

IN THE MATTER OF

The Resource Management Act 1991

AND

IN THE MATTER OF

Proposed Plan Changes 64-71 to the
Wairau/Awatere Resource
Management Plan

SECTION 42A REPORT

INTRODUCTION

1. My name is Paul Whyte and I hold the qualification of Bachelor of Town Planning from Auckland University. I am a full member of the New Zealand Planning Institute. I have practiced in the field of resource management and planning since 1984 primarily working for both local government and planning consultants in Dunedin and Christchurch. Currently I am Senior Planner (Associate) in the Christchurch office of Beca Ltd.
2. This report has been commissioned by Marlborough District Council (MDC) in accordance with Section 42A of the Resource Management Act 1991 (RMA) and relates to Proposed Plan Changes 64-71 to the Wairau/Awatere Resource Management Plan (WARMP). The plan changes are initiated by MDC and relate to future urban growth areas for Blenheim. The plan changes were publicly notified on August 1 2013.
3. This report covers the following matters:
 - Process leading to plan changes
 - The proposed plan changes
 - Submissions and further submissions
 - Statutory framework
 - Assessment of issues
 - Statutory assessment
 - Conclusion
 - Recommendation
4. The Section 42A report is supported by the following appendices:
 - Summary Table of Submitters - attached as **Appendix A**
 - Evaluation of Soils Proposed for Urban Expansion to the West, North West of Blenheim ,& Comparison of Soils to the South East of Blenheim Soils by RD Sutherland, PALMS Ltd - attached as **Appendix B**
 - Geotechnical Report by Neil Morris, MDC - attached as **Appendix C**
 - Review of Traffic Submissions report by Laura Skilton, GHD - attached as **Appendix D.**
 - Infrastructure Report by Brett Walker, MDC - attached as **Appendix E**
 - Blenheim's Urban Growth in the Ben Morven Area by Urbanism Plus - attached as **Appendix F**

PROCESS LEADING TO PLAN CHANGES

5. As indicated in the Plan Changes document¹ the plan changes are the culmination of a growth strategy (the strategy) for the district undertaken by MDC. The strategy which commenced in 2009 is a key strategic project assisting in the review of the Marlborough RPS and resource management plans and planning for the provision of community infrastructure and services.
6. Development of the strategy was split in two parts with emphasis first on townships and small settlements in South Marlborough (undertaken August 2009 to May 2011) and then in North Marlborough (undertaken February 2010 to November 2011). Blenheim was included in the South Marlborough Study. The approach taken in each case was an “inquiry by design” process involving Council staff and politicians, external stakeholders and affected landowners to develop a proposal.
7. The outcomes of the strategy were notified for public submission in accordance with the Local Government Act (LGA). Submissions tended to cover two key topics, the zoning and servicing of land, and the provision of new community infrastructure. All submitters were given the opportunity to be heard and decisions were made on those submissions. The decisions were made publicly available at the time.
8. The relevant growth strategy document in respect of Blenheim is the SMUGS (Southern Marlborough Urban Growth and Development May 2010) document. The document identified that to the year 2031, approximately 1500 new households in greenfield areas were required to accommodate Blenheim’s projected population growth. A further report² on residential land availability prepared for Council identified that existing residentially zoned vacant land at the periphery of Blenheim will meet demand for only a short period (2-5 years).
9. The SMUGS report initially recommended a number of residential growth areas adjoining the north, