a sense of enclosure and establish a comfortable, well structured public space. However, minor modulation and variance of the building frontage is encouraged to avoid architectural monotony, provided that the overall continuity of the frontage is not compromised.

Safety is a key consideration for developments and they should conform to Crime Prevention Through Environmental Design (CPTED) principles. In higher density residential areas, in particular in respect of shared access ways and rear lanes, consideration should be given to the provision of passive surveillance.

The positioning of main entrances and primary activities (e.g. habitable rooms) along streets and public open spaces increases pedestrian safety, visual interest and social interaction. This is most effective at ground level where views and access points are most direct. Large windows and balconies will maximise the opportunities for surveillance of the street, and public open spaces. Generally a minimum of 25% glazing across these building frontages is envisaged.. Front fences, walls and gates near streets and public open spaces should discourage illegitimate entry but maximise surveillance and safety. The location of fully private outdoor living spaces or dense planting along road boundaries and reserves is discouraged at ground level to promote greater community ownership and responsibility of these public spaces.

Plant species should also be carefully chosen to ensure their size at maturity does not create adverse on site amenity effects such as over dominance and overshadowing of buildings and restricting views from living areas onto the street.

Passive surveillance of shared rear lanes is also very important to ensure their security. This can be achieved by locating large windows and balconies on the first floor of dwellings so that they overlook the rear access lanes, and also by detailing suitable fencing solutions which can provide both privacy and a perception of surveillance (for example, slat fences can be effective in this regard along access lane boundaries). Lighting, planting, fences and other structures on shared rear access lanes and the associated dwelling sites should to be designed to maximise the safety of occupants and visitors.

(iii) Corner sites

- a. Buildings on corner sites should be designed in a way that visually reinforces the importance of the corner, and should be designed to address all street frontages, with the highest priority given to the street frontages which are opposite reserve areas.

Explanation

Poor building location and design at street corners can undermine the overall structure and legibility of an urban area and can result in visual imbalance and uninteresting built form. Corner sites are important as they orientate people and aid decision making for those moving around a neighbourhood, particularly when viewed across a public open space or at the end of a street.

(iv) Building form and articulation

- a. Buildings should be of a domestic scale
- b. When viewed from any public space, buildings should create visual interest through variation in the roof line and openings and plan shape, and should avoid any continuous flat or blank building frontages to the public space.
- c. Where similar dwellings are grouped or joined together individuality should be provided to each dwelling through devices such as individualised front doors, architectural details, colour schemes and materials.

Explanation

Accepting a variety of building styles, developments should have public façades that create and maintain a high degree of amenity. Overly repetitive building forms should

be avoided with the design of each building creating a distinctive and varied environment.

Blank facades, particularly those facing the street or open spaces, can be avoided through the addition of architectural features (i.e. entrance porches, bay windows and shade screens) which provide relief, texture or colour. Architectural features, integrated roofs and landscaping can all contribute to breaking up and softening the visual bulk of a development and are encouraged to provide human scale and visual interest

Developments are encouraged to use high quality, durable materials. Use of these materials will contribute to reduced maintenance costs and responsibilities for residents and foster a sense of ownership in residents.

(v) Outdoor Living Spaces

- a. Outdoor living spaces should be located on sites in a way that will optimise useable space and provide a pleasant outlook for unit occupants.
- b. Private outdoor living spaces, including balconies and terraces, should link directly to main living areas in the residential unit.
- c. Outdoor living spaces at ground level should not be positioned solely between the dwelling and any street boundary, though secondary semi-private spaces such as verandahs may be positioned in this location.

Explanation

The sensitive location and screening of outdoor living spaces, including balconies and terraces, is important to maximise solar aspect and shelter from predominant winds. It is important that outdoor living spaces are accessible and complementary to the main living areas in each unit. Linking outdoor and indoor living areas together encourages their use, improves outlook and provides greater flexibility for smaller private spaces. Where communal spaces are provided, they should be easily accessible from each unit, while minimising disturbance to adjacent residents. Where possible, they should offer an area of open space that is sited and developed to provide a positive amenity outlook for residents. Communal spaces should be of a size and dimensions that are appropriate to the total number of residential units and residents in the development and incorporate facilities that make them attractive, inviting and safe to use (e.g.

outdoor seating area, barbecue area, play area, tennis court), while being cost-effective to manage and maintain.

Development should not rely exclusively on the space between the building and the street for its outdoor living spaces because of the pressure that may arise to privatise this area by screening it from the street with a high fence.

(vi) Service Areas and Utilities

- a. Service and storage areas should be positioned in a development to minimise adverse visual, noise or odour amenity effects and to enable practical use.

Explanation

Service areas (e.g. clothes lines, wheelie bin storage) are often unsightly and can generate adverse noise and odours. The screening or location of these areas away from primary views, along with consideration for containment of noise and odours, is important. The configuration of these areas should enable site facilities that are adequately sized, have a practical use and are conveniently located relative to each residential unit and service providers.

Any service facilities in close proximity to a street or public open space, which cannot be placed elsewhere, need to be concealed or of a complementary design to building and streetscape to minimise the visual impact.

The provision of storage space should accommodate a range of recreational and maintenance equipment, particularly those related to children's toys, sports equipment, bicycles and gardening tools, and be positioned as close to their end use as is possible.

(vii) Residential Amenity

- a. The location, orientation and internal design of residential units should balance outlook and sunlight with the privacy of internal occupants and neighbouring residential units.
- b. Windows and balconies on upper levels should be orientated and screened to limit direct overlooking of adjacent dwellings, their outdoor living space, and the private outdoor space of other units within the same development.

Explanation

All residential units should provide a high standard of amenity with regard to size, purpose, layout, acoustic insulation and privacy. This includes the configuration of balconies to minimise views between upper level residential units and down to ground level private spaces.

(viii) Treatment of Lanes

- a. **The identity of, and entrance to, a shared lane should be defined through both landscaping and built form elements**
- b. **Lanes should include the provision of shared vehicle and pedestrian access with no defined footpath.**
- c. **The design of the lane should include variation in lane clearway by tightening, extending or terminating views in a lane.**
- d. **Permanent passive surveillance should be available for key parts of the lane particularly the entrances**
- e. **A consistent character for a lane should be established using complementary architectural features within the lane and adjacent buildings.**

Explanation

Built form elements that can define a access lane and make it safer to use can include “gatekeeper” residential units in close proximity to lane entrances, which promote activity and provide passive surveillance in the lane. The use of landscaping can also act as a visual cue clearly defining their identity and entrance.

Sharing the space between pedestrians and vehicles by not defining footpaths or carriageways promotes awareness of each other's presence in a confined space. This has the effect of reducing vehicle speeds and improving pedestrian safety in lanes.

Variation in the design of lanes provide visual interest and can be achieved through variation in width, the location of the elements and landscaping textures thereby ensuring they are not viewed on the same vertical plane or appear overly long. A safe streetscape can be achieved through design that considers the composition of garages, lofts, carports, uncovered spaces, entrance ways, lighting and landscaping.

Design should avoid extensive areas on rear lanes and access-ways that are not subject to passive surveillance from overlooking, and by providing sufficient transparency from private yards to lanes. An interesting streetscape can be established through the use of a limited range of complementary architectural features, for example garage doors, fences, and paving. They could be constructed of varying materials to suit each residential unit design and provide variation to the laneway.

13.2.61 Street frontage, landscaping and fencing – Living G (Highfield) Zone

- a. **The extent to which a reduction in visual transparency may be more visually appropriate or suited to the character of the site or area.**
- b. **The extent to which a reduction in visual transparency or use of nontransparent materials may be appropriate to provide levels of privacy or security.**
- c. **The extent to which the front fencing is varied in terms of incorporating steps, changes in height, variety in materials, incorporates landscaping, and avoids presenting a blank, solid façade to the street.**
- d. **The extent to which any reduction in public surveillance over public open space areas may lead to or promote unsafe or insecure environments.**
- e. **The extent to which the safety and containment of small children and pets would be compromised.**

13.2.62 Service and storage spaces for Density A Residential area – residential activities – Living G (Highfield) Zone

- a. **Where an outdoor service, rubbish and recycling space is not provided for each residential unit, the adequacy in terms of area and convenience to residents of any communal area provided.**
- b. **Where an indoor storage space is not provided for each residential unit, the adequacy of alternative storage areas provided on the site which are accessible and convenient to all residents.**
- c. **The extent to which indoor service areas have been provided to compensate for the reduced or lack of outdoor service, rubbish and recycling area(s).**

- d. The extent to which any reduced outdoor or indoor service, rubbish and recycling space or storage space will result in the inability to use the space for the intended purpose adequately.
- e. The extent to which the lack of screening of any outdoor service space will impact on the visual amenity of any adjoining site, activity, or the street scene.

13.2.63 Fencing on sites adjoining the Central Corridor and Styx River Park in the Living G (Highfield) Zone

- a. The extent to which a reduction in visual transparency may be more visually appropriate or suited to the character of the site or area.
- b. The extent to which a reduction in visual transparency or use of nontransparent materials may be appropriate to provide levels of privacy or security.
- c. The extent to any reduction in public surveillance over open space areas may lead to or promote unsafe or insecure environments.

13.2.64 Ground floor habitable room and orientation to streets and public open spaces Density A Residential Area in the Living G (Highfield) Zone

- a. The extent to which the balance of open space, access/parking, and residential building activity is adversely impacted by the loss or reduction of habitable rooms at ground level.
- b. Any unusual circumstances expressed by the proposal which would provide an alternative site arrangement that satisfactorily provides for on-site land use balance and residential amenity.

13.2.65 Staged Development in the Living G (Highfield) Zone

For activities not in accordance with Rule 12.4.10:

The nature and extent of any adverse effect arising on the transport network from a proposal that exceeds the percentage of residential or non-residential activities anticipated as maximums before specific transport network upgrades are commenced.

13.3 Living 1A, 1B, 1D, 1E, 1F, HA, HB, TMB, G (Yaldhurst) (Awatea) (Prestons) and (Halswell West) ~~Zones~~ and (Highfield) Zones

13.3.1 Development Plans

(...)

(o) In the Living G (Highfield) Zone, the extent to which any development accords with the provisions of the Outline Development Plan (Highfield)(Appendix 3xa and 3xb, Part 2) and the principles set out for this zone.

Changes to Clause 14 Reasons for rules

Amend clauses as follows:

14.0 Reasons for rules

14.1 Living 1, H, RS, RV, TMB, 2, 3, 4A, 4B, 4C and G Zones

14.1.1 Site density and open space

These two standards are closely related to one another, and are major determinants of the character of the living areas of the city. (...). Within the Living 4C Zone (Avon Loop) an open space standard rather than a site density standard applies to promote the retention of green spaces in this area and to provide certainty as to the degree of spaciousness. Within the Living G (Yaldhurst), an outline development plan, and in the case of the Living G (East Belfast) Zone, a Concept Plan, and the Living G (Awatea) (Wigram) (Prestons) **and** (Halswell West) **Zones, and (Highfield) Zones,** an outline development plan stipulates the density and development principles, including the pattern and location of principal open spaces (the 'green network') to be achieved in that zone.

Maintenance of the existing general scale (...) in the higher density environments.

(...)

In some cases the minimum site size standard has been increased at the boundary with rural land. This has been done to reduce the possibility of conflicts between residential and rural activities. (...). That is the case with the Living G (Yaldhurst) (East Belfast) (Awatea) (Wigram) (Prestons) **and** (Halswell West) **Zones. and (Highfield) Zones.** These zones are intended to achieve (...) objectives and policies for Living zones.

However, the overall general pattern set is a progressive increase in building densities toward the central city and toward consolidation focal points. In accordance with this, the Plan has the following standards.

(a) A low site density/building coverage in the Living 1 Zone, (...)

(...)

(j) Primarily medium to high density in the Living G (Yaldhurst) and the Living G (East Belfast) Zone, Living G (Awatea) Zone, and the Living G (Wigram) Zone and the Living G (Prestons) Zone and **the Living G** (Halswell West) Zone, **and the Living G (Highfield) Zone** based on comprehensive outline development plans integrating transport and open-space networks with the existing adjoining peripheral urban areas. In the Living G (East Belfast) **and (Highfield) Zones**, a target net residential density has been set in order to achieve consistency with the regional urban growth objectives for increased density and the total number of households for the CN4, **CN5 and CN6** Greenfield Areas overall as identified in **Proposed Change 1 Chapter 12A** to the Canterbury Regional Policy Statement, and a range of living environments while minimising any potential adverse effects on the road network, historic or heritage features, natural, cultural or ecological values.

(...)

14.1.2 Building height and sunlight and outlook for neighbours.

These two standards are closely related to (...) environments, and to some extent, levels of privacy.

(...)

The maximum heights of buildings have been set at levels which are in keeping with the existing general scale and character of the residential areas in the zones and in some special amenity areas. In some areas these result in localised variations to the zone standards, for example in Sumner, Riccarton, Taylors Mistake Bach Zone, Rastrick area and New Brighton. In the Living G (East Belfast) (Awatea) (Wigram) **and** (Halswell West) **Zones, and (Highfield) Zones**, height provisions vary depending on the density of development provided for in different parts of the zone. In the Living 3 Zone and the Density A areas in the Living G (Wigram) Zone, the maximum height is lowered for buildings with a low pitched roof both in recognition that at least 2m of the height allowance is intended for a sloping roof design and to reduce the overall bulkiness of buildings. In the Living 1, H, RS, RV, TMB and 2 and Density Areas B and C of Living G (East Belfast) zone, and the Density B and C areas of the Living G (Wigram) **and Living G (Highfield) Zones**, the sunlight standards are intended to

retain outlooks not dominated by buildings, good access to sunlight and daylight and levels of privacy consistent with suburban living.

(...)

In the Living 3, 4A, 4B, 4C, G (Yaldhurst) and the Living G (East Belfast) Density Area A and Living G (Wigram) Density A and Living G (Prestons) **Zones and Living G (Highfield) Zones** the sunlight standards are only intended to retain outlooks, access to sunlight and daylight, and levels of privacy appropriate to and consistent with the higher densities specified for each zone.

(...)

14.1.3 Street scene

The street scene or setback of (...) in a better outcome than a more rigid requirement.

(...)

In the Avon Loop a range of street scene or setback provisions have been included to reflect the different character, history and outlook from sites. Particular account has been taken of the street form, river outlook and small lot size in establishing the street scene rules. In addition, the interrelationship of the houses to the street has been recognised and limitations placed on the extent and form of fencing in the street scene setback. In the Living G (Awatea) **and** (Halswell West) **Zones and (Highfield) Zones**, a range of street scene or setback provisions have also been applied to encourage a variety of living environments to be developed. Smaller setback provisions allow for high density residential development clustered around open space promoting vehicle access from the rear of each property.

(...)

In the Living G (Yaldhurst) and Living G (Prestons) Zones in certain circumstances where a residential dwelling is proposed on a high density site, there will be a reduced minimum building setback from the road boundary to achieve maximisation of private rear outdoor living spaces while at the same time achieving an optimal relationship with the street, a demarcation between a private and public space for interaction with the community on a dwelling frontage.

(...)

In the Living G (Highfield) zone, a 10m setback is required from Hawkins and Hills Roads. This setback is proposed to ensure the retention of the character of Hills and Hawkins Road, and to ensure that reverse sensitivity effects from the proximity of Living zoned land to rural land are minimised.

14.1.5 Separation from neighbours

A standard separation distance of buildings (...) reflect and enhance the architectural form of buildings.

(...)

The setback is such as to enable efficient and practical use of the remainder of the site, whilst mitigating adverse effects of buildings on adjoining sites. (...). The total length of all accessory buildings on a site is limited to 10.1m in the L3, L4A, L4B, L4C, Living G (Yaldhurst) (Awatea) (Prestons) **and** (Halswell West) **Zones and (Highfield) Zones** in recognition of the anticipated character and density of these zones and to accommodate three garages side by side. The height of the accessory buildings will also be limited by the recession plane standards in the lower density zones.

(...)

In the Living G (Yaldhurst (Awatea)_(Wigram) (Prestons) **and** (Halswell West) **Zones and (Highfield) Zones**, provision is made for zero building set back from internal boundaries in those areas of the zones identified as catering for developments at 'High Density (a) or (b)' **(Yaldhurst), or 'Density A' respectively (Awatea), or Density ATC, A, or B (Wigram), and Density A area and residential activities in the Urban Village (Prestons), Density A and B (Halswell West) and Density A (Highfield)** respectively. Such developments may in some circumstances share common party walls, but provisions also enable individual dwellings to be contemplated at these higher densities. In such cases, (...).

14.1.12 Outdoor living space

A minimum area and shape of outdoor living space (...) compromise the use and purpose of that space.

A progressively smaller amount of outdoor living space is required for residential units in the Living 2, 3, 4A, 4B, 4C, G (Yaldhurst) (East Belfast) (Awatea) (Wigram) (Prestons) **and** (Halswell West) **Zones and (Highfield) Zones**, reflecting the likely size of the units erected in the respective zones and the consequent likely occupancy levels. At Riverlea Estates, (...)

For the Living G (Awatea) Zone, the requirement for an outdoor living space provides for important public/private interface and interaction between the street and private property. **In the Living G (Highfield) Zone, rules seek to allow outdoor living areas that are well integrated with the living areas of the dwelling, and reflect the appropriateness of indoor/outdoor living areas, which can be opened up to the outdoors, or enclosed during inclement weather.** The purpose is to achieve good urban design outcomes by

promoting outdoor activity and interaction at street level and avoiding a predominance of hard stand areas and building. In other zones, the higher likelihood of occupancy by families is reflected in a requirement for outdoor living space for all residential units. The practical difficulties (...).

14.1.21 Residential coherence

The retention of residential activity on sites in the (...) not linked with a home-based activity.
(...)

As with the standards for scale of activity and site size, there are a range of activities serving an important local function, for which residents will generally accept a loss of residential activity on a site. (...). For these reasons in the Living 1, H, RS, RV, 2, and 3 zones, together with the Living G (Yaldhurst), Living G (Awatea), Living G (East Belfast), Living G (Wigram), **and Living G (Halswell West), Zones and Living G (Highfield) Zones** (other than in that area shown as 'Commercial' in Appendix 3N Development plan (Yaldhurst) Part 2 Volume 3, Business 1 in Outline Development Plan (Awatea)(Appendix 3T, Part 2 Volume 3) and Town Centre or Education Site in Appendix 3U/1 Outline Development Plan (Wigram), **and Business 1 in Outline Outline Development Plan (Halswell West)(Appendix 3W, Part 2, Volume 3) and Business 1 in Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2 Volume 3)**, activities without a residential component have been limited to locations in "community footprints" where these either adjoin business zones and / or collector or arterial roads. In such locations, (...).

14.1.24 Retailing

Retail activities on a site are considered to be a (...) incompatible with a residential area.
(...)

Exemption from this standard is provided for certain sites in the L4C Zone (Avon Loop) in recognition of the history and location of these sites and the capacity of the immediate environment to absorb the effects of limited non-residential activity. In addition, in the Living G (Yaldhurst), Living G (Awatea), **and Living G (Wigram), and the Living G (Prestons), Living G (Halswell West) and the Living G (Highfield) Zones**, provision is made for retail activity in that part of those zones shown as 'Commercial' in Appendix 3N Development plan (Yaldhurst) **Part 2 Volume 3**, Business 1 in Outline Development Plan (Awatea)(Appendix 3T, Part 2, Volume 3), ~~for those zones and~~ Town Centre in Appendix 3U/1 Outline Development Plan (Wigram) Part 2 Volume 3, **Urban Village/Commercial, Commercial,**

Commercial A and B in Appendix 3V/1, Outline Development Plan (Prestons), Part 2, Volume 3 (Prestons), and Business 1 in Outline Development Plan (Halswell West) (Appendix 3W, Part 2, Volume 3) and Neighbourhood Centre/Business Node (Business 1) in Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2 Volume 3), for those zones. While Business 2 zone rules are to apply in **that those** areas, they have been retained in the overall Living G (Yaldhurst) and Living G (Prestons) Zones so as to distinguish the scale and extent of their essentially local retail function from District centres elsewhere in the City.

14.1.26 Scale of activity and site size

These standards are closely related to one another and (...), rather than non-residential, activity.

In recognition of the generally smaller residential site sizes in the Living 4 Zones, Living G (Awatea) and Living G (Wigram) and Living G (Halswell West) **and Living G (Highfield)** Zones, a smaller maximum site size has been specified. For the lower density living zones (Living 1A, 1B, 1C, 1D, HA and HB) the standards are different reflecting the more sensitive nature of these zones. There is no standard (...)

14.1.33 Development plan and concept plans

Development plans for several new residential (...) and means of avoiding or mitigating adverse effects.

(...).

An outline development plan applies to the Living G (Yaldhurst), Living G (Awatea) and Living G (Wigram) and the Living G (Prestons), and Living G (Halswell West) **and Living G (Highfield)** and a Concept Plan for the Living G (East Belfast) Zone which requires the development of a large areas of land in accordance with specified urban design principles and at mixed densities.

14.1.47 Street frontage, landscaping and fencing

This rule requires that in the Living G (Awatea) **and** Living G (Halswell West) **and Living G (Highfield)** Zones, provision is made for tree planting and landscaping adjacent to the road boundary of each site. Tree planting and landscaping will act to enhance the site through

introduction of visual softening of the built form, provision for shade or amenity planting, and enhancement of the public view of buildings.

Solid, high screening structures such as fences and walls that are erected on road or open space boundaries of properties have potential to cause adverse visual impacts along with other associated effects such as disconnection and reduction in the potential for passive security. This provision seeks to ensure a minimum level of visual transparency where screening structures exceed 1.0m in height. There is consideration in the assessment matters for situations where a different type of screening structure may be necessary or appropriate due to the location or orientation of the application site.

Volume 3 : Part 2 Living Zones

Insert in Volume 3: Part 2 Living zones new Appendix 3xa and 3xb – Outline Development Plan (Highfield). See attached appendix at the end of document.

Volume 3: Part 2 Business Zones

Insert new rules in section 3.4 Development standards - Business 1 and 2 Zones as follows:

3.4.12 Residential activities – Outline Development Plan (Highfield)(Appendix 3xa and 3xb, Part 2)

In the neighbourhood centres/business nodes (Business 1), as identified on Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2) residential activity shall not be located on the ground floor of any building.

3.4.8 Urban design and amenity for development in the neighbourhood centres/business nodes (Business 1) – Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2).

The erection of new buildings, and additions exceeding 100m² in floor area to existing buildings, shall be a restricted discretionary activity, with the exercise of the Council's discretion limited to the design and amenity of the site and development thereon.

Insert new assessment matters in Part 3 Business Zones: Section 6 Assessment matters for resource consents as follows (insert after assessment matter 6.5.19).

6.5.20 Design and amenity for development in the neighbourhood centres/business nodes (Business 1) – Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2)

- a) **The quality of architectural design of main elevations including building design, architectural features and details, use of colour and building materials.**
- b) **The extent to which active rooms are positioned in relation to the street to maximise passive surveillance.**
- c) **The extent to which tree planting, including species, height and calibre achieves a high quality landscaping outcome and mitigates adverse visual effects and scale of commercial buildings and business activities.**
- d) **The extent to which landscaping is used in preference to sealed areas, solid fencing and walls along road boundaries.**
- e) **The position of security fencing to reduce the dominance of the streetscape and avoid compromising landscape areas.**
- f) **The extent to which any signage on buildings is integrated with a buildings' architectural detail.**
- g) **The extent to which the location of outdoor storage, loading, and parking areas are located behind buildings away from public areas.**
- h) **The extent to which measures are used to minimise stormwater runoff and potable water use from buildings and sites such as rainwater collection tanks, permeable paving, rainwater gardens and swales.**

6.5.21 Residential Activities – Outline Development Plan (Highfield)

- a) **The impact of any additional residential accommodation on the ability of existing or future permitted commercial activities to operate or to establish without undue constraint.**

- b) The effects of establishing any residential accommodation on the amenity, safety and convenience of on-site residents, having regard to existing or future potential business activities.
- c) The effect of any residential buildings or units on the development scope of the site or adjoining sites.
- d) Any beneficial effects of residential units as a buffer for adjoining living, rural, cultural, conservation or open space zones, while still permitting commercial development on the site or adjoining sites.
- e) The site layout, building specifications, nature and/or purpose of the proposed residential accommodation, and the need or likely demand for residential accommodation of that kind in the general area.

Insert new reasons for rules in Part 3 Business Zones : Section 7 as follows (insert after clause 7.3.18):

7.3.19 Residential Activities – Outline Development Plan (Highfield)

A limitation has been imposed on residential units seeking to establish in this commercial area. The purpose of this rule is to ensure that the Business 1 zoned land is primarily developed for commercial purposes at the ground floor level, thereby serving the day-to-day convenience needs of the community, as well as promoting the opportunity for mixed use development to occur.

7.3.20 Design and amenity for development in the neighbourhood centres/business nodes (Business 1) – Outline Development Plan (Highfield).

In the neighbourhood centres/business nodes (Business 1) within the Living G (Highfield) Zone, all new buildings, alterations or additions over 100m² require resource consent as a restricted discretionary activity with the Council's discretion limited to the design and amenity of the development. This provision has been inserted to address concerns over the quality of development occurring in close proximity to areas of high density residential development and/or areas of significant open space. This provision includes assessment matters to act as guidance for developers and for those assessing

applications, as to the appropriate level of amenity anticipated for commercial development in this area.

Volume 3 : Part 13 Transport

Amend Table 1b as follows:

Part 13, Volume 3 Transport - Table 1b. Minimum parking required in all other zones

Insert below “**Residential activities** generally”:-

Living G (Awatea) Zone and Living G (Highfield) Zone : For a site of Density A residential area only	For a site of 400m ² or less: 1 car-parking space	<u>N/A</u>	<u>Nil</u>	
---	--	------------	------------	--

Volume 3: Part 14 Subdivision : 1.0 Statement

Add “29” to the ‘Guide to using these rules’ steps 3 – 6 as follows:

(...).

Step 4 If the proposed subdivision complies with all of the relevant critical and development standards and is not specified as a prohibited activity, it shall be a controlled activity, subject to conditions relating to any relevant matters set out in Clauses 4 – ~~22~~ **29**

Step 5 If the subdivision does not comply with any one or more of the relevant development standards in Clauses 4-10, 12, 14 ~~or 17, 18, or 19, 20, 22, 17-29~~ or the community standards in Clause 18, application must be made for a resource consent, assessed as a discretionary activity, but only in respect to the matter(s) not complied with.

Step 6 If the subdivision does not comply with any one or more of the relevant critical standards in Clauses 4, 5, 7, or ~~17, 18, or 19, 20, 22 17-29~~, then the application must be made for resource consent, assessed as a non complying activity.

(...)

Volume 3 : Part 14 Subdivision

Insert the following after Clause 28:

29.0 Subdivision in the Living G (Highfield) zone

29.1 Development Standards

29.1.1 Business 1

The Business 1 zone subdivision rules shall apply to subdivision within the areas shown as neighbourhood centres/business nodes (Business 1) on the Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2).

29.1.2 Residential allotment size and site density – residential activities

Any subdivision for residential activity shall provide for a mix of allotment sizes and densities, from within the following site sizes, in locations as shown on the Outline Development Plan (Highfield)(Appendix 3xa and 3xb, Part 2). Where the terms ‘Density A’, ‘Density B’, ‘Density C or ‘Density D’ are used they shall have the meanings set out below:

<u>‘Density A’ residential area</u>	<u>Average lot size to be contained within a range of 200m² to 300m²</u> <u>Minimum net site area of 150m²</u>
<u>‘Density B’ residential area</u>	<u>Average lot size to be contained with a range of 300m² to 450m²</u> <u>Minimum net site area of 275m²</u>
<u>‘Density C’ residential area’</u>	<u>Average lot size to be contained within a range of 450m² to 750m²</u> <u>Minimum net site area of 400m²</u>
<u>Density D’ residential area’</u>	<u>Minimum net area of 750m²</u>

Each residential unit shall be contained within its own separate site.

29.1.3 Roothing Design within the Living G (Highfield) Zone

Roothing design within the Living G (Highfield) zone shall be accordance with the table below:

<u>Street Type</u>	<u>Minimum legal road width</u>	<u>Minimum carriageway width</u>	<u>Minimum number of footpaths</u>	<u>Minimum footpath width</u>	<u>Provision of street trees</u>
<u>Central Boulevard</u>	<u>20.5</u>	<u>Duel carriageway 5.5m each</u>	<u>1*</u>	<u>1.5m</u>	<u>Yes</u>
<u>Parkside Local Street</u>	<u>15.5m</u>	<u>10m</u>	<u>1*</u>	<u>1.5m</u>	<u>Yes</u>
<u>Local Street</u>	<u>19m</u>	<u>10m</u>	<u>2</u>	<u>1.5m</u>	<u>Yes</u>
<u>Parkside Neighbourhood Street</u>	<u>14.5m</u>	<u>6m</u>	<u>1*</u>	<u>1.5m</u>	<u>Yes</u>
<u>Neighbourhood Street</u>	<u>18m</u>	<u>6m</u>	<u>2</u>	<u>1.5m</u>	<u>Yes</u>
<u>Cul-de-sac</u>	<u>14m</u>	<u>6m</u>	<u>1</u>	<u>1.5m</u>	<u>Yes</u>
<u>Lane</u>	<u>14m</u>	<u>6m</u>	<u>1</u>	<u>1.5m</u>	<u>Yes</u>
<u>Link</u>	<u>9m</u>	<u>6m</u>	<u>None</u>	<u>:</u>	<u>Yes</u>

* Except where roads adjoin a public space on one side, an additional second footpath shall be located within that open space.

<u>Central Boulevard</u>	<u>Runs in a north-south direction along the central open space system, and will be a collector road.</u>
<u>Parkside Local Street</u>	<u>This street type always edges a reserve on one side.</u>
<u>Local Street</u>	<u>The main north-south roads within the development.</u>

<u>Parkside Neighbourhood Street</u>	<u>Similar to a parkside local road but with a narrower carriageway.</u>
<u>Neighbourhood Street</u>	<u>These roads make up the largest proportion of streets within the development and are intended to carry only local traffic.</u>
<u>Lane</u>	<u>Provide access to a limited number of residential properties.</u>
<u>Link</u>	<u>Specific to areas adjacent to Prestons Road. They provide access to a limited number of properties and link between turning heads on north-south roads.</u>

29.2 Community Standard

29.2.1 Conformity with Outline Development Plan – Density A Residential Area. Comprehensive subdivision and associated land use development

Any proposed subdivision shall be accompanied by comprehensive building and allotment design information detailing the nature, character, scale and form of development associated with proposed allotments and shall be a restricted discretionary activity with the Council’s discretion limited to design, layout of the subdivision and associated development, and the following parts of the Living G (Highfield) Outline Development Plan:

- (i) Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2);

For the purposes of this rule, “associated land use development” means:

- Buildings, including accessory buildings;
- Driveways and entrances;
- Fences and gates;
- Landscaping;
- Pedestrian paths and entrances;
- Shared access ways and lanes;
- Outdoor living areas;
- On-site car parking;
- Lighting;

- Service areas;
- Utilities.

29.2.2 Conformity with Outline Development Plan – All other subdivision

Any proposed subdivision, other than that to which 28.2.1 applies, shall be a restricted discretionary activity with the Council's discretion limited to design and layout of the subdivision and the following parts of the Living G (Highfield) Outline Development Plan:

- (i) Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2);

29.3 Critical Standards

29.3.1 Allotment sizes – Residential activity

No allotment, vacant at the time of subdivision, shall be created such that it is unable to accommodate a rectangle of the dimensions specified below:

<u>Density D</u>	<u>16m x 16m</u>
<u>Density C</u>	<u>16m x 16m</u>
<u>Density B</u>	<u>10m x 10m</u>
<u>Density A</u>	<u>6m x 8m</u>

29.3.2 Residential allotment size and site density

Notwithstanding Rule 28.1.2, any subdivision for residential activity where the minimum allotment sizes are not met or the average lot size is not within the range specified in that rule for the location to which the development applies, as shown on the Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2), shall be a non-complying activity.

29.3.3 Control of stormwater – Staged Development

Any subdivision shall collect, treat and dispose of its own stormwater in accordance with the Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2)

except that:

- i) Concurrently or prior to the approval of any subdivision within the Living G (Highfield) Zone, a comprehensive plan include engineering designs detailing the relocation of Horners Drain (from its connection with Kruses Drain through to the Styx River) as shown in the Outline Development Plan, shall be lodged for approval by the Council.
- ii) Within the deferred area shown on the Outline Development Plan (Highfield) (Appendix 3xa and 3xb, Part 2), any subdivision shall be a non-complying activity until a comprehensive plan for the mitigation of stormwater and flooding is approved.

29.3.4 Provision of public transport

Any subdivision not designed and constructed so as to enable public transport bus movements, shall be a non-complying activity.

Note that once the location of bus stops is determined by the Regional Council, and change from this will require the approval of the Regional Council.

29.3.5 Sanitary Sewer and Potable Water Supply

Subdivision shall be a non-complying activity where provision is not made for the following:

- (i) The disposal of wastewater system via the Christchurch City Council water system; and
- (ii) Connection to a potable water supply via the Christchurch City Council urban reticulation system via a service main.

This rule shall cease to apply when the capacity and servicing constraints in the Christchurch City Council waste water system and water service main have been overcome, and the Council is satisfied that there is capacity in the reticulated waste water system for further development to occur and further development can be adequately provided with a safe, potable water supply.

29.3.6 Site Contamination

The subdivision of land for residential activity shall be a restricted discretionary activity with the Council's discretion limited to health and safety, adequacy of site investigation, mitigation and remediation

Note 1: The investigation of individual building lots shall be carried out in accordance with the Ministry for the Environment's Contaminated Land Management Guidelines or any relevant National Environmental Standard for assessing and managing contaminants in or on land. An investigation shall also be carried out to evaluate the extent and potential effects to health and safety of occupants caused by landfill gas migration from other land.

These investigations shall be carried out by persons with recognised expertise and experience. In the event that land contamination is identified or landfill gas is detected at levels which require remedial and/or site management measures to be undertaken to make the land suitable for its intended purpose, such measures shall be undertaken and recorded, and copies of the investigation and remediation/site management reports shall accompany the subdivision and/or building consent application.

29.3.7 Development of deferred land

Until such time as a detailed stormwater assessment has been carried out, and a stormwater solution for the land agreed and confirmed by Council resolution, the land identified on the Living G (Highfield) ODP, as deferred, shall not be developed in accordance with the Outline Development Plan (Highfield)(Appendix 3xa and 3xb, Part 2).

29.3.8 Heritage and archaeological matters in the Living G (Highfield) Zone

As part of any resource consent application for subdivision, a walkover of the property prior to the commencement of earthworks shall be carried out by an archaeologist to identify whether any archaeological features are visible. This should be carried out as soon as possible so an application for archaeological authority can be made to the New Zealand Historic Places Trust in advance if necessary.

29.4 Information to be supplied with subdivision consent

- (a) **Information that illustrates how the proposed subdivision accords with the Living G (Highfield) Outline Development Plan and in particular:**
 - (i) **Outline Development Plan (Highfield)(Appendix 3xa and 3xb, Part 2);**
- (b) **Information that illustrates how the staging of development including the location key infrastructure generally accords with the Living G (Highfield) Outline Development Plan.**
- (c) **Information to show that staging takes account for the need to prevent clogging of soakage basins with sediments associated with construction.**
- (d) **Location of high, medium and low density sites.**
- (e) **Measures to be taken to reduce dust emissions (if any).**
- (f) **Information identifying appropriate remedial and/or site management measures to be put in place to make the land suitable for residential purposes in the event that soil contamination is identified.**
- (g) **For comprehensive subdivision and associated land use development in Density A residential areas, building design information is required detailing how buildings are to satisfy the relevant assessment matters.**
- (h) **Information identifying appropriate remedial and/or site management measures for contamination or landfill gas intrusion to be put in place to make the land suitable for the intended purposes.**

29.5 Assessment matters for subdivision in the Living G (Highfield) Zone

General matters

General matters set out expectations for design of new residential development. They proved an assessment framework for consenting officers and expert advisers when considering resource consent applications.

General matters allow for assessment to be undertaken of each development on a case by case basis. This allows flexibility of design while controlling developments to avoid poor design. It is expected that as a minimum, developments will fulfill the matters, except where some competing or conflicting design objectives arise, in which case compromises may have to be made between assessment matters to achieve a better overall balance of development outcomes.

Under each section heading, where appropriate, a brief explanation provides additional information on meaning and intent behind the assessment matters. Applications are also encouraged to provide written and graphic evidence of their rationale to accompany site specific proposals.

There are also levels of assessment matters – the first level applies to all Density A, B, C and D applications – the second applies to all Density A applications.

Any proposal shall be assessed against the extent to which the development achieves the following principles:

Level 1 – All Density areas

Design and layout

- a) The extent to which subdivision can accommodate the land use and built form and layout anticipated for the land in the Living G (Highfield) Zone in Part 2, Volume 3 of the City Plan and the Living G (Highfield) policies at Part 11, Volume 2 of the City Plan.
- b) The extent to which the orientation, size and shape of allotments enables appropriate housing forms to establish that are reflective of the density area in which they are located.
- c) The extent to which the orientation, size and shape of allotments establishes a connectivity with prominent vistas and view shafts.
- d) The extent to which crime prevention through environmental design (CPTED) principles have been included in the design, orientation, size and shape allotments, the provision of hard and soft landscaping, and the location of street lighting.

- e) The extent to which the overall design, orientation, size and shape of allotments encourages the minimisation of energy use.
- f) The ability to minimise the impact of access and garages on the streetscape through subdivision design. In higher density areas to minimise the extent of vehicle crossings and/or garages that face the street and to maximize building frontage and on-street parking regard should be have to
 - The use of rear lanes (via access lots, rights of way or legal road) particularly for narrow terrace housing lots.
 - The land use shared access (via access lots or rights of way).
- g) The application of appropriate lot dimensions and sizes to prevent the creation of long monotonous facades.
- h) Avoiding the widespread use of culs de sac. Any cul de sac should be short and relatively straight.
- i) With the exception of blocks fronting Hawkins Road and Hills Road, street blocks should maximise the permeability of the Movement Network, particularly in relation to pedestrian movements.
- j) The ability of subdivision to add to the diversity of housing types as appropriate for the Density Area.
- k) The extent to which allotments are connected, visually and physically, to green corridors and open space.
- l) The extent to which the average allotment size, within the average range specified in rule 23.1.2, in the subdivision application will contribute to achievement of an overall minimum yield from the Living G (Highfield) block of at least 15 households per hectare.

Connectivity

- a) The extent to which the proposal will be in general accordance with the Outline Development Plan (Appendix 3xa and 3xb, Part 2).

- b) The extent to which both the green network and pedestrian/cycle connections share space and inter-relate.

Roading

- a) The extent to which the roading layout supports a functional hierarchy of streets.
- b) The extent to which the roading layout achieves a well connected and highly permeable movement network.
- c) The extent to which the roading layout integrates in a practical and functional manner with the adjoining existing road network and the road network on proposed or concurrent subdivision consent applications.
- d) The extent to which the proposed cross sections contribute toward achieving an environment that is compatible with each street's function.
- e) The extent to which space is provided for cyclists and cycling is encouraged by the cross section design.
- f) The account taken of pedestrian movement and continuity of walking facilities within the development.
- g) The extent to which the roading layout supports walking to bus stops and/or key community facilities.
- h) The opportunities for tree and amenity planting provided and the extent to which amenity features have been incorporated into each street.
- i) The appropriateness of the legal road width to accommodate the proposed cross-section design.
- j) The ability of the legal road width to accommodate a future change in the function of the street (where applicable).
- k) The ability of the street to accommodate public transport services and the provision of bus stops, where appropriate.

- l) The extent to which new roads make adequate provision for vehicle movements, car parking and property access.
- m) The extent to which stormwater management features such as rain gardens, swales, trapped sumps, first flush basins, wetlands or wet ponds are incorporated into the road stormwater treatment design.
- n) The extent to which new subdivision does not preclude development of deferred areas.
- o) The extent to which roading within the site is designed to encourage the use of open space.

Access to open public space

- a) The extent to which the proposal will be in general accordance with the Outline Development Plan (Appendix 3xa and 3xb, Part 2).

Street Trees

- a) The extent to which trees are proposed to be accommodated within the legal road reserve.
- b) The provision of trees intended to provide a high level of visual amenity.
- c) The provision of trees which recognise the context and scale of the area in which they are located and the significance of the road in the roading hierarchy.
- d) The extent to which parking and landscaping are visually connected.

Stormwater

- a) Measures adopted so as to ensure the protection of ground-water quality including treatment of discharges from roads and sealed car parking areas.
- b) The extent to which alternative treatments may be available.
- c) The contribution made by the stormwater facilities' layout and design to the visual amenity of the immediate area.

- d) The ability to capture and treat stormwater on site.
- e) The extent to which the proposal will be in general accordance with the Outline Development Plan (Appendix 3xa and 3xb, Part 2).
- f) The extent to which the proposal will be in general accordance with the Styx Integrated Catchment Management Plan.
- g) The extent to which the proposal incorporates stormwater management infrastructure to provide appropriately for the control of the stormwater during the period of construction.
- h) The extent to which the proposal incorporates stormwater management infrastructure to provide appropriately until connection is made to the wider stormwater management system anticipated by the Outline Development Plan (Appendix 3xa and 3xb, Part 2).

Street scene

- a) The extent to which lot design and orientation will allow buildings to address the street.
- b) The extent to which consideration has been given to the potential use of back lanes for vehicle access in subdivision layout.

Location of high density sites

- a) The extent to which High Density sites are located to provide convenient access to a potential public transport route and wherever possible in close proximity to: a reserve, and/or retail community facilities; and/or be within a 400 metre radius of any of the above.
- b) The extent to which high density sites are located in order to avoid adverse effects on lower density areas.

Mix of densities

The extent to which the application:

- a) Meets the density ranges and mixes specified in the Outline Development Plan (Highfield)(Appendix 3xa and 3xb, Part 2)
- b) Specifies which density range the site is within.

Sanitary sewer

In the Living G (Highfield) Zone, the extent to which the subdivision will necessitate the construction of more than one waste water pumping station within the development area.

Contaminated sites

The suitability of remediation and/or mitigation measures to adequately deal with site contamination.

Unanticipated discovery of archaeological sites

- a) The extent to which the requirement for an unanticipated discovery of archaeological sites protocol should be included in any subdivision consent for site works associated with the consent – for example Transit Accidental Discovery Protocol (Opus 2007 Appendix 4).

Tangata Whenua cultural values

- a) The extent to which Tangata Whenua values have been taken into account in the design and construction methodology for any proposed subdivision.
- b) The need to notify developers of their obligations under the Historic Places Trust Act 1993 in case an unknown archaeological site is inadvertently uncovered, and the earthworks consent.
- c) The extent to which the application provides for other Tangata Whenua related objectives, policies, rules and methods within the City Plan and other relevant iwi management plans.

Level 2 – Density A areas

For comprehensive subdivision and associated land use development in Density A residential areas, the extent to which building and site development will achieve the following:

Site and context

- a) Development should consider local environmental conditions including but not limited to the position of the sun and prevailing winds.
- b) Developments are encouraged to support prominent vistas and view shafts.
- c) Developments are encouraged to provide a high degree of passive surveillance.
- d) Developments should, where possible, provide views/close access to the Central Corridor or Styx Corridor.

Explanation

Proposals will need to demonstrate how the development responds to constraints and opportunities within and beyond the site. Developments should consider amenity for residents, neighbours and the wider community.

Christchurch's climate is temperate with distinctive weather patterns (e.g. prevailing winds and cool, damp winters). Building design should respond to these conditions to ensure comfort for residents. Subdivision and building design should allow for utilisation of passive solar energy.

Development of the site should consider engaging with the waterway corridors through the site which will contribute to the amenity enjoyed by residents.

In higher density residential areas, in particular in respect of shared accessways and lanes, consideration should be given to the provision of passive surveillance. This can be achieved by locating first floor dwellings, windows and balconies that overlook access ways and lanes.

Relationship with street, lanes and public open spaces

- a) Buildings should be orientated towards the street and positioned close to the road boundary.

- b) Active areas of buildings, such as habitable rooms and entrances should, in addition to the requirement to be placed along the street frontage also face the adjacent public open spaces where applicable, particularly at ground level.
- c) Buildings should have pedestrian entrances that are identifiable, well articulated and directly accessible from, the street or, in the case of rear units, shared accessways.
- d) Facades of buildings facing the street should have a high degree of glazing that is evenly distributed.
- e) Fences and landscaping along the road boundary or adjacent to public open spaces should not obstruct ground level views.
- f) Building design and location provide opportunities for passive surveillance particularly in relation to shared access ways and lanes.

Explanation

Boundary treatments have an impact on adjacent streets and public open spaces. A coordinated approach to buildings, landscaping and boundary edges is important to help set the overall appearance for the neighbourhood. It is also important that developments enhance the definition of the street through the continuity of the building edge and height to promote a sense of enclosure and to establish a comfortable, well-structured public space. Minor modulation and variance of the building frontage is acceptable to retain site features or avoid architectural monotony, provided that the overall continuity of the frontage is not compromised.

The positioning of main entrances and primary activities (e.g. habitable rooms) along street frontages and public open spaces increases pedestrian safety, visual interest and social interaction. This is most effective at ground level where views and access points are most direct. Large windows and balconies will maximize the opportunities for surveillance of the street, lanes and public open spaces. Generally a minimum of 25% glazing across building frontages is envisaged.

Streets, lanes and public open spaces, front fences, walls and gates should discourage illegitimate entry but maximize surveillance and safety. The location of fully private outdoor living spaces or dense planting along road boundaries and reserves is discouraged.

Fences should complement the development and the use of inappropriate materials like razor wire or broken glass is not acceptable.

Corner sites

- a) **Building on corner sites should orientate toward all adjacent streets and public open spaces and emphasise these corners.**
- b) **Pedestrian entrances are encouraged to be located along main pedestrian routes.**

Explanation

Poor building location and design at street corners can undermine the overall structure and legibility of an urban area. Poor building location and design of buildings at corner sites can result in visual imbalance and disinterest of built form when forming a relationship with multiple street frontages. Corner sites are important as they orientate people and aid decision making for all those moving around a neighbourhood, particularly when viewed across a public open space or at the end of a street.

Primary pedestrian entrances should be located along main pedestrian routes linking to key destinations to help improve their safety and vitality of these routes.

Building form and articulation

- a) **Buildings should be of a domestic scale**
- b) **Buildings in a series should avoid excessive repetition of building forms**
- c) **Buildings should avoid facades and elevations whose length or bulk is visually excessive or blank**
- d) **Roofs should be designed to limit continuous ridgelines and to minimise the visual bulk of a building**
- e) **The separation of buildings on sites is encouraged to reduce perceived building bulk**
- f) **Architectural features and a variety of materials and colours are encouraged to provide human scale and visual interest**

Explanation

Accepting a variety of building styles, developments should have façade lengths and separation between buildings that create and maintain a high degree of amenity. Overly repetitive building forms should be avoided with the design of each building creating a distinctive and varied appearance.

Blank facades, particularly those facing the street or open spaces, can be avoided through the addition of architectural features (i.e. entrance porches, bay windows and shade screens) which provide relief, texture or colour. Architectural features, integrated roofs and landscaping can all contribute to breaking up and softening the visual bulk of a development. Separating large buildings to allow views through sites can make new development less intrusive, particularly for neighbours. A general rule for the maximum length of a building façade is 15m before a recess of at least two metres or a separation of buildings is needed.

Developments are encouraged to use high quality, durable materials and fixings. Use of these materials and fixings will contribute to reduced maintenance costs and responsibilities for residents and foster a sense of ownership by residents.

Landscaping and site amenity

- a) Car parking, garages, side boundaries, shared access ways, lanes and service areas should all be softened by landscaping.
- b) Lighting, planting, fences and other structures on sites and shared accessways, lanes and service areas should to be designed to maximise safety of occupants and visitors.
- c) The distribution of landscaping throughout the site and provision for larger areas of vegetation is encouraged.
- d) Landscape design is encouraged to use endemic or locally sourced indigenous plants, including those that minimise water and maintenance requirements, promote biodiversity and healthy ecosystems.
- e) For lanes and shared accessways, fences and gates at the rear of properties should provide varying degrees of solidity and transparency, while maximizing occupants' safety and proving opportunities for passive surveillance.

- f) Landscaping along the road boundary or adjacent to public open spaces should not obstruct ground level views and should not contain species that are able to reach a size, at maturity, that would require the plant's removal to maintain amenity on the site.

Explanation

Safety is a key consideration throughout developments and should conform to Crime Prevention Through Environmental Design (CPTED) Principles. A clear hierarchy of spaces, from public through to private, with well defined transitions between them and not 'left over' spaces, needs to be established in developments.

Fencing and soft and hard landscaping should be designed in a way that does not prevent informal surveillance of lanes, common or public areas and maintains clear sightlines by avoiding blind corners, hiding places or dark recesses.

Lighting for safety and amenity purposes should be an integral part of the development and be carefully designed and positioned to light all common areas and building entrances without creating a nuisance for adjoining properties. A balanced landscape coverage adds to the Garden City image and the visual outlook of residents and neighbours. Vegetation softens building bulk and boundary fencing, breaks up large paving areas and improves screening for privacy. Use of deeper planting borders allows for larger vegetation, including trees.

Use of locally appropriate plants is encouraged to enhance the neighbourhood character and to establish planting which is robust and easily maintained within local climatic conditions. The use of locally sourced native plants is encouraged to promote biodiversity.

Outdoor living spaces

- a) Outdoor living spaces should be located on sites in a way that will optimise useable space and provide a pleasant outlook for unit occupants.
- b) Private outdoor living spaces, including balconies and terraces, should link directly to main living areas within the residential unit.

Explanation

The sensitive location and screening of outdoor living spaces, including balconies and terraces, is important to maximise the solar aspect and shelter from predominant winds.

It is important that outdoor living spaces are accessible and complementary to the main living areas in each unit. Linking outdoor and indoor living areas together encourages their use, improves outlook and provides greater flexibility for smaller private spaces.

Where communal spaces are provided, they should be easily accessible from each unit, while minimizing disturbance to adjacent residents. Where possible they should offer an area of open space that is sited and developed to provide a positive amenity outlook for residents.

Communal spaces should be of a size and dimension that is appropriate to the total number of residential units and residents in the development and incorporate facilities that make them attractive, inviting and safe to use (e.g. outdoor seating area, barbecue area, play area, tennis court), while being cost-effective to manage and to maintain.

Service areas and utilities

Service areas should be positioned in a development to minimize adverse visual, noise or odour amenity effects and to enable practical use.

- a) **Rubbish storage areas, letterboxes, utility boxes and other service facilities required to be accessible from the street should be visually integrated into the development frontage.**
- b) **Building services such as external accessways and mechanical, electrical and communications equipment should be integrated within the building to minimize their visual impact, particularly from streets or public open spaces.**
- c) **Storage space should be easily accessible to residents.**

Explanation

Service areas (e.g. clothes lines, wheelie bin storage) are often unsightly and can generate adverse noise and odours. The screening or location of these areas away from primary views, along with consideration for containment of noise and odours, is

important. The configuration of these areas should enable site facilities that are adequately sized, have a practical use and are conveniently located to each residential unit and service providers.

Any service facilities close to a street or public open space, and which cannot be placed elsewhere, need to be concealed or of a complementary design to building and streetscape to minimize their visual impact.

Other building service elements (e.g. drainage pipes, lift plant) can add to the visual clutter of developments and should be integrated within the overall building design or screened, yet allow for servicing access and future additions. This includes external stairs and access decks which should generally be avoided.

Elements which could be added post-completion (i.e. satellite dishes, heat exchanges) should be allowed for through provision of communal facilities at the outset of development or via appropriate provision of space for these additions at a later stage.

The provision of storage space should accommodate a range of recreational and maintenance equipment, particularly those related to children's toys, sports equipment, bicycles and gardening tools, and be positioned as close to their end use as possible.

Residential amenity

- a) The location, orientation and internal design of residential units should balance outlook and sunlight with the privacy of internal occupants and neighbouring residential units.
- b) Windows and balconies on upper levels should be orientated and screened to limit direct overlooking of adjacent dwellings, their outdoor living space and the private outdoor living space of other units in the same development.
- c) Developments are encouraged to provide a variety of unit types and sizes to accommodate a range of households

Explanation

All residential units should provide a high standard of amenity with regard to size, purpose, layout, acoustic insulation and privacy. This includes the configuration of

balconies to minimise views between upper level residential units and down to ground level private spaces.

Residential accommodation in the City needs to cater for a diversity of living types in order to maintain a variety of housing choice and the vitality of the City. This mix of unit sizes could include studio or one bedroom units through to multi bedroom units in detached, semi-detached, terraced or apartment housing types.

Treatment of lanes

- a) Define the identity of, and entrance to, a lane through both landscaping and built form elements such as locating residential dwellings close to the street or where they are visible from the street.
- b) Provision of shared vehicle and pedestrian access with no defined footpath.
- c) Variation in lane clearway through design by tightening, extending and terminating views within a lane.
- d) Provision of permanent passive surveillance for all parts of the lane
- e) Establish a consistent character for a lane with complementary architectural features on the land and adjacent buildings.

Explanation

The purpose of providing residential units in close proximity to lane entrances is to provide a gatekeeper function, promote activity and provide passive surveillance in the lane. The use of landscaping can also act as a visual cue clearly defining the lane's identity and entrance.

Sharing the space between pedestrians and vehicles by not defining footpaths or carriageways promotes awareness of each other's presence in a confined space. This has the effect of reducing vehicle speeds and improving pedestrian safety on lanes.

Variation in the design of lanes provides visual interest and can be achieved through variation in width, the location of the elements and landscaping textures thereby ensuring the lanes are not viewed on the same vertical plane or appear overly long

A safe streetscape can be achieved through design that considers the composition of garages, lofts, carports, uncovered spaces, entrance ways, lighting and landscaping. Design should avoid areas on lanes and accessways that are not subject to passive surveillance from overlooking first floor dwelling or studio windows and by providing sufficient transparency from private yards to laneways.

Amend reasons for rules as follows:

30.16 Outline Development Plan for the Living G (Yaldhurst) Zone, and Living G (East Belfast) Zone, Living G (Awatea), and Living G (Prestons), Living G (Halswell West) and Living G (Highfield)

Comprehensive Outline Development Plans, together with urban design principles to be followed in the development of this zone have been included to enable new peripheral residential growth as a Living G zone. In this case of the Outline Development Plan associated with the Living G (Awatea) and (Halswell West) Zones and area of Business 1 Commercial Area and Business 7 zoned land is included. In the case of the Outline Development Plan associated with the Living G (Wigram) Zone, an area of Business 4 and Conservation 3 zoned land is also included. **In the case of the Outline Development Plan associated with the Living G (Highfield) Zone, neighbourhood centres/business nodes (Business 1) are included.** The purpose of the outline development plans is to assist the Council in managing the effects of the use, development and protection of natural and physical resources in an integrated manner in order to achieve the objective and policies of the Plan relating to intensification of urban densities. More specifically they indicate the environmental outcomes being sought for that particular area and means of avoiding or mitigating adverse effects.

The Outline Development Plan referred to applies to land in Masham, between Yaldhurst and Buchanans Roads; **and land in** Prestons, extending north and south from Prestons Road between Lower Styx Road and Mairehau Road; **and** land in East Belfast, bounded by Belfast Road, the Kaputone Stream, existing Business 5 zoned land to the west and Thompsons Road to the south; **and** land at Awatea generally bordered by Wilmers Road, Halswell Junction Road, Wigram Road and Awatea Road **and** a large portion of the former Wigram Airfield; **land at Halswell West bordered by Murphys Road, Quaifes Road and Halswell Junction Road and land at Highfield bounded by Redwood to the west, the Styx River to the north, Hills road and Hawkins road to the east and Queen Elizabeth II Drive to the south.** This will involve stages development large areas of land at mixed housing densities, and including provision for integrated public transport, open-space and pedestrian systems, as

well as supporting provision of local commercial and community facilities. Limited flexibility is provided for in the location of different housing densities within these areas, provided that such densities as are indicated for the overall zone are still achieved elsewhere within this zone, and that these also accord with the urban design principles referred to.

(...)

For Living G (Highfield) Zone, provision is made to enable the consideration of the urban design and appearance of future development on proposed allotments in Density A residential areas at the time of applying for subdivision. This approach will ensure that the subdivision of land into separate allotments, and the development anticipated to establish separate allotments is designed and co-coordinated in a comprehensive and integrated manner. It is expected this will achieve good quality urban design outcomes anticipated in the higher density environment. In addition, the opportunity for consideration of buildings and site development at time of the subdivision is anticipated to result in a reduction in application processing times. However, the ability remains to apply for subdivision consent separate from land use consent that can be applied for at a later date.

29.31 Control of stormwater, Provision of Public Transport, Rooding, Sanitary Sewer and Potable Water Supply – Living G (Highfield) zone

It is important that elements of development in the Living G (Highfield) Zones are integrated both within the zone and within the wider area. The design, location and timing of the development of road, wastewater, stormwater and potable water infrastructure are critical elements in achieving the necessary high levels of integration thereby ensuring safe and sustainable site development.

For Living G (Highfield), the primary collector roads through living areas have been located specifically to ensure safe and efficient vehicle access onto key roads and permeability within the block.

The Living G (Highfield) Zone is to be developed to achieve a high degree of connectivity and permeability within the zone itself and with surrounding areas. The primary collector roads shown on the Outline Development Plan in Appendix 3xa and 3xb, Part 2 are critical pieces of infrastructure to enable this to occur. It is important that as the Living G (Highfield) Zone is developed, key parts of the primary collector roads are constructed at the appropriate time. In addition, the identified primary collector roads must be developed in a manner that facilitates public passenger

transport and encourages its use. Roads are classified by function thereby overcoming uncertainty in determining long-term traffic flows. The rules pertaining to the design and location of roads seek to achieve good design outcomes by:

- Avoiding an impermeable road network that reduces transport accessibility and opportunity to access community facilities;
- Encouragement of walking and cycling leading to decreased reliance on private vehicle travel;
- Ensuring effective public transport route structures that are highly accessible to people and communities;
- Ensuring opportunities to link and to integrate with future roads effectively;
- Ensuring appropriate levels of maneuverability for vehicles on and off a site and carriageway width to promote safety
- Providing a range of opportunities to provide appropriate amenity planting and a suitable level of coverage to best compliment the function and purpose of the road.

For the Living G (Highfield) Zones, an overall stormwater infrastructure system has been designed. It is important that as development occurs in Living G (Highfield) Zone, stormwater is controlled in a manner that accords with the overall design.

29.32 Residential allotment size and site density – residential activity.

Minimum and maximum development density standards are required to make the most sustainable use of available land to accommodate urban growth, and to create a compact urban area that supports existing urban and suburban centres and can be more efficiently served by strategic infrastructure and passenger transport. Residential development not achieving the minimum density standard also fails to achieve the long term goals and aspirations of Proposed Change 1 of the Canterbury Regional Policy Statement for Greater Christchurch. A mix of high, medium and low density residential densities are provided in response to the physical constraints and characteristics of the Highfield Block. High density residential areas are focused around significant open space areas and access to public transportation.

Volume 3: Planning Maps
Amend Planning Maps 18A and 25A

See the amended planning maps 18A and 25A.

List of attachments:

1. **Volume 3, Part 2 – Appendix 3xa and 3xb – Outline Development Plan (Highfield)**
2. **Planning Maps 18A and 25A (2 pages)**

6.0 Assessment of Actual and Potential Effects

This plan change application is made in accordance with Clause 21 of the First Schedule of the Resource Management Act 1991. In accordance with Section 88(2)(b) of the Act and Clause 1(d) of Schedule 4 to the Act, the following assessment of environmental effects has been prepared in such detail as it corresponds with the scale and significance of the effects that the proposed rezoning of Rural 3 land to Living G (Highfield), and within this two small neighbourhood centres/business nodes (Business 1), may have on the environment and the incorporation of the proposed ODP into the Christchurch City Plan.

An explanation of the actual and potential environmental effects of substituting the objectives, policies and rules of the existing zoning with the proposed zonings, has also been undertaken.

The potential effects of the activity can be categorised into the following main issues:

- Productivity/versatile soils
- Contaminated land issues
- Geotechnical matters
- Ecological effects
- Servicing effects
- Traffic effects
- Reverse sensitivity effects
- Cultural and Heritage effects
- Ownership effects
- Economic effects
- Retail effects
- Social effects
- Rural character and amenity
- Positive effects

6.1 Productivity/versatile soils

Mr Alex Smith prepared evidence for the PC1 hearing on the productivity of the land and its suitability for residential development.

He states that:

'The main farming uses on the block are all of low intensity, with pasture predominating. An area along Selkirk Place, surrounded by poplars had cereals developing when last examined and the dwellings have associated gardens and amenity plantings. One hectare of orchard remains approximately halfway along the Hawkins Road boundary.'

He goes on to note:

A series of soil maps have been produced by the Soil Bureau of the DSIR over the years. These generally show the higher soils of the block to be a Waimakariri Sandy Silt Loam. The lower soils are generally classified as Tai Tapu Clay Loam. There is a long interface between these two soil types across the block.'

And then comments:

'I consider that approximately 1/3 of the site is Waimakariri Sandy Silt Loam. Approximately 1/3 of the site is an interface between Waimakariri Sandy Silt Loam and Tai Tapu Clay Loam. The remaining 40% of the site is Tai Tapu Clay Loam. The characteristics of the Waimakariri sandy silt loam are that it is free draining soil with the depth and water holding capacity to be considered a Class 1 soil under the Land Use Capability (LUC) Classification System. The Tai Tapu Clay Loam is a soil with significantly impeded drainage. This impeded drainage profile means that these soils become wet throughout the profile during most winters and during any time when extended rainfall occurs.'

A characteristic of the interface soil areas is that Waimakariri sandy silt loam, exists as a veneer over a Tai Tapu Loam type soil on some of this site. These interface areas also become difficult to work during most winters and for a considerable time after extended rainfall. On the other hand, much of the other interface areas are a mixture of soils somewhere between the Waimakariri Sandy silt loam and the Tai Tapu Clay loam type soil.'

It is considered that the Mills Hills Block is of limited use as productive rural land. It is noted that:

- The land is largely used for lifestyle blocks which are agriculturally uneconomic
- The changing economic environment means that small scale productive uses are uneconomic

- The surrounding area has already undergone change from being largely rural to lifestyle blocks.
- The loss of this land in terms of the wider Canterbury land resource is insignificant.

Mr Alex Smith's evidence presented at the PC1 hearings with regard to the inclusion of the Mills/Hills land within the urban limits, provides a succinct summary of the issues surrounding rural productivity effects of development of the subject land. He identifies the challenges faced by farmers of the land, and outlined the economics involved in as to whether land can be considered to be productive. He notes that

'in the Mills Road Group area horticultural and intensive agricultural farming and cropping has become largely uncompetitive'.

The Marshlands area has traditionally been an area utilised by intensive agriculture and horticulture. Mr Smith does however note that most horticultural growers have moved out of this area to more distant areas. He states:

'There are a range of factors which give an efficiency advantage to sites more distant from Christchurch. This includes matters such as bigger areas of single soil types, easier management, more reliable production, less pests and disease, lower lease and servicing costs and fewer neighbouring properties.'

He goes on to recognise that he can:

'...see no prospect of any technical or planning conditions changing sufficiently for growers to move back'.

It is clear then, that the productivity of the land is already significantly compromised, chiefly through the attractiveness of alternative sites, the state of the soils, and its proximity to existing residential activities. Mr Smith concludes that:

'...the block of land is no longer competitive for agricultural and horticultural use and has no features of sufficient importance to require preservation.'

Having regard to Mr Smith's comments relating to the productivity of the land and its likelihood of being utilised for future economic rural uses, it is considered that the effects of utilising the land for residential purposes, with the resultant loss of rural productivity will be no more than minor.

6.2 Contaminated land issues

Golder Associates has carried out an assessment of the site in order to assess the potential presence of contamination and whether the site is suitable for residential development. Their full assessment is attached as **Appendix 7**. The investigation carried out by Golder is supported by an initial assessment by David Ogilvie and Partners Limited (2009), attached to the Golder report.

The site has historically been used for agricultural purposes, and data relating to historical uses has been utilised to indicate likely areas of potential contamination. Market gardening and orchards represent land that is most likely to be subject to potential contamination.

The Canterbury Regional Council (Ecan) hold a Listed Land Use Register (LLUR) which holds information comprising those sites which are or have been used for activities that could cause contamination. None of the proposed plan change block is listed in the LLUR. CCC information notes only the presence of septic tanks.

In conclusion the Golder report identified potential for limited activities on the site that could have caused contamination in the past. The report concludes that:

'It is considered that the site is likely suitable for its intended residential end use, however to confirm this, further testing of the soils should be carried out as a condition of consent.'

Should testing find areas of contamination, these will be able to be fully remediated prior to the subdivision of land and the construction of dwellings. It is considered that, should isolated pockets of contamination occur, effective remediation techniques will be employed to mitigate against any potential adverse effects.

In terms of methodology for the mitigation of potential contamination effects rules are proposed to ensure that a detailed assessment of potential contamination of the site will occur prior to subdivision. These rules are to be contained within the subdivision section of the Plan and will ensure that there will be sufficient certainty that the effects of potential contamination on the outcomes sought by the plan change will be no more than minor.

6.3 Geotechnical matters

Due to the earthquakes of September 2010, February 2011 and June 2011, a geotechnical assessment was carried out over the site by Golder Associates, and is attached as **Appendix 6** to this application. The report concludes that while there were small areas of liquefaction over

the site, they were considered to be manageable and would not affect any residential development over the Plan Change area. It has been noted that at the construction phase of the development, specific engineering methods will need to be employed to further mitigate the risk of liquefaction; however, these methods are not considered to be any different than what is required over large areas of Christchurch.

6.4 Ecological effects

An ecological assessment has been carried out over the site by Golder Associates, and is attached as **Appendix 8** to this application. The report identifies that the potential adverse effects of development include:

- Sediment additions during construction
- Fish standings' and mortality during any drain realignments
- Impacts of stormwater discharges on water quality and hydrology

The report then goes on to conclude that all of these potential effects can be avoided or mitigated using appropriate construction techniques and sound environmental management.

6.5 Servicing effects

Sewer reticulation

Details of the existing sewage disposal methods in the vicinity of the site and the proposed solutions are provided in the PDO servicing strategy attached as **Appendix 12**.

The assessment considers the current sewer network, and potential changes to this that are occurring in response to the Canterbury Earthquake.

The final sewage disposal solution chosen for the site is dependent on the outcome of modelling currently occurring. While a permanent solution is being developed, a range of options are possible for the initial stages of development and are fully discussed in the PDP assessment.

Having regard to that assessment, in terms of sewage disposal it is considered that the site will be able to be adequately serviced.

Stormwater reticulation

PDP have undertaken a detailed analysis of the stormwater requirements on site and have utilised modelling undertaken by GHD to ascertain these requirements. They have also been in discussion with the CCC's consultants who are currently preparing an Integrated Catchment Management Plan (ICMP) for the Styx catchment. PDP note in their assessment that they have adopted the same methodology used by the CCC for the Styx ICMP. The PDP assessment identified the preferred stormwater management option as:

'The preferred stormwater management option for the site consists of a first flush treatment system consisting of a dry basin followed by a constructed wetland, along with detention storage. These would be sized to treat the runoff resulting from the first 25 mm of rainfall. Stormwater detention to match pre and post development flows would be provided. CCC staff (Ken Couling pers. comm., August 2011) have indicated that they are willing to consider a system which only provides for detention storage above the treatment level in both the wetland and the first flush basin. This would only provide partial storm detention storage. This would only be possible if CCC are willing to allow any further flood storage in the Styx ponding area. For the purposes of the Plan Change the stormwater management areas shown on the outline development plan include total detention storage. In the absence of good groundwater level data the areas shown have been based on an average depth of the first flush basin and detention storage of 1.0 m. These treatment and detention facilities will be offline from Horners Drain so they can manage runoff from the development but not the other runoff that discharges into Horners Drain.'

The PDP report does recognise the flooding issue that currently affects the southernmost portion of the site. Solutions involving the regarding of Horners Drain are anticipated, but in order to ensure an appropriate and adequate solution, the development of the southernmost portion of the land will be deferred until such time as a solution is determined.

The PDP report also considers the issue of staging of the development and identifies solutions for the management of the development and Horners Drain on an interim basis, until such time as enough of the site is developed so that the final solution can be implemented.

The assessment considers the likely effects of the stormwater discharge of the site both during and post development. The assessment concludes that:

'...the treatment system proposed should result in a high quantity of discharge with bio-available concentrations of contaminants that will not impact on the water quality in the Styx River'.

In conclusion, and having regard to the fact that the relevant discharge and land use consents will be required to be obtained from Environment Canterbury prior to any development taking place on site, it is considered that the potential effects of stormwater treatment and discharge will be able to be effectively managed and that the receiving environments of Horners Stream and the Styx River will not be adversely affected by the proposal and will in fact be enhanced by the proposed development. Furthermore, the ODP indicates the appropriate locations for stormwater treatment disposal and provides an effective framework through which stormwater issues will be managed.

Water reticulation

The PDP report attached as **Appendix 12** to this application considers the ability to provide sufficient reticulated water to service the site. It considers the opportunity to drill a new well to service the site with a reticulated water supply. It is considered that this form of water supply will be viable and will provide water to the site without any potential for adverse effects on the environment.

6.6 Traffic effects

Abley Consultants have prepared a comprehensive assessment of both the existing and proposed traffic networks that service the site and surrounds. Their full report is attached as **Appendix 10**.

The traffic assessment discusses the proposed roading patterns within the site and provides diagrams identifying the size and features of the proposed roads within the development. The assessment then goes on to consider the level of provision for walking in cycling within the site and concludes that the designs proposed to encourage walking and cycling are appropriate. The report also recognises the importance of a connection to the south in the future.

In terms of safety, the report acknowledges that the development will increase the number of vehicles travelling on the transport network in the vicinity of the site. It notes the importance of mitigation measures to lessen the potential for crashes.

In terms of internal roads and intersections, the report concludes that given specific design, road safety issues are not expected to arise within the site.

The assessment also considers the issue of integration with adjoining land. It is concluded however, that severance effects can be effectively dealt with through the connections proposed. In terms of effects, it is concluded that the whilst the traffic environment will change as a result of this plan change, that the proposed plan change will have a manageable effect on the environment and is an appropriate use for the land that can occur without adverse effects on the wider traffic environment.

6.7 Reverse sensitivity effects

The City Plan identified the potential for reverse sensitivity effects in situations where increased residential development is proposed adjoining rural and business land uses.

Reverse sensitivity arises when a new incompatible activity is introduced into an environment which has the potential to limit the operation of existing activities. The concept of reverse sensitivity has evolved through a number of cases and articles to become a label for a type of effect which should be considered by planning decision-makers.

It is considered that there is potential for reverse sensitivity effects in the following locations:

- Where new residential development is to be located near the western motorway corridor
- Where new residential development is to be located near the existing Queen Elizabeth II Drive ring road
- Where new residential development is located near to rural zoned property located on the east side of Hills and Hawkins Roads
- Where new residential development adjoins the proposed deferred residential zoned land to the south of the site, until such time as the deferral is lifted and the land is also developed for residential purposes.
- Where residential development will be located near existing rural properties within the proposed Living G zone, including those landowners that are supporting the application and those landowners that do not support the rezoning.
- Where the proposed neighbourhood centres/business nodes (Business 1) will adjoin residential development, there must be measures in place to ensure that the business development can operate largely unencumbered by its proximity to proposed residential development.

Mitigation measures to mitigate against potential reverse sensitivity effects include:

Effect	Mitigation measures/ assessment of the scale and intensity of the effect
Effects of development on NZTA designations	The proposed change in zoning will comprise features that will mitigate against potential reverse sensitivity effects that may affect the operation of the NZTA designations.
Effects on existing rural land across Hills and Hawkins Roads from the subject site	A building setback of 10m is proposed from Hills and Hawkins Road, so all future dwellings will be set back by the width of Hills and Hawkins Road, plus 10m, which is considered to be sufficient to mitigate against any adverse rural reverse sensitivity effects. In any case, it is noted that future occupants of sites within the new proposed residential area will be aware at the time of purchase of their site's proximity to rural land. Within this setback requirement, a further requirement for 5m of landscaping will further enhance the urban- rural boundary.
Effects on existing dwellings and operations within the subject land	The potential impacts in term of reverse sensitivity effects on existing dwellings and farming uses have been considered in the landscape assessment attached in Appendix 9 . In terms of issues of drainage and earthworks, engineering design will be required at subdivision stage to ensure that effects on those properties that are not part of the development will be mitigated.
Effects of residential development on proposed neighbourhood centres	Neighbourhood centres/business nodes (Business 1) within the site are to be zoned Business 1, which is a low impact form of commercial zoning designed to be located in close proximity to residential uses.

6.8 Cultural and heritage effects

An archaeological assessment has been carried out by Emma Brooks of Southern Pacific Archaeological Research. The assessment focused on determining whether the subject site was likely to contain archaeological sites of interest.

The assessment found no archaeological sites recorded in ArchSite within or near the proposed development footprint, however the presence of middens in the lower reaches of the Styx River indicates that the river was used by Maori in the past. The assessment concludes that the possibility of further sites near the river can not be discounted.

The assessment goes on to note that there is potential that the drains that run through the site may have been built in the nineteenth century, but that they will have been significantly modified from their original form, to the extent that very little remains of their nineteenth century construction.

In conclusion Ms Brooks makes the following statements regarding the archaeological values of the site:

'We consider the overall archaeological values of the development parcel to be low. The land was too swampy to have been attractive before or during the early period of European settlement in Christchurch; and even following the construction of major drains the land appears to have largely remained as farmland with residential development only occurring around the fringes. The drains may have minor archaeological interest in terms of their locations and how they were constructed but they have been modified over time and it is unlikely that any original "fabric" remains. The gorse and bank fences are of somewhat more archaeological significance but this is difficult to assess within our assigned timeframe. We believe that they are more common in Canterbury than elsewhere in New Zealand – and probably have historical significance in terms of their roles as boundary markers in the district. It is possible that these fences also had ditches along the base that would have acted as stock barriers and also would have drained water into the major drainage system. In any case, we cannot tell without a site visit whether any of the gorse-and-bank fences are still present.'

Two recommendations are proposed. Policies within the Plan will ensure that archaeological matters as recommended will be dealt with at subdivision stage.

- 1. That prior to the commencement of earthworks on the property a walkover should be carried out by an archaeologist to identify whether any archaeological features are visible. This should be done well-ahead of time so that an application for archaeological authority can made to the NZHPT in advance if necessary.*
- 2. That an accidental discovery protocol be established to provide a set of procedures for contractors working on site in the event of an archaeological find.*

In conclusion, it is considered that further assessment will be appropriate at subdivision stage, and that an accidental discovery protocol should be adhered to. In terms of this Plan Change application, given that the assessment has found that significant archaeological values are unlikely to be found at the site, the effects of the plan change on the archaeological values of the site will be no more than minor.

6.9 Ownership effects

Often a significant hurdle for the development of Greenfields land located in close proximity to urban areas is the fragmented ownership that characterises land utilised for small scale market gardening style uses and lifestyle blocks. Fragmented ownership has the potential to create difficulty in ensuring a practical, connected and integrated residential development can occur. Fragmented ownership has the potential to result in isolated development, with poorly conceived infrastructure design, that is focused on ensuring that an individual's economic needs are met, instead of ensuring that a wider approach is taken.

The careful management of owners' individual goals and aspirations is important to ensure that a collective approach is taken to problem solving, and that a triple bottom line approach is taken, instead of a focus on the financial bottom line of individuals. It is vital to recognise that a better environmental outcome will result if resources are pooled and if ideas and concepts are shared.

The plan change area is currently in the ownership of 47 different parties. Figures 29 and 30 below show the current ownership of the land.

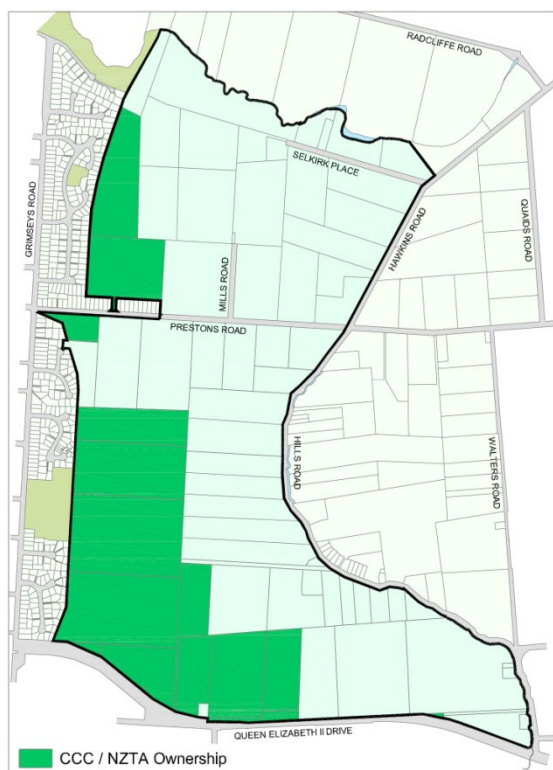


Figure 29- NZTA and CCC Ownership

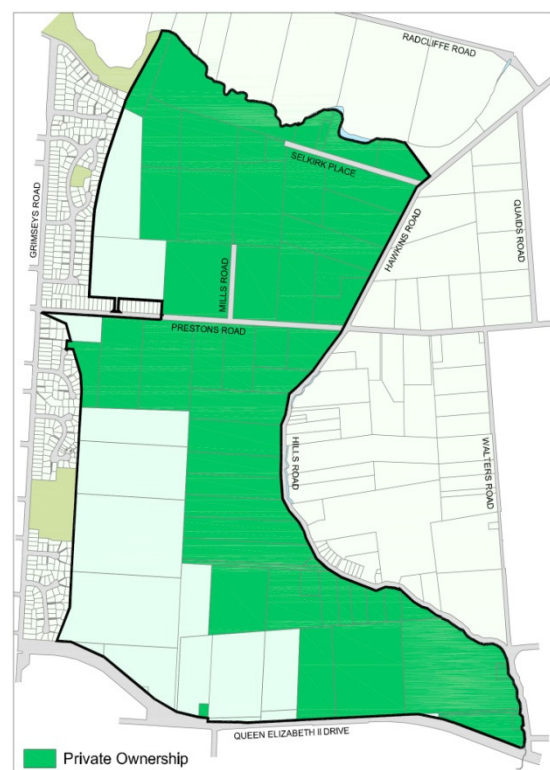


Figure 30 - Private Ownership

The site contains significant areas of land owned by the Christchurch City Council and the NZTA. NZTA owns land in the west and south of the subject site. The reason for their ownership is to facilitate the construction of the proposed northern motorway corridor and its associated on-ramps and off ramps, as well as to provide for the further development of Queen Elizabeth II Drive in the future. Their land ownership extends to allow for the treatment and disposal of stormwater from the motorway corridor. Draft concept plans have been provided to the Applicant by NZTA, in order to assist the Applicant in understanding existing and future requirements of the NZTA. These are included in **Appendix 16** to this application.

These show indicative locations for stormwater management facilities although NZTA has indicated that their studies into the motorway corridor and its requirements in terms of land are indicative and will require further refinement.

Approximately 140ha of the total land area is under the control of the Applicant. This equates to approximately 54% of the proposed Living G zone area. If the proposed deferred land is not included in the calculations, the Applicant is in control of approximately 66% of this land.

The high level of cooperation between land owners provides certainty that the proposed plan change can be implemented in a successful manner. Development is intended to be staged, starting with land adjacent to Prestons Road, and as such, it is considered that the multiple ownerships will not detrimentally affect the ability of the land to be successfully and coherently developed.

6.10 Social effects

In assessing the likely social effects of the proposed plan change, extracts were taken from the statement of evidence of James Baines of Taylor Baines Associates which was prepared as evidence for the landowners comprised in the Mills/Hills block in regard to Proposed Plan Change 1 and Variations 1-4 of the Canterbury Regional Policy Statement.

It is considered that the plan change would be capable of a reasonable degree of internal self sufficiency in terms of access to local amenities and convenience services.

Mr. James Baines evidence prepared for Proposed Change 1 and Variations 1-4 of the Canterbury Regional Policy Statement concluded that future residents living in a new community such as the proposed subdivision would be living in a locality that is well connected to adjacent suburban neighbourhoods. Mr Baines in his evidence said that a new Key Activity Area is proposed for the northern part of the city. A large number of residents living in a

neighbourhood within a 2 kilometre radius of a key activity centre can expect to find work locally. The layout of the subdivision encourages physical activity and social interaction with accessibility to recreational spaces like pocket parks, wetland areas and the Styx River. The range in type and size of sections within the plan change area supports a social mix of young and old, single and family units. The residents will have access to several primary and pre-schools within 2 kilometres and an integrated secondary school and state secondary school within 3 kilometres and access via public transport to City schools.

The plan change site is supported by the proximity to several existing and emerging employment nodes offering considerable choice of employment type including retail, industrial and the primary sector in the Marshlands Road area. The Belfast Supa Centa is already a substantial focal point for employment in northern Christchurch and its elevation to a Key Activity Centre in the future can be expected to increase this role significantly. Future residents of the subdivision will be well placed to take advantage of employment opportunities.

Future residents will enjoy a high quality physical environment as a result of good neighbourhood design with a focus on open spaces. The community identity and sense of place will be reinforced by clear neighbourhood boundaries and the strong feature of the rejuvenated Styx River on its northern boundary.

The planned local shopping centre in Northwood has recently been granted resource consent and will provide access to neighbourhood level convenience stores and services in addition to the nearby Supa Centre. There is also sufficient linkage across the railway line at Barnes Road to ensure that most households are within 800m walking distance of the Redwood shops and services.

The layout of roads, paths and cycle ways demonstrates a high degree of local connectivity. The whole residential area conforms to realistic expectations of walkability.

In summary a residential subdivision of this size and type would be capable of a reasonable degree of internal self sufficiency comparable with other established residential neighbourhoods in Christchurch in terms of access to local amenities and convenience services and in terms of having the basis for having a distinct community identity to support social cohesion and the formation of community groups as occurs elsewhere in the City.

Future residents of the proposed subdivision would experience themselves as living in a locality that is as well connected to its adjacent areas as other suburban neighbourhoods in the vicinity of the future Belfast Key Activity Centre. Access to amenities and services to town level

amenities and services usually associated with a Key Activity Centre would in due course be readily available and accessible to the future residents of the subdivision. Ready access exists to a range of employment opportunities in retailing, office work, professions, industrial activities and primary production locally as well as elsewhere in the City.

The social effects of the subdivision are positive and encouraging.

6.11 Retail distribution effects

The Plan Change provides the ability to establish two neighbourhood centres/business nodes (Business 1), with a northern business node and a southern business node. The Plan Change allows for zoning to occur to allow for typical Business 1 style development, with a rule requiring that residential development is not located on the ground floor, and that requires that any addition over 100m² is assessed in terms of design and appearance.

The site (where it abuts Prestons Road) is approximately 3.3kms by road to Northlands Mall, 2.7km by road to the Northwood Supa Centre, and approximately 5.2km by road to The Palms shopping mall.

Other smaller centres include local strip shops on Main North Road that serve the existing suburb of Redwood. The rezoning of approximately 1.6ha of land for Business purposes will not have a negative effect on these existing retail offerings.

Neither the northern and southern business nodes are large enough, either individually or collectively, to cause adverse retail distribution effects. The small scale of the nodes and their location away from Prestons Road, will limit the use of the sites for large high customer activities such as supermarkets. Given the small scale and Business 1 requirements for parking and access, it is considered that the proposal will have no adverse retail distribution effects.

The Council commissioned an assessment of the application (Highfield Park Retail Overview), by Property Economics, which is attached as **Appendix 21** to this application. It confirms that the effect of the small retail component of the development is appropriate.

6.12 Rural character and amenity

The subject site is presently zoned Rural 3, but adjoins Living 1 zoned land within Redwood and the Redwood Springs subdivision to the west. The existing landscape character of the area is mixed, with a predominantly rural favour, and a predominance of open space over buildings,

with rows of mature trees and hedging. The site can be viewed from the roads surrounding the site, where vegetation permits, and views are also obtained from the dwellings that adjoin the site to the west. It must be noted however, that the western boundary of the site is designated for a future motorway link, and as such, views of rural space from those properties along the edge of the current urban interface will be restricted with time.

The rezoning of the land to residential will result in a significant change to the character of the land, which will, once developed, become interconnected by visually and spatially with the existing residential area. The linkage of the site with the existing area will be restricted somewhat by the located of the future roading environment, but a number of linkages to encourage connectivity will ensure that the effects of this will be minor. Visually, the actual effect of the motorway is unavoidable, and will be the same whether or not the land is developed for residential purposes.

Morgan and Pollard has prepared a landscape assessment and has also provided some key concept plans for the future development of the site. The assessment identifies the key landscape features of the site and investigates the extent to which the proposed development of the land will affect both the site and its surrounds. The landscape assessment also carefully considers the impact of the development on the existing dwellings that are likely to be retained within the site.

The assessment makes recommendations relating to types and forms of landscaping, and suggests setbacks and buffer zones where appropriate. It is considered that these mitigation measures will assist in reducing effects on neighbouring properties, and will ensure that a pleasant and high quality urban landscape, characterised by planting and open space will result from the development.

The assessment draws the following conclusions:

- Inherent landscape values of the site – pertaining to the rural, rural lifestyle character – will be replaced by the proposed change in land use
- The proposal will alter views and visual amenity as experience from surrounding roads
- The proposal has the potential to generate environmental benefits – particularly those related to native plant communities and ecology
- The proposals will result in enhanced amenities and recreational opportunities for residents within the development as well as for many of the residents within nearby neighbourhoods.

A copy of the landscape assessment is attached as **Appendix 9** to this application. It is considered therefore, that while the visual character of the land will change, that the eventual environmental outcomes permitted by the proposed Plan Change will result in landscape effects that are not significant.

6.13 Positive Effects

The proposed plan change represents a development that will provide a pleasant, safe and connected living environment for its inhabitants. The development is to be established in a comprehensive manner, so that the best possible environmental outcomes can be achieved.

The development will:

- Produce a living environment that provides for a range of different residences in terms of scale, design, and functionality
- Enable the improvement and enhancement of Horners Drain and the Styx River corridor
- Mitigate against effects of the future northern motorway extension
- Provide for best practice examples of road treatment
- Be enhanced by attractive and comprehensive landscaping
- Have appropriately located entrances and exits, and allow for good connectivity between living environments and within environments
- Allows for a variety of connections with adjoining living environments and nearby business centres such as the Styx.
- Provides ample opportunity for passive and active recreation through a network of usable open spaces
- Provide for the economic wellbeing for the current and future owners of the site and the developers
- Be large enough to support small scale local business areas
- Be large enough to sustain an active and vibrant community
- Provides options for new living environments for the people of Christchurch, particularly those who have been displaced by the recent Canterbury earthquakes.

It is considered that the proposed plan change will have, on balance, a positive effect on the environment, and the structuring elements proposed, will provide for a solid framework that is detailed enough to ensure that a high quality living environment is established, while still providing opportunity for individual expression.

6.14 Effects conclusion

In summary, it is concluded that having regard to the comments above, and the supporting documentation found in the appendices to this report, that the overall effects of this proposal on the environment will be positive. Whilst a permanent change from rural character to urban character will be advanced through this plan change, the net results in terms of stormwater solutions, ecological benefits, and most significantly, in the provision of much needed suitable land in the wake of the Canterbury earthquakes, represents the fact that the development of the land for residential purposes would be consistent with the goals of the RMA and has no effects on the environment that can not be avoided, remedied or mitigated in an appropriate manner.

7.0 Legal Framework

The Resource Management Act (1991) (the Act) is the principal legislation for the management of the natural and physical resource of New Zealand. The Act provides a framework within which a privately initiated plan change may be exercised. This includes an evaluation under Section 32 of the Act and the matters set out in Schedule 1 to the Act.

7.1 Part 2 – Resource Management Act Matters

The proposed plan change is subject to the provisions of Part 2 of the Act, which sets out the purpose and principles that guide this legislation.

Section 5 – Purpose

The term “sustainable management” is defined in the RMA as meaning:

“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 well-being 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, or mitigating any adverse effects of activities on the environment.”*

Section 5 of the Act identifies the purpose of the Act as being the sustainable management of natural and physical resources. The proposed plan change is able to satisfy the purpose of the Act, by providing for residentially zoned land in an appropriate location for such a use. The proposed plan change will promote the integrated development of the land with any environmental effects able to be adequately controlled and mitigated through the use of the ODP and proposed rules.

The proposal to zone 260ha of land to Living G (Highfield), as well as establishing two neighbourhood centres/business nodes (Business 1), comprising 1.6ha of land, meets the enabling purpose of the Act. Further, the Act seeks that the development of land occurs in a way that ensures that any adverse effects of natural and physical resources can be mitigated whilst safeguarding the life-supporting capacity of air, water, soil and ecosystems.

The servicing strategy for the subject site provides evidence that the site can be adequately serviced whilst ensuring that the effects on the environment will be no more than minor, and that the receiving environment will not be compromised.

Section 6 - Matters of National Importance, of the RMA

“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 recognise and provide for the following matters of national importance:

- a) The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*
- b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*
- c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
- d) The maintenance and enhancement of public access to and along the coastal marine areas, lakes, and rivers:*
- e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*
- f) The protection of historic heritage from inappropriate subdivision, use, and development.”*

None of the matters of national importance are particularly relevant to this plan change given the site is located in a highly modified agricultural environment, immediately adjoining the suburb of Redwood.

Section 7 – Other Matters of the RMA

In achieving the purpose of the Act, all persons exercising functions and powers under it, in relation to managing the use, development and protection of natural and physical resources, shall have particular regard to:

- a) Kaitiakitanga*
- aa) the ethic of stewardship*
- b) the efficient use and development of natural and physical resources*
- c) the maintenance and enhancement of amenity values*
- d) Intrinsic values of ecosystems*

- e) *Maintenance and enhancement of the quality of the environment*
- f) *Any finite characteristics of natural and physical resources*
- g) *The protection of the habitat of trout and salmon*

Subsections b), c) and f) are considered to be relevant to the assessment of the plan change. The Plan Change represents the most efficient use of a land resource in close proximity to central Christchurch. The land has been found to be appropriate for development for residential purposes and the development of the land is consistent with the policy direction of the City Plan. The eventual urban environment proposed will provide an attractive living environment for displaced residents of Christchurch and the development of the land will enable the maintenance and enhancement of both Horners Stream and the Styx River Corridor.

Section 8 - Treaty of Waitangi

Section 8 of the Act requires the Council to take into account principles of the Treaty of Waitangi. It states:

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).

The Resource Management Act does not go so far as to define the principles of the Treaty that should be taken into account, but the Court of Appeal, the Waitangi Tribunal, and statements by Government, define the principles as including:

- Early consultation and acting in good faith;
- The principle of partnership; and
- The need for active protection.

The need for active protection of Taonga is an element that recognises the rangatiratanga principles. Consultation with local Iwi is underway. No formal response has yet been received.

7.2 Canterbury Regional Policy Statement (Operative)

The Canterbury Regional Policy Statement (RPS) is an important planning document, which provides for management of natural and physical resources through urban, rural and coastal areas of the Canterbury region. The RPS has been operative since 26 June 1998.

The Resource Management Act requires that privately initiated plan change requests are to be consistent with any regional policy statement or regional plan. Within the Canterbury Regional Policy Statement (RPS), Chapters 12 and 15 are considered to be particularly relevant to this proposal.

Chapter 12 relates to settlement and the built environment and the relevant Policies 1, 3, and 7 of this Chapter read as follows:

Policy 1: Promote settlement and transport patterns and built environments that will:

- a) *Result in increasingly effective and efficient use of resources, particularly energy*
- b) *Reduce the rate of use of non-renewable energy sources*
- c) *Minimise the adverse effects of emissions into the atmosphere resulting from the use of motor vehicles and building heating.*
- d) *Incorporate energy efficient approaches to building orientation, form and design.*

The site is currently underutilised rural land, located close to existing residential land. The provision of housing within the block will, given its close proximity to key activity centres and the city centre, represent a development that will encourage the efficient use of resources, by minimising transport use, and the development has been designed to ensure that each allotment benefits from solar gain and access to green space. The subject site is land that has been earmarked for growth, and represents the best use of the land.

The proposed rezoning will result in increasingly efficient and effective use of resources and the proposal is therefore consistent with Policy 1.

Policy 3: Encourage settlement patterns that will make efficient use of the regional transport network.

The subject site is located very close to the city centre and has easy access to key existing and future roading networks.

The ODP has been provided to identify a framework for the long term development of the site shows linkages across the site which will, once established, ensure that the site functions well in terms of the regional transport network. It is considered that the proposed plan change accords with Chapter 12, Policy 3 of the RPS.

Chapter 15 relates to transport, and Policy 1 of this chapter reads as follows:

Policy 1: Protect Canterbury's existing transport infrastructure and land transport corridors necessary for future strategic transport requirements by avoiding, remedying or mitigating the adverse effects of the use, development or protection of the land and associated natural and physical resources on the transport infrastructure.

The site subject to this proposed plan change is located in the suburb of Redwood, with easy access to the key transport routes of Queen Elizabeth II Drive and Main North Road. Inhabitants of the development will benefit from this location. The traffic assessment accompanying this plan change application confirms that the plan change will have no detrimental effect on the functioning of either the adjoining State Highways or the local traffic environment.

It is considered that the plan change proposal is consistent with the policy direction of the RPS.

7.3 Greater Christchurch Urban Design Strategy

The Greater Christchurch Urban Development Strategy (UDS) was adopted in June 2007 after a three year long consultation and development process, initiated due to rising concerns over the lack of collaborative planning and leadership to manage growth in the area in a sustainable way. The UDS is a bold and ambitious 35 year plan for managing urban growth and land use in Greater Christchurch, and aims to protect water, enhance open spaces, improve transport links, create more liveable centres and manage population growth.

The vision of the UDS is:

By the year 2041, Greater Christchurch has a vibrant inner city and suburban centres surrounded by thriving rural communities and towns, connected by efficient and sustainable infrastructure. There are a wealth of public spaces ranging from bustling inner city streets to expansive open spaces and parks, which embrace natural systems, landscapes and heritage. Innovative businesses are welcome and can thrive supported by a wide range of attractive facilities and opportunities. Prosperous communities can enjoy a variety of lifestyles in good health and safety, enriched by the diversity of cultures and the beautiful environment of Greater Christchurch.

The UDS provides a strategic direction for managing the growth of Greater Christchurch area, through the establishment of clear, robust, transparent accountable and integrated strategies, policies and processes. It also provides for the location of future housing development of social and retail activity centres, areas for new employment and integration with transport networks.

All relevant matters from the UDS, in terms of assessing the suitability of this Plan Change have been outlined in Proposed Change 1 to the Regional Policy Statement.

7.4 Chapter 12A of the Canterbury Regional Policy Statement

On the 17th of October 2011, the 1998 Canterbury Regional Policy Statement was amended as authorised by the Canterbury Earthquake Recovery Authority to include Chapter 12A.

Chapter 12A is based on Proposed Change 1 (which has now been revoked), but has been updated as a result of the recent Canterbury earthquakes. Chapter 12A provides direction for future growth within greater Christchurch by identifying areas available for urban development including specifying residential densities and provision for businesses. Although Chapter 12A promotes intensification of land use within existing urban areas, it also identifies appropriate areas for Greenfield developments to accommodate projected growth and population relocation.

Chapter 12A sets urban limits through Map 1, and requires territorial authorities to provide sequencing within those limits, and to restrain urban activities locating outside of those limits. Policies provide for form, design and outline development plans as a mechanism for integrated urban development. The application site has been identified in Map 1 as a Greenfield area, as shown in Figure 31 below.

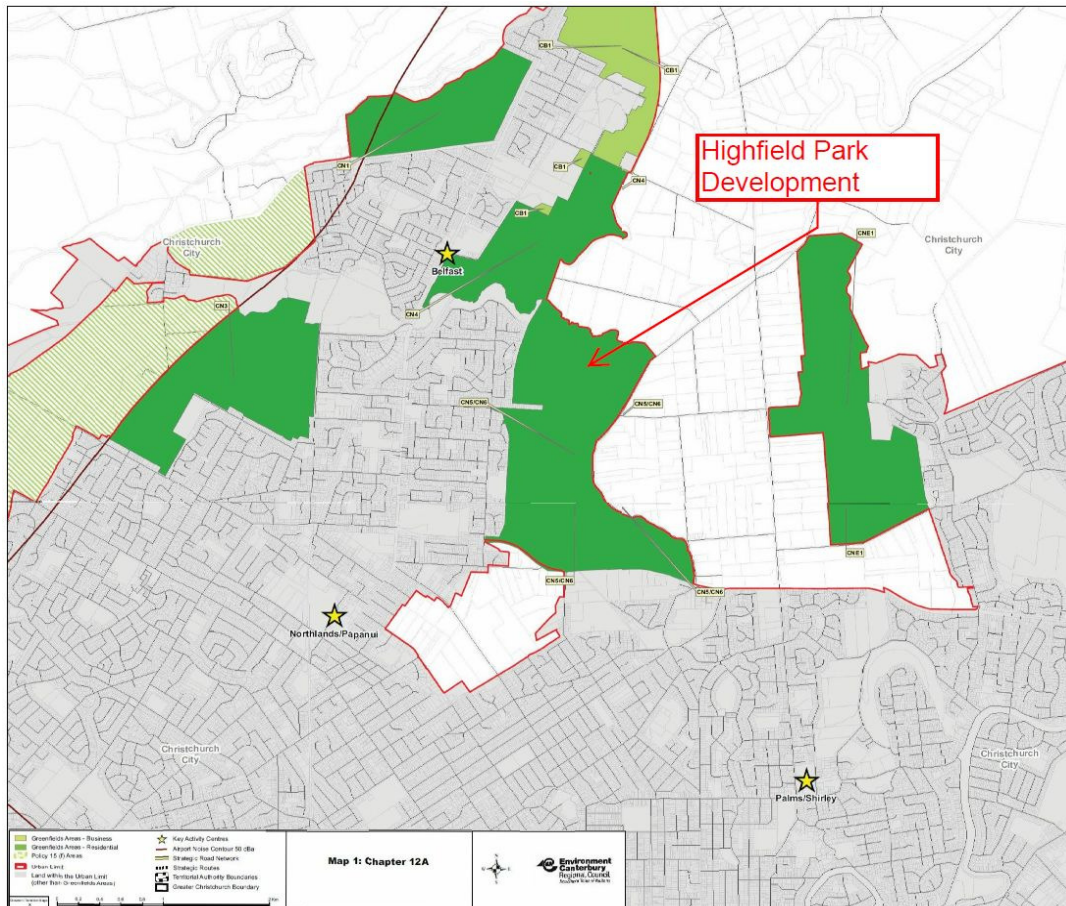


Figure 31 – Map 1 showing application site

Since the September 2010, February 2011 and June 2011 earthquakes, there is a heightened awareness of the risk of natural hazards and the need to avoid or mitigate such risks. The provisions of Chapter 12A are in accord with such approach.

7.5 Proposed Canterbury Regional Policy Statement

Environment Canterbury is reviewing the Regional Policy Statement (RPS), which came into effect in 1998. The Proposed Regional Policy Statement (Proposed RPS) addresses many important issues, including some related to the Christchurch earthquake recovery, such as developments near faults and other changes to amend existing provisions.

The Proposed RPS contains new policies relating to development near faults. Proposed policy 11.3 provides that 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. In order to achieve this, Environment Canterbury will:

- Assist the city and district councils to map "fault avoidance zones" and areas susceptible to liquefaction and lateral spreading.
- Make available any information it holds about natural hazards.

The Christchurch City Council and District Councils will be required to:

- Set out objectives and policies in district plans to manage new subdivisions and the use and development of land in areas on or adjacent to an active earthquake fault trace and in areas susceptible to liquefaction and lateral spreading.
- Ensure that earthquake fault rapture, liquefaction and lateral spreading hazards are assessed before any new areas are zoned for intensified development.

The review has reached the stage where the Proposed Regional Policy Statement (Proposed RPS) has been notified for public submission. It is unlikely that the Proposed RPS will be operative before 2013.

The application has been prepared having regard to the Proposed Regional Policy Statement and it is considered that the proposal represents the form of development anticipated by the Proposed Regional Policy Statement.

7.6 Natural Resources Regional Plan

The Natural Resources Regional Plan (NRRP) is the overarching regional plan to sustainably manage the region's natural and physical resources.

It is proposed to provide the development area with reticulated services that will not adversely affect any natural resources addressed in the NRRP. All relevant consents associated with the development will be applied for from Environment Canterbury (ECAN).

7.7 Mairehau-Cranford Area Plan

The Christchurch City Council is preparing an Area Plan for Mairehau-Cranford, one of the last rural areas close to the city centre.

Only 4km from the city centre, the Mairehau-Cranford Area Plan (MCAP) covers approximately 600ha. The area is a major supplier of market garden produce to Christchurch, in part because of its rich heavy soils and abundant water supply.

Most of the area is still rural in character, but in recent years there has been increasing pressure for urban development as the city grows. These growth pressures have resulted in the Council taking a closer look at the Mairehau-Cranford area. The Area Plan will help shape the way land use may change over the next 30 years.

As MCAP is only a Priority 2 area, progress on this plan has been deferred in order for the Council to focus on Priority 1 Area Plans, as well as the UDS and other key strategies. Work will commence on this area plan once these other strategies are completed.

Ivan Thompson of the Christchurch City Council has advised that any information that the Christchurch City Council holds regarding the MCAP would be dated, and that information available was more in relation to development around Cranford Basin, and the Highfield Park area was only included as Horners Drain was proposed to be used as a means of disposing stormwater to the Styx River.

8.0 Section 32 Analysis

Section 32 of the Resource Management Act 1991 sets out the manner in which any proposed objective, policy, rule or other method is to be evaluated.

Section 32 states that:

- 1) *In achieving the purpose of this Act, before a proposed plan, proposed policy statement, change, or variation is publicly notified, a national policy statement or New Zealand coastal policy statement is notified under section 48, or a regulation is made, an evaluation must be carried out by—*
 - (a) the Minister, for a national environmental standard or a national policy statement;*
 - or*
 - (b) the Minister of Conservation, for the New Zealand coastal policy statement; or*
 - (c) the local authority, for a policy statement or a plan (except for plan changes that have been requested and the request accepted under clause 25(2)(b) of Schedule 1; or*
 - (d) the person who made the request, for plan changes that have been requested and the request accepted under clause 25(2)(b) of Schedule 1.*

- 2) *A further evaluation must also be made by—*
 - (a) a local authority before making a decision under clause 10 or clause 29(4) of Schedule 1; and*
 - (b) the relevant Minister before issuing a national policy statement or New Zealand coastal policy statement.*

- 3) *An evaluation must examine—*
 - (a) the extent to which each objective is the most appropriate way to achieve the purpose of this Act; and*
 - (b) whether, having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives.*

- 3A) *This subsection applies to a rule that imposes a greater prohibition or restriction on an activity to which a national environmental standard applies than any prohibition or restriction in the standard. The evaluation of such a rule must examine whether the prohibition or restriction it imposes is justified in the circumstances of the region or district.*

- 4) *For the purposes of the examinations referred to in subsections (3) and (3A), an evaluation must take into account—
 - (a) the benefits and costs of policies, rules, or other methods; and
 - (b) the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods.*
- 5) *The person required to carry out an evaluation under subsection (1) must prepare a report summarising the evaluation and giving reasons for that evaluation.*

This Plan Change request does not seek to change the objectives of the Christchurch City Plan, but merely seeks to assess whether the provisions proposed to be included with the City Plan are the most appropriate to achieve the relevant objectives of the same.

The relevant matters with relation to efficiency, effectiveness, costs and benefits and any potential risks arising due to uncertain or insufficient information are outlined below.

8.1 Section 32 assessment methodology

The methodology adopted in carrying out this assessment is as follows:

1. Review of background to and scope of this proposed plan change.
2. Identification of the issues associated with this proposal.
3. Consideration of the existing objective and policy framework of the Christchurch City Plan.
4. Consideration of proposed PC61 objectives and policies of the Christchurch City Plan.
5. Carry out an evaluation of the efficiency and effectiveness of the proposed plan change in relation to other methods.
6. Consider the appropriateness of the proposed plan change in meeting the objectives and policies of the Christchurch City Plan.

8.2 Objectives and policies assessment

The policy framework that must be considered in the assessment of the proposed plan change contains several layers. Local authorities, when assessing a private plan change, are required to consider under Section 32, any objectives, policies, rules or other methods proposed.

Section 5 of this application contains a 'rules package', that is, a set of requirements, containing policies, rules, assessment matters and reasons for rules that together, and in conjunction with the Outline Development Plan and network layer diagrams, provide the framework under which all development of the land must occur.

The Living G form of zoning is one that has relatively recently gained favour with the City Council, and is considered by the Council to enable development whilst providing a degree of flexibility. Living G zones typically relate to a site specific set of rules and policies which allow for development to occur.

8.3 Objectives and policies of the Christchurch City Plan

Chapter 6 URBAN GROWTH	
<p>6.1 Objective : Urban Consolidation To accommodate urban growth with a primary emphasis on consolidation.</p>	<p><i>High effectiveness and efficiency.</i> The development of the Highfield block achieves the City Plan goal of consolidation by providing for a large development adjoining existing residential development, and in a location that is significantly closer to the central city than other development options.</p> <p>The development of the subject site will encourage urban consolidation through the ability to reduce car-borne trips, given the site convenient distance from schools, reserves and key activity centres. The development emphasises a compact form of development while allowing for housing choice. It is considered that the proposal to develop the land for residential housing is consistent with Objective 6.1 of the Plan.</p>
<p>6.1.1 Policy : Population densities To provide for a gradual increase in overall population density within the urban area through:</p> <ol style="list-style-type: none"> 1. Providing for higher densities near the central city and consolidation focal points; and 2. Enabling new peripheral development where it is consistent with a consolidated urban form; and 3. Promoting opportunities for higher building densities in larger areas of peripheral urban housing growth. 	<p><i>High effectiveness and efficiency.</i> The development of a large number of lots will allow for the increase density sought by the Plan while still allowing for displaced residents to enjoy a high quality urban environment characterised by reserves and planting. The proposed subdivision seeks to provide a variety of dwelling densities, and as such the proposal is consistent with Policy 6.1.1.</p>
<p>6.1.2 Policy : Redevelopment and infill To promote development of vacant land, and redevelopment and more intensive use of the land area as a whole, in a manner consistent with maintaining and improving the character</p>	<p><i>High effectiveness and efficiency.</i> The proposal allows for the development of vacant land and encourages more intensive and efficient use of the land while ensuring that high amenity values</p>

<p>and amenity values of neighbourhoods and the quality of the built environment.</p>	<p>are standard, and that high quality housing will result.</p> <p>The proposed plan change represents an effective methodology to achieve the development of vacant land that is appropriate for development.</p>
<p>6.2 Objective : Business activity and urban growth Patterns of land use that promote and reinforce a close proximity and good accessibility between living, business and other employment areas.</p>	<p><i>High effectiveness and efficiency.</i> The subject site is located close to large key activity centres, but also provides for local community business uses that will complement the neighbourhoods that will be created and provide local business and employment opportunities. Excellent pedestrian and cycle networks will encourage the success of these business developments.</p>
<p>6.2.2 Policy : Suburban centres To encourage a continuing distribution of compact suburban centres that provide for the needs of the City and its communities in a manner that minimises adverse effects on the transport network and the amenities of living environments.</p>	<p><i>Medium to high effectiveness and efficiency.</i> The provision of neighbourhood centres/business nodes (Business 1) within the development will reduce vehicle movements, while large shopping destinations are close and can be reached with ease.</p>
<p>6.3 Objective : Peripheral urban growth Peripheral urban development of a scale and character consistent with a primary emphasis on urban consolidation; which avoids, remedies or mitigates adverse impacts on water, versatile soils, significant amenity values and other natural resources; and which makes efficient use of physical infrastructure.</p>	<p><i>High effectiveness and efficiency.</i> The development represents peripheral urban growth and has been designed to ensure that potential adverse effects on water, versatile soils, significant amenity values and other natural resources are avoided, remedial or mitigated.</p> <p>The development will enhance the environment through an innovative design, which solves problems for the wider area in terms of drainage, and will make efficient use of land which is identified as being marginal for economic rural uses.</p>
<p>6.3.1 Policy : Urban boundary To ensure peripheral urban growth does not occur in a form detached from current urban boundaries, or which promotes a dispersed and uncoordinated patter of development.</p>	<p><i>High effectiveness and efficiency.</i> As discussed both by Mr Baines and Mr Penney in their PCI evidence, the careful designs of the development, and scale of the development ensures that the subdivision is neither physically nor socially detached from the adjoining</p>

	residential area. The development will be able to proceed in a coordinated manner, and as such is considered to be consistent with Policy 6.3.1
<p>6.3.2 Policy : Infrastructure costs To encourage growth in areas (and in a manner) that ensures that any adverse effects on the roading network can be avoided or mitigated, and the costs of providing public infrastructure are minimised; and that costs attributed to particular developments are met by the developer.</p>	<p><i>High effectiveness and efficiency.</i> While this development will involve some extensive infrastructure work and some upgrading of various networks, its sheer scale and proximity to both the city centre and existing residential areas make the site an efficient proposition for land development.</p> <p>The design of the development reflects the existing neighbouring development, and the subdivision has been designed to support best practice infrastructure design standards. The proposal is therefore consistent with Policy 6.3.2</p>
<p>6.3.3 Policy : Community facilities To encourage growth in areas where facilities already exist and have the potential to accommodate additional demand.</p>	<p><i>High effectiveness and efficiency.</i> As identified in the assessment of effects, the subject site is well placed to provide for the use of existing community facilities. As such, the proposal is consistent with Policy 6.3.3.</p>
<p>6.3.4 Policy : Versatile soils When considering the sustainability of urban expansion into rural areas, it shall be assessed in accordance with Policy 2.1.1.</p>	<p><i>High effectiveness and efficiency</i> The proposal has been considered in detail by Mr Smith and in his PCI evidence he makes it clear that the land is suitable for development, having had regard to the matters which preclude it from being successfully and economically utilised for rural purposes.</p>
<p>6.3.5 Policy : Natural values To avoid urbanisation of the land which is of outstanding landscape quality is ecologically significant, or which detracts from the margins of waterways or the coastline.</p>	<p><i>High efficiency and effectiveness</i> The subject land does not contain any land recognised as having outstanding landscape quality and the development will be designed to mitigate any effects on the margins of the Styx River corridor. The proposal is therefore consistent with the Policy 6.3.5.</p>
<p>6.3.6 Policy : Hazards To ensure that development is avoided, or limited in a scale or density in areas subject to natural and other hazards, particularly flooding,</p>	<p><i>Medium to high effectiveness</i> The proposed land has been the subject of a detailed geotechnical assessment, with particular regard to the potential for land</p>

<p>erosion, or potential sea level rise, unless these hazards can be adequately remedied or mitigated.</p>	<p>damage as a result of earthquakes. The geotechnical assessment concludes that the land can be successfully developed for residential development. The plan change achieves the purpose of this policy.</p>
<p>6.3.8 Policy : Incompatible rural activities To have regard to the presence of any incompatible activities in the rural area in assessing urban growth proposals.</p>	<p><i>Medium to high effectiveness</i> The development does not have the potential to result in significant reserve sensitivity effects. For this reason, where the development of residential dwellings extends to areas in close vicinity to rural uses, section sizes are larger. In any case given the current use of the land is largely rural-residential lifestyle blocks, it is considered that there will be only slight increase in reserve sensitivity effects beyond those already existing. The proposal therefore accords with Policy 6.3.8.</p>
<p>6.3.9 Policy : Urban extensions To promote a range of incremental extensions to the urban area distributed over a number of peripheral locations, rather than a major extension in any one area.</p>	<p><i>Medium to high effectiveness</i> While the proposed development is large, it will be developed in stages and, given the Canterbury earthquakes have resulted in significant numbers of new dwellings that will be required, it is considered that the scale of this development is appropriate. Furthermore it allows for land for housing in a location that allows easy access to the eastern suburbs, thus reducing effects of isolation and loss of community.</p>
<p>6.3.10 Policy : Boundaries of urban extensions To prefer peripheral development which is contained, at least in part, by a well defined barrier to further outward extension for urban development.</p>	<p><i>High effectiveness and efficiency</i> The proposed plan change area is well defined with the natural Styx River boundary to the north, Hills and Hawkins Road to the south, and Queen Elizabeth II to the south. These boundaries will establish a clear outer edge to the urban area that will discourage urban sprawl, and will avoid pressure in the future for continued outward expansion of the development area into the rural area. The proposed development therefore encourages a compact urban form and will improve the quality of the rural – urban interface. The proposal therefore achieves Policy 6.3.10.</p>

<p>6.3.12 Policy : Rural – urban interface To reinforce the consolidation of the urban area by:</p> <ul style="list-style-type: none"> a) Improving the landscape quality of the rural-urban interface; b) Establishing a transition of low density housing, open space or esplanade reserves, adjacent to the urban boundary, particularly where no clear physical boundary to urban growth exists; and c) Encouraging the planting of suitably located trees on the urban-rural interface, to create a high standard of amenity, and to better define and improve the quality of the urban edge of the City. 	<p>Medium to high efficiency and effectiveness Section sizes along the Hawkins/Hills Roads eastern side boundary of the subdivision are generally larger than those allotments within the subdivision. The urban rural interface will also be characterised by the planting, and this, in conjunction with the larger sections will enhance the interface. The proposal therefore achieves the goals of Policy 6.3.12.</p>
<p>6.3.16 Policy : Long term development To investigate and assess future growth options for the city’s long term urban development.</p>	<p>High effectiveness The Council, through its PC1 RPS process carried out an evaluation of land suitable for development. The decisions on PC1 identified the subject land as suitable. The proposal is considered to reflect the form of land development anticipated by the Plan in Policy 6.3.16.</p>
<p>Chapter 7 Transport</p>	
<p>Transport objective An efficient, safe and suitable transport system in the City which provides for ease of accessibility for people and goods.</p>	<p>High efficiency and effectiveness The ODP proposed ensures that the transport network within the site will meet the policy direction of the Plan as it relates to transport.</p>
<p>7.1 Objective : A sustainable transport system A safe, efficient and sustainable transport system.</p>	<p>High efficiency and effectiveness The layout of the proposed subdivision provides a development with the good standards of accessibility, in terms of proximity to employment opportunities and its form is appropriate and provides good connectivity with the adjoining road network. The proposal reflects the outcomes sought by Objective 7.1.</p>
<p>7.1.3 To promote integration of the planning, management and operation of all of the elements of the transport system.</p> <p>7.1.4 To make efficient use of the transport system, particularly its infrastructure.</p> <p>7.1.5 To encourage change in the transport systems towards sustainability.</p>	<p>High efficiency and effectiveness Policies 7.1.1 – 7.1.5 seek to minimise effects with regard to transportation. The policies encourage the use of alternative modes of transport, and seek to minimise traffic effects by encouraging development that allows for pedestrian and cycle linkages.</p>

	<p>The proposed subdivision layout has been carefully designed to ensure excellent connectivity both within and to the developments in both north/south and east/west directions. The level of connectivity provided is consistent with the direction of policies 7.1.1 – 7.1.5.</p>
<p>7.2 Objective : Road network An efficient and effective road network that allows the City to function and develop with minimal conflict between land uses, traffic and people.</p>	<p><i>High efficiency and effectiveness</i> The development has no adverse effects on the surrounding road network and will not result in conflict between land uses, traffic and people. The surrounding network is sufficient to cater for increases traffic demand, and internal road layout has been designed to ensure the roading hierarchy is maintained. The proposal is considered to be consistent with Objective 7.2.</p>
<p>7.2.1 Policy : Hierarchy of roads To continue to plan, build, maintain and manage the operation of the roads in Christchurch as a hierarchical network comprised of roads of different classifications, and to recognize the different functions and roles of roads and their environmental impacts within those classifications</p>	<p><i>High efficiency and effectiveness</i> The proposed development reflects the current City Council roading hierarchy, and the roading widths proposed will recognise the difference functions and roles of different roads within the subdivision. Wide spine roads extend north/south and east/west through the development and are complemented by local roads. The proposal is considered to be consistent with Policy 7.2.1.</p>
<p>7.2.7 Policy : Central city access To provide a high standard of access for people to, from and within the central city</p>	<p><i>Medium efficiency and effectiveness</i> The proposed location is relatively close to the central city and benefits from good roading links to the central city. The development will be capable of providing for bus routes through it, enabling inhabitants to use sustainable methods of transportation in their daily lives. The proposal is considered to be consistent with Policy 7.2.7.</p>
<p>7.3 Objective : Public transport Recognition of the public transport needs people throughout the City and provision for meeting those needs.</p>	<p><i>Medium to high efficiency and effectiveness</i> The spine road through the development will be designed to be bus-capable. The location of this road through the centre of the site will enable all inhabitants to have access to the public transportation system.</p>

	<p>This road will easily connect with Queen Elizabeth II Drive and Prestons Road allowing easy access to the wider public transport system. The proposal is therefore considered to be consistent with Objective 7.3.</p>
<p>7.4 Objective : Cyclists Provision for the safe movement of cyclists and actively encouraging as a means of transport.</p>	<p><i>High efficiency and effectiveness</i> The entire development has been designed to encourage both recreational cycling through the reserve land, and also as a means of travel to work or services. Roading widths are suitable to provide safe refuge for cyclists, and the cycle ways will connect to the wider Christchurch cycling network. The proposal meets the objective 7.4 of the plan in considering the needs of the City's cyclists in its layout and designs.</p>
<p>7.4.2 Policy : Links in subdivisions To require the inclusion of safe cycle links, where appropriate, in new subdivisions.</p>	<p><i>High efficiency and effectiveness</i> As shown on the subdivision scheme plan, cycle and pedestrian links abound, which reflects the developer's intent to create a modern, safe and pleasant living environment that caters for all forms of transport and recreational needs.</p>
<p>7.4.5 Policy : Network development To continue to develop a clearly identified cycle network throughout the city.</p> <ul style="list-style-type: none"> a) Providing safe, convenient cycle routes for school children; b) Using the secondary road network and using and creating vehicle free routes where possible; c) Making special provision routes and enhancing additional routes to increase the safety and pleasantness of the network. 	<p><i>High efficiency and effectiveness</i> As the development encourages take up of cycling through its provision of cycle friendly amenities, so it encourages the proposed subdivision's focus on providing space and amenity for cyclists, ensures that safety for cyclists will be high within the subdivision, and thus, new cycle routes will be able to be used by a wide range of community.</p>
<p>7.5 Objective : Pedestrians The safe movement of pedestrians in a pleasant environment.</p>	<p><i>High efficiency and effectiveness</i> The development proposed has been designed to cater for pedestrians needs. In particular, linkages are important with adjoining neighbouring facilities such as reserves and community facilities and retail centres. To meet this requirement, safe connections over and under the future motorway extensions are proposed.</p>

	<p>Furthermore, an extensive reserve network, extending primarily along the Horners Drain and Styx River corridors will provide a high quality pedestrian movement network, which will link to the connections across the motorway corridor, allowing future connection to Northwood and future retail development there. The proposal therefore achieves the goals of this policy.</p>
<p>7.5.2 Policy : Links to subdivisions To require the inclusion of safe pedestrian links, where appropriate, in new subdivisions and developments.</p>	<p><i>Medium to high efficiency and effectiveness</i> The proposed development layout incorporates wider streets, shared pathways and connected reserve areas. The provision of high quality green linked pedestrian links ensures that the proposal achieves the goals of policy 7.5.2.</p>
<p>7.5.4 Policy : Safety To reduce the conflict between vehicles and pedestrians throughout the City by providing pedestrian facilities.</p>	<p><i>Medium to high efficiency and effectiveness</i> Pedestrian linkages are to be located in carefully thought out locations, to minimise conflict between vehicles and pedestrians, and shared cycle pedestrian linkages are to be generously sized to allow for safe aesthetic movement links. The proposal therefore achieves the goals of this policy.</p>
<p>Chapter 8 Utilities</p>	
<p>8.2 Objective : Efficient utilities Efficient use of the City's utilities.</p>	<p><i>Medium efficiency and effectiveness</i> The development of the proposed land will result in an efficient and effective methodology for enhancing existing utilities and will provide new utilities where necessary. The proposal therefore achieves the goals of this objective.</p>
<p>8.1.1 Policy : Area for new development To ensure that possible areas for new development: a) Are readily available to be serviced: and/or b) Are located in identified areas where the Council will meet the costs of major works (to be recovered from the developers as development proceeds); and/or c) Are located in other areas, provided the full costs of upgrading reticulation systems attributable to that development are paid for</p>	<p><i>Medium efficiency and effectiveness</i> The subject site can be effectively serviced, and will in fact contribute to servicing in a way that will assist the Council to rebuild an efficient and effective infrastructure resource that will service both the site and future development. The proposal therefore achieves the goals of this policy.</p>

<p>by the developers, and that an efficient pattern of development is promoted.</p>	
<p>Chapter 11 Living Living objective A quality living environment that meets the differing needs of the City's population.</p>	<p><i>High efficiency and effectiveness</i> The proposed Living G zoning allows for a range of dwelling densities and styles to ensure that the differing needs of the City's population are met. The proposal is consistent with this objective.</p>
<p>11.1 Objective : Diverse living environment A diversity of living environments based on the differing characteristics of areas of the City.</p>	<p><i>Medium efficiency and effectiveness</i> The site will be developed in accordance with the Living G framework which is preferred as a way to ensure that the final outcomes of the plan change are a key consideration throughout the plan change process and continual development of the land. Across the site, different natural and manmade characteristics will influence the form and function of the site. The proposal achieves objective 11.1.</p>
<p>11.1.4 : Policy : Densities To provide for various levels of building density within living areas, taking into account the existing character of these areas, the capacity of infrastructure and strategic objectives of urban consolidation.</p>	<p><i>Medium to high efficiency and effectiveness</i> The plan change proposes four different residential densities under the umbrella of the Living G zone. These four densities reflect the requirements of PC1 for 15 households per hectare, and the necessary bulk and location requirements to achieve high quality design and ongoing amenity. The proposal achieves this policy.</p>
<p>11.2 Policy : Housing needs Opportunities for housing that meets the needs of all socio-economic groups, Tangata Whenua living environments, and groups requiring specialized housing accommodation.</p>	<p><i>Medium to high efficiency and effectiveness</i> The plan change has been developed with consideration of affordability. A range of section sizes, coupled with opportunities for a range of affordability options, will encourage the establishment of a living environment that caters for all facets of society. Nothing in the plan change precludes the opportunity for different forms of specialised housing accommodation. The proposal is consistent with the aims of policy 11.2.</p>

<p>11.2.1 Policy : Permanent Living accommodation To provide for a range of housing types which offer permanent living accommodation throughout living environments.</p>	<p><i>Medium to high efficiency and effectiveness</i> The plan change proposes four different residential densities under the umbrella of the Living G zone. These four densities reflect the requirements of Chapter 12A for 15 households per hectare, and the necessary bulk and location requirements to achieve high quality design and ongoing amenity.</p>
<p>11.3 Objective : Non-residential activities Non- residential activities located within areas which meet community needs, and are consistent with maintaining a high standard of amenity in living areas.</p>	<p><i>Medium to high efficiency and effectiveness</i> Non-residential activities are provided for within the site, both on an individual basis in accordance with non-residential activity rules such as the 'scale of activity' and 'residential coherence' rules, as well as within the Business 1 nodes.</p>
<p>11.3.1 Policy : Local community facilities and services To provide for local community facilities and services to locate within living areas, subject to compatibility with the existing character of different parts of the living environment, and maintaining residential coherence and amenity.</p>	<p><i>Medium to high efficiency and effectiveness</i> The proposed Outline Development Plan provides space for community services within the neighbourhood centres/business nodes (Business 1). The proposal therefore achieves the goals of this policy.</p>
<p>11.4 Objective : Adverse environmental effects A living environment that is pleasant and within which adverse environmental effects on amenity values are avoided remedied or mitigated, while still providing the opportunity for individual and community expression.</p>	<p><i>High efficiency and effectiveness</i> The detailed rules package that supports the Living G zoning of the land represents a method for ensuring that the Living environments found in Highfield will have high levels of residential amenity in all density areas, whilst allowing and encouraging individual and community expression. The proposal achieves this policy.</p>
<p>11.5 Objective :External appearance Good quality building and site design to achieve a high level of amenity throughout the living areas of the City.</p>	<p><i>High efficiency and effectiveness</i> Detailed urban design rules and assessment matters are provided to encourage high levels of residential amenity within the plan change area.</p>
<p>13.1 Objective : The rural land and soil resource a) That the rural land and soil resource be managed to:</p>	<p><i>Medium efficiency and effectiveness</i> An assessment by Mr. Alex Smith, in support of the PC1 to the RPS submission, concluded that the site did not</p>

<ul style="list-style-type: none"> • Enable rural resources to continue to be used for a variety of rural activities while recognizing their operational needs and potential environmental effects of such activities; • Provide scope for the appropriate establishment or extension of urban activities; and • Retain the stability and character of rural soils, and the life supporting capacity of the soil resource, including the potential for primary production, and to safeguard natural values. <p>b) That the open space character and low density of built form which distinguished the rural area be maintained and enhanced.</p>	<p>have sufficient potential for primary production to warrant its protection. As such, the land is considered appropriate for alternative land uses. Buffer areas such as the 10m setback along the Hills and Hawkins Road site boundaries are considered appropriate to ensure the character of Hills Road and Hawkins Road is maintained.</p>
<p>13.4 Objective : Rural amenity values That over the rural area as a whole, rural amenity values, including visual character, heritage values, cultural and recreational opportunities are maintained and whenever possible enhanced and adverse effects of activities are recognised and controlled.</p>	<p>Medium efficiency and effectiveness While the proposed plan change will alter the subject site, given that it will now be urban instead of rural, the adjoining rural land will be only affected in a limited way, given the buffers proposed and given its current eroded rural character. The proposal achieves the goals of this policy.</p>
<p>Chapter 12 Business A distribution, and diverse range, of business environments which meet the social and economic needs of the wider community, while avoiding, remedying or mitigating the potential adverse effects of their activities within the immediate area, and on the broader surrounding environment.</p>	<p>Medium efficiency and effectiveness Two neighbourhood centres/business nodes (Business 1) are proposed and both are to be zoned Business 1, reflecting their role as a local/community retail and service offering. The proposal achieves this policy.</p>
<p>12.1 Distribution objective : Distribution of Business Activity A distribution, scale and form of business activity which meets the economic needs of businesses, provides the community with convenient access to goods, services and opportunities for social interaction, and which:</p> <p>a) Is able to be efficiently serviced by infrastructure, including water, effluent disposal and roading;</p> <p>b) Encourages in appropriate circumstances:</p> <ul style="list-style-type: none"> • Co-location of community services and facilities within the central city and district centres; 	<p>Medium efficiency and effectiveness The outline development plan provides for two neighbourhood centres/business nodes (Business 1) within the plan change area. These are to provide a local service and are located adjacent to the central boulevard where residents will be able to easily access them by foot or cycle as well as by vehicle.</p> <p>Furthermore, the neighbourhood centres/business nodes (Business 1) are positioned in locations that will be served by public transport, and are subject to</p>

<ul style="list-style-type: none"> • Consolidation of residential development around selected consolidation focal points; • Accessibility, by a variety of modes of transport, to centres providing a wide range of public and private services and facilities; and <p>c) Manages the adverse effects of business activities on the environment, including:</p> <ul style="list-style-type: none"> • Maintaining or improving the safety and efficiency of the road network and related systems for all users (including public transport, pedestrians and cyclists), and minimizing unnecessary trip generation; • Maintaining the amenity of residential and other sensitive environments (including local roads); • Ensuring the function, vitality and amenity of those existing centres that provide a wide range of public and private services and facilities to the community will not be significantly affected by new retail activity; and • Minimizing contamination, pollution, odour, hazardous substances, noise and glare. 	<p>urban design rules that will assist in preserving amenity for residential properties. Given the scale of the proposed commercial offerings provided for by this plan change, they are not expected to have any adverse retail distribution effects. The proposal better achieves this policy.</p>
<p>12.1.2 Policy : Distribution of Commercial Activity</p> <p>To provide for varying levels of commercial activity, both within and beyond identified commercial centres and areas, to meet the wider community's social and economic needs. This is to be achieved by:</p> <p>a) Encouraging consolidation of commercial activity, particularly retailing, at existing commercial centres while ensuring the maintenance and enhancement of the function and amenity of the centre; and</p> <p>b) Managing local and strategic adverse effects of commercial activity in a way that:</p> <ul style="list-style-type: none"> • Maintains the amenity of nearby living environments: • Avoids reverse sensitivity effects; • Sustains existing physical resources and ensures the continuing ability to make efficient use of, and undertake long-term planning and management 	<p><i>Medium efficiency and effectiveness</i></p> <p>The introduction of small scale neighbourhood centres/business nodes (Business 1) within the subject site reflects an appropriate level of commercial activity, given the scale of the residential development expected and its proximity to other retail and service offerings. The proposal achieves this policy.</p>

<p>for, the transport network and other public and private infrastructure resources, including parks and community facilities.</p> <ul style="list-style-type: none"> • For retail activity, avoids adverse effects on the function and the efficient use of the central city and district centres; • For retail activity, limits adverse effects on people and communities who rely on the central city and district centres for their social and economical wellbeing and require ease of access to such centres by a variety of transport modes; and • For retail activity, maintains the amenity values of the central city and district centres. 	
<p>12.1.4 Policy : Cumulative Effects of commercial activity To take into account any cumulative effects of commercial activities and development throughout the city, including effects upon:</p> <ul style="list-style-type: none"> • The classified road network; • For retail activity, the function and amenity of the central city and district centres and related effects on people and communities that rely on these centres for their social and economic wellbeing; and • Local living environments. 	<p><i>Medium efficiency and effectiveness</i> The small scale of the neighbourhood centres/business nodes (Business 1) proposed is not expected to result in adverse cumulative effects. Effects on the roading network have been considered and mitigated against through the masterplanning process.</p> <p>Appropriate rules are included to mitigate against potential adverse effects on local living environments.</p> <p>The proposal meets the purpose of this policy.</p>
<p>12.1.5 Policy : New Commercial Centres To provide for new commercial centres in locations that:</p> <ol style="list-style-type: none"> Contribute to a distribution of centres with good proximity to living areas (particularly any areas of medium density housing), safe and efficient access appropriate to the classified road network, and which enable ease of access by a variety of transport modes (including public transport); Avoid strategic adverse effects, including adverse effects on: <ul style="list-style-type: none"> • The function an amenity of the central city and district centres; • Existing and planned infrastructure 	<p><i>Medium to high efficiency and effectiveness</i> The neighbourhood centres/business nodes (Business 1) proposed are designed to provide for local community needs and are located adjacent to medium and high density housing coupled with safe and efficient access to the classified roading network.</p> <p>No strategic effects are expected.</p> <p>No local effects are expected, given the detailed and thorough design process that has occurred, ensuring that all foreseen</p>

<p>(including the classified road network and public transport systems);</p> <p>And</p> <p>c) Minimise local adverse effects, including effects on:</p> <ul style="list-style-type: none"> • The safety and amenity of access to arterial roads, including any costs associated with necessary upgrading; and • The amenity of suburban areas, particularly and adjoining living areas. 	<p>potential effects are to be either, avoided, remedied or mitigated through the proposed rules package.</p> <p>The proposal achieves the goals of this policy.</p>
<p>Chapter 2 Natural Environment Natural environment objective Maintenance and enhancement of the quality of natural resources and their ability to meet the needs of present and future generations</p>	<p><i>Medium to high efficiency and effectiveness</i> The proposed plan change provides for green networks that reflect the eventual enhancement of the Styx River corridor and Horners Drain corridor and the blue network allows for stormwater management to be carried out in a way that encourages high aesthetics and improvements to habitat health in the vicinity of the subject site.</p>
<p>2.1 Objective : Land and soil To maintain and enhance those physical, chemical and biological characteristics of land and soils, and the ecosystems they contain, in a way that best enables them to support and provide for community needs.</p>	<p><i>Medium to high efficiency and effectiveness</i> An evaluation of the importance of the site in terms of its versatile soils was carried out by Mr. Smith for his PC1 evidence, and it was found that the best most efficient use of the land is not for rural purposes.</p>
<p>2.1.1 Policy : Versatile Soils</p> <p>a) Where consideration is being given to the use, development or protection of land comprising versatile soil, in circumstances where such use development or protection is necessary to achieve the purpose of the RM Act, particular regards shall be had, in the circumstances of the case, to any need to protect such land from irreversible effects that may foreclose some future land use options that benefit from being located on such land.</p> <p>b) Provided that where a proposed activity will irreversibly affect land comprising versatile soils and there is a choice in the locality</p>	<p><i>Medium to high efficiency and effectiveness</i> Whilst the land contains versatile soils, the PC1 evidence of Mr Alex Smith concluded that the land had a limited future for commercially successful agriculture, and that it was not critical for the land to be retained in rural use. It is recognised that the proposed rezoning better reflects the purpose of the Act.</p>

<p>between such activity occurring on that land or on less versatile land, the preference shall be to protect versatile land from such activity, unless the proposed activity would better achieve the purpose of the RMA.</p>	
<p>2.2 Objective : Water Maintenance and enhancement of the quality and availability of the City's water resources, and of the natural and cultural values and public accessibility of waterways and their margins.</p>	<p><i>High efficiency and effectiveness</i> Stormwater management within the site will result in a higher level of water quality within both the Styx River and Horners Drain than currently exists. Margins of the waterways will be carefully designed to reflect their ecological values, whilst encouraging innovation in design. The stormwater design of the proposal and the rules proposed that require a high level of design excellence achieves this policy.</p>
<p>2.2.3 Policy : Flooding and groundwater recharge To manage the disposal of stormwater in a manner that minimises potential flooding and promotes ground water.</p>	<p><i>High efficiency and effectiveness</i> Stormwater management will be designed to mitigate against the effects of flooding both on the site and downstream of the site. The subdivision rules proposed require design that manages stormwater in terms of quantity and quality. These mitigation measures will therefore assist in meeting this policy.</p>
<p>2.2.4 Policy : Surface waters To manage the location and scale of land use activities and the disposal of stormwater, in a manner which avoids, remedies or mitigates the pollution of surface waters and adverse effects on aquatic ecosystems.</p>	<p><i>High efficiency and effectiveness</i> A stormwater management plan will be prepared for the site at subdivision stage and this plan will be in accordance with the Council's Integrated Catchment Management Plan. Rules pertaining to stormwater disposal will ensure that the management of stormwater across the site will proceed as the site is developed, and will represent best practice. The proposal better achieves this policy.</p>
<p>2.4 Objective : Natural features and habitats The protection and enhancement of key elements and processes comprising the City's natural environment.</p>	<p><i>High efficiency and effectiveness</i> The proposed development will result in the naturalisation of Horners Stream, which is currently a highly modified box drain through farmland, and the enhancement of the Styx River corridor as it extends along the northern boundary system, and the removal of rural activities in close proximity to the Horners Stream and the Styx River will result in improved</p>

	environmental outcomes, and the river ecosystems will benefit. The proposal of considered to be consistent with Objective 2.4 of the Plan.
--	--

Summary of Consistency with Existing Policy Framework of District Plan

In summary, the proposed Plan Change does not offend or result in any inconsistencies or significant non-conformities with the objectives and policies of the Operative Christchurch City Plan. The proposal is in accord with the direction and intent of the City Plan to provide for development in a manner which recognises and provides for the values of a site, having regard to the wider environmental effects.

8.4 Plan Change 61

The Christchurch City Plan contains objectives that are largely non-site specific. In terms of urban renewal, and Greenfields development, the existing objectives and policies in the Plan are not overly prescriptive. Recently, the City Council promulgated Plan Change 61, which as a Council initiated plan change has some weight, but is currently on hold. Plan Change 61 contains a series of objectives and policies that comprise a *'general objectives and policy framework for Greenfield residential growth.'*

Plan Change 61 seeks to reflect the Environment Court's findings that the emerging comprehensive outline development plan methodology (in Living G zone related cases), as a method, achieves the existing urban growth objectives and policies in the City Plan.

Plan Change 61 reflects the Council's concerns that the current City Plan objectives and policies do not provide sufficient guidance and direction as to the character and form of development and the environmental outcomes anticipated for Greenfield residential growth.

Plan Change 61 seeks:

- To establish an overarching policy framework
- To provide a high level of consistency and certainty as to the character and form of development and the nature and detail of information which is required to support growth proposals and the environmental outcomes for Greenfield residential growth
- To compliment and better inform the City Plan's current approach with respect to the management of Greenfield residential growth.

While Plan Change 61 is currently ‘on hold’ and has not proceeded to the hearing stage at the time of this application has been prepared, it is considered relevant to have regard to the objectives and policies of PC61 in the assessment of this plan change. It is noted that the Plan Change 61 objectives and policies seek to give effect to the requirements of Plan Change 1 to the Regional Policy Statement with regards to the requirements of outline development plans.

OBJECTIVE/POLICY OF THE CITY PLAN	Assessment against Plan Change 61
SECTION 2 NATURAL ENVIRONMENT	
<p>6.3B Objective: Greenfield residential growth Greenfield residential growth shall be of a scale and character consistent with a primary emphasis on urban consolidations; which avoids, remedies or mitigates adverse impacts on water, versatile soils, significant amenity values and other natural resources; and which make efficient use of physical infrastructure. The achievement of this will include:</p> <ul style="list-style-type: none"> • Ensuring that Greenfield residential growth occurs in a comprehensive and integrated manner and is well connected with existing urban development; • Avoiding Greenfield residential growth until such time as it can be serviced by the City’s reticulated water and waste supply, and serviced by transportation infrastructure; • Ensuring that development and subdivision of Greenfield residential growth give effect to: <ul style="list-style-type: none"> • The overall pattern of development shown on an outline development plan • Effective and efficient infrastructure network (Stormwater, open space, transport) patterns • Meeting the convenience retail and service needs of the new Greenfield residential growth 	<p><i>High efficiency and effectiveness</i> The plan change land is included within Chapter 12A to the RPS and has therefore been found to be suitable in terms of being an appropriate location for development. The assessment of effects prepared concludes that effects on Horners Drain and the Styx River have been mitigated.</p> <p>Furthermore, the deferral over the southernmost portion of land, until such time as stormwater solution is possible, will limit the development of lots in this are until a stormwater solution has been agreed.</p> <p>The proposed Outline Development Plan development of greenfields land in such a way that efficient and effective infrastructure will be provided. The proposed Outline Development Plan also provides appropriate land for the convenience retail and service needs of the population.</p>

<p>community and any unfulfilled retail and service needs for the existing community, with the provision of a suitably sized commercial facility.</p>	
<p>Amend Policy 6.1.1 Population Densities as follows To provide for a gradual increase in overall population density within the urban area through:</p> <ul style="list-style-type: none"> a) Providing for higher densities near central city and consolidation focal points; and b) Enabling new peripheral development where it is consistent with a consolidated urban form; and <u>Providing</u> for higher building densities in larger areas of peripheral urban housing <u>and</u> <u>greenfield residential growth</u> 	<p><i>High efficiency and effectiveness</i> The proposed plan change provides for a range of building densities, and represents the formation of a consolidated urban form. It allows for high building densities in appropriate locations, and is an appropriate extension of the existing urban form.</p> <p>The provision of an ODP, in conjunction with rules, policies and objectives is an effective method for achieving the policy direction of the plan and will result in a highly efficient land use.</p>
<p>10.3.2 Policy : Innovative Design To encourage innovative subdivision design that is consistent with the maintenance of amenity values and promotes good urban design outcomes.</p>	<p><i>High efficiency and effectiveness</i> The proposed ODP has been developed from a masterplan that has evolved to represent innovative and efficient subdivision design that will inevitably result in high urban design outcomes. The plan change and associated rules provide an effective framework that is designed to ensure that good urban design outcomes are achieved.</p> <p>The provision of site specific rules provide a useful guideline for owners, developers and occupiers to assist them in creating liveable communities with high standards of amenity.</p>
<p>Objective 11.7 : New Greenfield Residential Growth</p> <ul style="list-style-type: none"> a) To ensure that any new Greenfield residential growth is comprehensively designed to achieve a mix of uses in an urban environment which is integrated with adjoining land and the wider community in a manner that recognizes physical constraints. b) Achieve a range of residential densities which increases the 	<p><i>High efficiency and effectiveness</i> The proposed plan change provides for a comprehensively designed development that has been the subject of a thorough masterplanning process. The outline development plan provides for appropriate densities as required by Chapter 12A to the RPS. The ODP contains details regarding the development of the land including a detailed density zoning plan, showing the range of differing densities and their locations, identifies planned staging of the development, and identifies the deferral of the southernmost part of the land until such time as</p>

<p>overall residential density to a level higher than that generally associated with existing low density outer suburban zones.</p> <p>c) The provision of outline development plans with supporting network layer diagrams that facilitate a co-ordinated, integrated efficient and effective form of Greenfield residential growth. The outline development plan and supporting network layer diagrams shall detail residential density, land use allocation and the staging of growth whilst meeting their respective network objectives (as stated below).</p> <p>d) The ODP shall detail the management of key structural matters pertaining to open space (Green Network), stormwater (Blue network), roading, cycling, pedestrian and public transport(Movement Network) and achieve the following objectives.</p> <p>General Green Network Objectives</p> <p>i. Conveniently accessible, appropriately sized recreation reserve and safe public areas having a high degree of coordination and integration with the existing open space areas.</p> <p>ii. Retention, utilisation and enhancement of existing natural ground features.</p> <p>iii. Provide higher levels of public open space within walking distance of higher density residential units.</p> <p>General Blue Network Objectives</p> <p>i. A comprehensive approach whereby surface stormwater treatment areas are located alongside green network spaces.</p> <p>ii. An outline development plan with integrated stormwater management that utilises best</p>	<p>stormwater design can be confirmed.</p> <p>General Green Network Objectives</p> <p>The plan allows for a central green corridor that links with the Styx River Corridor. Parks will be located in strategic locations, and road cross sections are to allow for high levels of amenity and landscaping in the streetscape. The green network utilises the existing Horners Stream and Styx River corridors. Furthermore, given the location of the main green corridor through the centre of the site in a north south direction, all dwellings will be easily able to access open space areas.</p> <p>General Blue Network Objectives</p> <p>The outline development plan proposed shows sufficient detail regarding stormwater treatment and disposal methodology and provides sufficient space for the management of stormwater. All stormwater management areas are located adjacent to green spaces.</p> <p>General Movement Network Objectives</p> <p>The proposed ODP reflects an integrated scheme for the management of traffic, pedestrian and cycle movements, both within the site and between the site and adjoining land. In addition, the movement network has strong links to the green network.</p> <p>Tangata Whenua Objectives</p> <p>Consultation with Tangata Whenua representatives has been attempted and no response has been received identifying that any sites of significance to Iwi exist within the site. An accidental discovery protocol will be followed should any features be exposed during development.</p>
--	---

<p>practice low impact techniques, which will result in sensitive stormwater quality and quantity requirements except where local conditions make engineered stormwater management techniques a necessity.</p> <p>iii. Utilisation of the land/water edge potential to enhance amenity and natural values, including habitat values, particularly along any existing and future waterways and surface drainage paths.</p> <p>General Movement Network Objectives</p> <p>i. A transportation network that integrates Greenfield residential growth into the surrounding transportation network and makes available to the area maximum multi modal transport opportunities.</p> <p>ii. A well connected, comprehensive Movement Network to, through and from Greenfield residential growth which provides public transport routes and safe vehicle, pedestrian and cycle movements that is highly accessible through the formation of a network that:</p> <ul style="list-style-type: none"> • Integrates with the strategic transportation infrastructure. • Is legible, well connected and clearly demarcated in a hierarchy that incorporates as many movement modes as possible. • Efficiently and effectively disperses traffic throughout Greenfield residential growth and minimises adverse traffic effects of new growth on surrounding existing urban developments. <p>General Tangata Whenua Objectives</p> <p>i. Outline development plans and supporting network layers to recognize and provide for lands, water, sites, waahi tapu and other</p>	
---	--

<p>taonga of cultural significance to Tangata Whenua.</p>	
<p>Policy : Outline Development Plan 11.7.1 The development of Greenfield residential growth shall occur in general accordance with an Outline Development Plan. The outline Development Plan shall include:</p> <ol style="list-style-type: none"> i. The provision of Movement Network demonstrating connectivity with the surrounding road network and infrastructure. ii. The provision of a Green Network identifying land to be provided for public open space. iii. The provision of a Blue Network identifying land required for stormwater treatment, detention and surface drainage paths. iv. Land identified for community facilities, schools and business activities. v. The distribution of different residential activities. vi. Land reserved or set aside from development for environmental, landscape protection, avoidance of natural hazards or any other reason. vii. Where appropriate, identification of significant cultural, natural and historic or heritage features and values. viii. The staging and coordination of subdivision and development between landowners. ix. Any other information relevant to the understanding of the development. 	<p>High efficiency and effectiveness</p> <p>The proposed Outline Development Plan provides an appropriate level of detail on all the requirements of Policy 11.7.1. The ODP:</p> <ul style="list-style-type: none"> • Shows connections • Identifies space for public open space • Identifies land to be used for stormwater management • Identifies neighbourhood centres/business nodes (Business 1) which are subject to Business 1 zone provisions • Clearly shows the four different densities proposed • Recognises the importance of the Styx River corridor and the Horners Drain corridor. • Through the deferred status of the southernmost portion of land, recognises limitations of the site and encourages the sensible staging of the land. • Other information as necessary
<p>Policy : Green Network 11.7.2(a) The provision of a network layer diagram detailing:</p> <ul style="list-style-type: none"> • Landscaping and screen planting to ensure a high quality visual interface between land use and the components that form the 	<p>High efficiency and effectiveness</p> <p>Urban rural interfaces have been considered in detail, and recreational and passive green space has been placed throughout the site to ensure that all inhabitants of the development will be able to fully enjoy the spaces. Clever integration of green space</p>

<p>green network.</p> <ul style="list-style-type: none"> • Where roads, cycle ways and pedestrian footpaths adjoin the green network, identify points of public access. • The location of the public open space facilities being within convenient walking distance from residential units. • The provision of strategically located soft and hard landscaped neighbourhood parks to provide for essential local public amenity that: <ol style="list-style-type: none"> i. is in a visually prominent and obvious location that is safe and easily accessible for the public; ii. have public streets and development fronting directly onto them; iii. have public access in the form of roads, cycle ways and pedestrian footpaths along the edges; iv. have minimum physical dimensions that are appropriate to the intended use of the park. <p>11.7.2(b) Fencing located on properties adjoining “green” linkages shall achieve a high level of openness, transparency, visibility and amenity that contributes to the overall sense of safety and wellbeing of the “green” linkage while providing for the clear demarcation of private and public land. This is achieved by:</p> <ul style="list-style-type: none"> • Solid walls and/or fences no greater than 1m in height along adjoining private property boundaries or, in the alternative, higher fencing having elements of transparency and permeability. 	<p>with blue corridors and roading amplifies the appearance of openness across the site and provides opportunity for the enjoyment of that open space. Green nodes occur along the Horners Stream and Styx River corridors, and these are cleverly placed at junctions with access, to encourage the active use of activity nodes. The method chosen of continuing open space character along key ‘parkside roads’ is a sensible method that ensures that street patterns reflect the open space that characterises the zone. Green nodes are located at points that are visible and obvious, and all Green and Blue corridors are bordered by roads. Given the enviable location of Horners Stream through the centre of the site, it has been chosen to be the focus of landscaping and openness. From the central corridor, green parkside streets extend out into the urban area, providing leafy linkages through the subdivision. The use of parkside streets encouraged pedestrian and cycle flow through the subdivision to the central corridor and lessens the need for individual parks located in limiting situations.</p> <p>A rule has been included in the plan to allow for appropriate fencing along green boundaries, having regard to the need for both privacy and passive surveillance of green areas.</p>
<p>Policy : Blue Network 11.7.3 The provision of a network layer diagram that:</p> <ul style="list-style-type: none"> • Achieves an integrated and connected stormwater 	<p>High efficiency and effectiveness</p> <p>The ODP contains an outline of the proposed stormwater conveyance network. It allows space of the scale necessary to allow for the network to be</p>

<p>conveyance drainages network;</p> <ul style="list-style-type: none"> • Includes low impact design techniques for stormwater management; • Makes provision for stormwater and detention within existing waterway corridors, surface drainage paths, and natural basins and depressions; • Ensures, where necessary, provision has been made to reduce the potential for bird strike hazard to aircraft; • Uses low impact techniques and natural materials as part of stormwater management system which may include but not be limited to: <ul style="list-style-type: none"> • vegetated swales where topography and space allows • the use of rain gardens and 'tree pits' associated with street trees. • Minimises the number of stormwater detention/retention facilities across the Greenfield residential growth. 	<p>developed and extends opportunities to create a well managed and sufficient system.</p> <p>The structure of the plan change ensures that the form of the plan change proposed is the most efficient way to achieve the policy.</p>
<p>Policy : Movement Network 11.7.4(a) The provision of a network layer diagram that will:</p> <ul style="list-style-type: none"> • Result in an efficient network that helps disperse people and vehicle, minimises the impact of new Greenfield residential growth on surrounding existing urban development, and maximises connectivity to provide a choice of routes with the aim of reducing travel distances. • Encourage alternative modes of transport to the private motor vehicle, including, walking, cycling and public transport. • Maximise safety and minimises the potential for accidents by applying sound engineering design that: <ul style="list-style-type: none"> • incorporates strategies to 	<p>High efficiency and effectiveness</p> <p>The structure of the plan change ensures that the form of the plan change proposed is the most efficient way to achieve the policy.</p> <p>The movement network comprises a roading layout created through a masterplanning process that recognises the importance of Prestons Road to the site. Prestons Road forms the key axis for development and from Prestons Road, the main central boulevard extends to the north and south.</p> <p>Local roads extend through the remainder of the site, and form a network which is fluid and legible, and allows for easy navigation through the site. Navigation will also be improved through the use of parkside streets which will provide an obvious marker for moving through the site and will take visitors directly to the central boulevard. The movement network has been designed to consider the impacts on the adjoining roading network.</p>

<p>reduce traffic speeds to allow good interaction between pedestrians an, cyclists and vehicle;</p> <ul style="list-style-type: none"> Promote natural surveillance by motorists. 	<p>Access to Hills and Hawkins Road is proposed for individual dwellings, but road accesses to Hills and Hawkins Roads are limited, and through the design of the site, traffic movement will be directed to both Prestons Road and the central boulevard.</p> <p>Pedestrian and cycle connectivity has been a major driver in determining the layout of the site. Straight lines and obvious networks allow for easy pedestrian and cycle network, and the lack of 'dead end's encourages purposive movement for pedestrians and cyclists. The clever integration of the movement network with the blue and green networks provides for increased amenity for the movement network, which will encourage alternative modes of transport.</p> <p>The applicants have sought a wider than usual roading network, to allow for increased amenity throughout the subdivision. The scale of the roading network is considered appropriate given the high – medium density development proposed, and will ensure that substantial trees will be able to grow unimpeded.</p> <p>All green spaces are bounded by roads, encouraging surveillance and the road treatments will reflect the roads location adjoining parks.</p>
<p>11.7.4(b) The provision of a ODP that makes provision for a primary (collector/minor arterial) route and a secondary route. All other streets not shown on the ODP shall be designed:</p> <ul style="list-style-type: none"> As shared public space that is pedestrian and cycle friendly to encourage lower vehicle speeds; To discourage heavy commercial vehicles moving through Greenfield residential growth. 	<p>High efficiency and effectiveness</p> <p>Prestons Road is the main arterial road that runs through the site. The central boulevard is a collector road and all other roads will be local roads. The attached road cross sections and examples within the traffic assessment show how the local roads are to be designed and will reflect their function.</p>
<p>11.7.4(c) The provision of a Network layer diagram that will provide for pedestrian needs by:</p> <ul style="list-style-type: none"> Ensuring the walking distance around Greenfield residential development blocks (the area of land enclosed by public space or streets) are no longer than 400m. 	<p>High efficiency and effectiveness</p> <p>The layout of the development proposed through the ODP provides for a road layout that is clear and systematic. All roads within the development will provide pedestrian space, and key roads which lead to the central corridor will be treated with landscaping to make them recognisable as key movement corridors. Footpaths will extend through the central corridor, linking the north and south parts</p>

<ul style="list-style-type: none"> Ensuring that the layout of any pedestrian route is easily understood (legible) by users by: <ul style="list-style-type: none"> making routes as direct as possible; marking vistas and key junctions with landmark elements such as neighbouring parks and key buildings. Ensuring that footpaths are developed in accordance with the following: <ul style="list-style-type: none"> Footpaths (as required) are provided on all road and lanes Footpaths are clearly demarcated from main vehicular carriageways and clear of services and obstructions for the entire width Footpaths designed to be accessible to all users including wheelchair and restricted mobility users. 	<p>of the subject site, and the existing pedestrian and cycle way that extends along the Styx River within the Redwood Springs subdivision will extend along the Styx River within the subject site, in accordance with the Styx 'Source to Sea' principles.</p> <p>Footpaths will be designed to serve a purpose and provide obvious and legible connections between activity nodes and residence. A practical approach will be taken to the locations of footpaths and they will be mobility-able, clear of obstructions and clearly demarcated.</p>
<p>11.7.4(d) The ODP will provide for cyclists needs by:</p> <ul style="list-style-type: none"> Use of demarcated lanes along primary and secondary routes and shared pedestrian/cycle ways incorporated into Green and Blue Networks; Use of differentiated, smooth surface materials and colors or at the minimum, markings; Giving consideration in design to on-street parking bays and street trees to avoid blind spots for cyclists. 	<p>High efficiency and effectiveness</p> <p>The roading network will allow for wide roading ensuring safety for cyclists. In addition, shared pedestrian and cycle paths will be created along the central boulevard to provide a unique, spacious and pleasant cycling opportunity. High quality landscape design will complement movement networks.</p>
<p>11.7.4(e) The provision of a Network layer diagram that will provide for public transportation needs by:</p> <ul style="list-style-type: none"> Encouraging public transport bus movements to use primary (spine/collector) and secondary 	<p>High efficiency and effectiveness</p> <p>The ODP identifies a potential location for a public transport – bus route. The potential bus route has been formulated to allow for easy access to it. All residences will be convenient a bus stop.</p>

<p>(loop) routes;</p> <ul style="list-style-type: none"> • Limiting walking to less than 500m to a bus stop from all residences; • Providing bus stops with shelters. 	
<p>Policy : Tangata Whenua Layer 11.7.5 The provision of a layer that identifies those objects, places and sites of cultural significance to Tangata Whenua (where they so wish they be identified). Where such objects, places and sites exist, growth shall avoid adversely impacting upon their cultural significance or values.</p>	<p>High efficiency and effectiveness Attempts to liaise with Tangata Whenua have been numerous. Should any features be discovered during construction, accidental discovery protocol will apply.</p>
<p>Policy : Density 11.7.6 To provide a mix of residential densities taking into account the overall integrated layout and design of the built environment, land ownership patterns, existing characteristics and qualities of the land the Greenfield residence growth is on and capacity infrastructure.</p>	<p>High efficiency and effectiveness The proposal allows for four different densities. The densities reflect the allotment's location within the development, and have been determined to ensure that high quality living environments can be created, with an emphasis on privacy, outdoor amenity, and design flair. Higher densities draw open space amenity from adjoining public open spaces, whereas around the perimeter of the site, where the site adjoins rural land uses, more generous allotments will be provided.</p>
<p>Policy : Crime prevention and public safety through design 11.7.7 To encourage the adoption and use of crime prevention through environmental design (CPTED) principles when considering the design and location of the built environment.</p>	<p>High efficiency and effectiveness The development of the layer diagrams has occurred with consideration of CPTED principles. Rules proposed within the rule package require a level of passive surveillance over green spaces, and proposed assessment matters refer directly to CPTED principles.</p>

8.5 Appropriateness of new methods

Section 32(3)(a) requires that consideration is given to the extent to which each objective is the most appropriate way to achieve the purpose of the Act.

New objectives and policies proposed represent a methodology for ensuring that development of the block occurs in a manner consistent with the policy direction of the Plan.

The care and level of assessment undertaken in the master planning process has resulted in a layout of development that reflects consideration of environmental effects and a well –

integrated development. Accordingly, the proposed objectives are appropriate in order to achieve the purpose of the Resource Management Act. In combination, both objectives are also consistent with the balancing of interests and environmental impacts that occurs under Part II with respect to use and management of land.

8.6 Consideration of costs, benefits and alternatives

In order to provide for the sustainable use and management of the site, the following methods have been considered:

- Continue with status quo;
- Apply for resource consent; or
- Initiate a plan change

It is also important to consider the timeline of each of these options, having regard to the current situation in Christchurch and the urgent need to provide replacement housing for displaced residents in a timely manner.

Status Quo

To retain the status quo would mean retaining the Rural 3 zoning across the site. This restricts development to comprise a maximum net site density of 1 dwelling on 4ha, and restricts the ability for the land to be utilised for Business purposes.

The benefits of retaining the status quo are limited, apart from the savings in costs that are related to the preparation and processing of this plan change request.

Resource Consent

Another option that has been considered (albeit briefly) is to seek a resource consent application for the development. Resource consents that covered all the necessary uses for the entire site would be fraught with difficulty.

The costs involved with the ongoing process would become prohibitive, making the development of the land largely uneconomical, whilst creating difficult administrative issues for the Council.

Furthermore, a singular resource consent would not provide the degree of feasibility required to develop the land for residential purposes. As individuals develop sections, they may require additional consent if they do not meet the requirements of an original consent. This would add both time and cost to the development of the land.

In any case, the granting of resource consent for such a large scale development that is contrary to the current City Plan policy framework for the site may potentially undermine the Plan and challenge the integrity of the existing plan rules.

Private Plan Change

A private plan change has been determined to be the most appropriate way to proceed with the development of land in this instance.

Costs:

- Costs and time associated with the preparation and processing of the private plan change application.
- Limited cost to Council recognising that the greater cost of preparation and processing will be met by the applicant.
- Reduction in amount of rural land in close proximity to the City.
- Short term impact on neighbouring zones until development is completed and landscaping matures.

Benefits:

- Achieves a zoning of the land to Living G, which is a zone specially designed for Greenfields development, and allows for site specific rules to ensure high levels of amenity.
- Allows for development in accordance with an ODP that has been designed to integrate with existing residential areas, and key connectivity networks.
- Allow for development to occur in accordance with a detailed landscape concept, thus ensuring high amenity entrances.
- Flexibility for the most efficient use of the land resource at the time the land is actually developed.
- A detailed study of infrastructure requirements has been carried out, and evidence is provided showing that servicing of the land can occur with no significant adverse effects on the environment.
- Traffic effects of the development can be mitigated to avoid adverse effects on the

surrounding road network whilst still allowing a large scale residential development to be established.

- Integrity of Christchurch City Plan maintained.

The following tables contain an analysis of the efficiency, effectiveness, costs, benefits and appropriateness of the proposed new policies, and should be read in conjunction with the detailed analysis of how the proposal best meets the policy direction of the plan.

Evaluation of the Benefit / Cost and Efficiency of the Plan Change

Benefits	Costs
<p><u>Environmental</u></p> <ul style="list-style-type: none"> • Achieves urban consolidation. • Sewerage connections can be made to the existing Council system subject to the necessary extension and upgrades. • Potable water can be provided from the Council network subject to the necessary extension and upgrades. • Stormwater can be effectively treated and managed within the subject site. • Removal of farming pressure will have positive effects on the life supporting capacity of Horner's Drain and the Styx River. • Development will improve connectivity in a safe way, particularly for pedestrians and cycles. • No natural hazards constrain the use of the land. • Roading network and reserve / open space network will provide the convenient traffic movements. • Development will provide opportunity to develop pockets of higher density, thus allowing for short trips, a more sustainable and efficient community, and opportunities for live / work management. <p>Provides ample opportunity for a variety of dwelling typers and living accommodation.</p>	<p><u>Environmental</u></p> <ul style="list-style-type: none"> • Forecloses the opportunity to use the land for rural uses. • Loss of the open character of the land

<p><u>Economic</u></p> <ul style="list-style-type: none"> • Significant development potential that will exist in meeting demand as a result of displacement caused by the Christchurch Earthquakes. • Economic implications for landowners • The ability to levy development contributions to fund reserves and physical and community infrastructure. • Accommodate future urban growth in a location where efficient infrastructure connections can be made. 	<p><u>Economic</u></p> <ul style="list-style-type: none"> • Upgrades to the sewage and potable water systems required. • Potential costs associated with the above. • Costs of roading improvements needed. • Economic implications for adjoining landowners.
<p><u>Social</u></p> <ul style="list-style-type: none"> • Neighbourhood centres/business nodes (Business 1) will provide a community focal point. • Connections have been created to ensure there is no severance effect. • Subdivision is large enough to create a viable and vitalised community. • Provides additional services to the community. • Provides space for recreation activities – both passive and active. • Development provides strong links to Supa Centre. • Enables the establishment of community based activities. • Development will provide a safe new community that will support the needs of people displaced by the Christchurch earthquakes. • Allow opportunities for employment. • Allows the ability of people to live near the workplace. 	<p><u>Social</u></p> <ul style="list-style-type: none"> • Potential for pressure on existing community facilities.

8.7 Positive features of the proposed methodology – rules and policy framework

- Site specific Living G (Highfield) performance standards allow a tight regulatory framework
- Outline Development Plan provides a high level of certainty as to the final development outcome, as well as ensuring interim outcomes do not preclude future development options

- Ensure an attractive and high quality living environment
- Comprehensive network layer diagrams allow the development to be viewed as a whole and for development to occur in an integrated manner.
- As effects have already been considered through plan change process, there are fewer administrative requirements once plan change is operative. This is more efficient for council, community and developer.
- Option is effective as compliance required with an outline development plan which reflects assessment of effects. Effective at fulfilling Part II of the Act.
- Analysis of objectives and policies in the operative district plan reveals a high level of conformity with existing objectives and policies. The proposed plan change would be effective at achieving the majority of relevant objectives
- Supported as the most efficient and effective method for achieving the objectives of the Christchurch City Plan

8.8 Disadvantages of the proposed methodology – rules and policy framework

- Performance standards are stringent so less flexibility for future residents.
- Compliance with the outline development plan reduces flexibility for developer.

It is therefore considered that the proposed methodology for the development of the land represents the most efficient and effective methodology and allows for the development of the land in a way that best meets the purpose of the Act.

8.9 Insufficient Information – Risk of acting or not acting

The Resource Management Act requires the Council to evaluate the risk of acting or not acting if there is uncertain or insufficient information. There is no reason for not acting on the basis of insufficient information. Given the information provided, the direction that the City Plan takes in respect to new urban growth initiatives, and the provision of Chapter 12A to the Regional Policy Statement, then the evaluation concludes that the proposed change to the City Plan is consistent with and will adhere to these outcomes.

9.0 Consultation

Clause 1(h) of the Fourth Schedule of the Act requires that persons affected by the proposal are to be identified, along with the consultation undertaken, if any, and any response to the views of any person consulted.

It is noted that Clause 1AA of the Fourth Schedule to the Act states that:

“To avoid doubt, Clause 1(h) [of the Fourth Schedule] obliges an applicant to report as to the persons identified as being affected by the proposal, but does not –

- a) Oblige the applicant to consult with any person; or*
- b) Create any ground for expecting that the applicant will consult with any person”*

Clause 25 of Part 2 of the First Schedule to the Act requires that should Council agree to accept a plan change request, the proposal must be publicly notified for submissions. Public notification is a form of consultation and it is important to recognise that a greater number of persons may be notified than may have been involved in the initial consultation process.

The following parties are considered to be potentially affected by the plan change proposal for the reasons given below:

Party	Reason affected	Mitigation Measures
NZTA	NZTA is the government agency responsible for the construction and maintenance of State Highways. Queen Elizabeth II Drive which bordered the southern part of the site is a State highway, and a designation exists over the western boundary of the site, for a future motorway development	The development proposed over the site has been located in such a way that either the existing designated area, the proposed designated area, or the land owned by NZTA is affected by development. While the entire site has been zoned for Living G purposes, the site can be effectively and efficiently developed without the need for anything to happen in NZTA land, the proposal does not preclude the use of NZTA land for future development, should the NZTA wish to develop it. The designated northern motorway corridor is a feature that potentially limits the ability of the future inhabitants to link with the existing suburb of Redwood. The linkages proposed, at the Prestons Road intersection, to Owen Mitchell Park and to the Redwood Springs subdivision at the Styx

		<p>River will ensure that there are no significant separation effects as a result of the placement of the subdivision in relation to the northern motorway corridor. Between the types of noise mitigation usually carried out by NZTA when they construct major roads, such as fencing, bunding and landscaping, and the amount of space between the motorway corridor and future housing given the location of roading within the proposed development and placement of stormwater ponds, it is considered that the potential for reverse sensitivity effects affecting NZTA will be slight. In terms of the potential for effects on Queen Elizabeth II Drive, only an indicative future roading link is shown to Queen Elizabeth II Drive on the ODP. Full details of such a link will be determined at a later stage, however the applicant recognises the NZTA is reluctant for safety and functional reasons, not to have active connection from the central boulevard to Queen Elizabeth II Drive. In the future a 'left in, left out', underpass or overpass may be constructed; however this would be considered and assessed at a later stage, when the deferral is lifted over the southern portion at the site.</p>
Ngai Tahu	<p>There is limited potential that the site was of some importance to Iwi.</p>	<p>An accidental discovery protocol will protect any evidence of items of significance to Maori</p>
Styx River Interest Group	<p>The group is interested in the protection of the Styx River corridor. They are involved with the protection of the river from Source to Sea and are actively involved in research on the river and its catchment.</p>	<p>Stormwater management plans will be established to ensure that the quality and quantity of water entering the Styx River will be carefully managed to ensure that no detrimental effects on the Styx River and its unique ecology will occur. Indeed, the development is expected to result in the improvement and enhancement of the Styx River corridor in the vicinity of the site, by ensuring treatment of stormwater before it enters the river.</p>
Redwood Residents Group	<p>The residents group represents the views of residents in the Redwood suburb</p>	<p>The objectives, policies and rules proposed to be included in the Plan ensure that the proposed subdivision will proceed in a way that will ensure that a high quality living environment will be established, and that no</p>

		adjoining properties will be adversely affected by the development.
Environment Canterbury	Territorial authority responsible for high level regional planning. Territorial authority responsible for the RPS and PC1 to the RPS	The necessary consents required for earthworks, discharges, works in a waterway clearance of vegetation etc, will be sought prior to work being undertaken on the site. Furthermore, the site is located within the urban limits in PC1 which was promulgated by Ecan.
Sites across Hills and Hawkins Road	Proximity of rural zoned land to proposed residential land	10m building setback from Hills Road and lower residential site density 'Density D' which requires a minimum site size of 750m ² .
Residential properties located within the subject site	Ownership of land which is proposed to be rezoned.	Land within the site will only be able to be developed as the owner chooses to. While the development will progress potentially around existing sites, on which the use may remain rural, it is considered that the mitigation measures provided will be sufficient.

Consultation and information exchange has been undertaken with the following parties.

NZTA

Ongoing discussions and information exchange has occurred with staff at NZTA. They have provided us with initial plans regarding the potential for a wider designation, and the possible future requirements for stormwater treatment and disposal. Ongoing consultation with NZTA will continue.

HPT

Initial discussion has occurred with staff from the Christchurch office of the Historic Places Trust. They recommended that the applicant seek archaeological assessment and input into the plan change, which has occurred. The archaeological assessment is attached as **Appendix 11** to this application.

Christchurch City Council

Ongoing consultation has occurred between the applicant's agents and various Council staff since the project began. Consideration of the Council Staff views on all matters has been occurred and included in the application where appropriate.

Environment Canterbury

The applicant and its representatives have liaised with Environment Canterbury staff, particularly with regard to stormwater and flooding matters, and in respect of the overall zoning of the land. Consideration of Ecan issues have occurred in the preparation of this plan change.

Iwi

The applicant's representatives have repeatedly tried to contact Iwi but have been unable to elicit a response, despite numerous attempts. A copy of the dates that contact was attempted is attached as **Appendix 22** to this application.

Public

The applicants attended the CERA Information Event where they received approximately 400 expressions of interest regarding the availability of sections within the future subdivision. Since then, the applicants have been overwhelmed by the level of ongoing interest in the development. A copy of the initial information provided to the public at the event is attached as **Appendix 15**.

10.0 Conclusion

Based on the assessment undertaken above, in accordance with the requirements of Section 73(2) and Section 32 of the Resource Management Act 1991, the overall conclusion is that the proposed zoning of the site to Living G (Highfield) and two small neighbourhood centres/business nodes (Business 1) will achieve the objectives and policies of the Christchurch City Plan. It is also concluded that the benefits of the proposed change will outweigh the costs.

The plan change will achieve the principles and purpose of the Act for the following reasons:

- The proposed plan change represents a sound resource management response to the need to efficiently develop land in response to the Christchurch earthquakes in an integrated and timely manner (now critical), and will also provide for the required 15 residential dwellings per hectare as per Proposed Change 1.
- Any effects of the plan change on adjoining property owners can be effectively mitigated.
- The proposed plan change represents an appropriate and sustainable way to develop the site.

The proposed plan change will not result in any conflict with existing objectives and policies of the District Plan, and will not be inconsistent with any other relevant Plan's objectives and policies.

It is considered that the rezoning of the land would result in a City Plan that would continue to meet the purpose and principles of the Act, and will better assist the Christchurch City Council to carry out its functions under Section 31 of the Act.

Having regard to the assessment contained in this report, Highfield Park Limited is satisfied that a Plan Change introducing a new Outline Development Plan and a site specific package of policies and rules is the most appropriate way to achieve the purpose of the Resource Management Act in respect of a proposal for establishing a large mixed density residential development with community and business components. Having regard to efficiency and effectiveness, the proposed rules are more effective than the existing rules in the District Plan in achieving the District Plan objectives and policies, taking into account the balancing of wellbeing and environmental effects under Part II of the Resource Management Act.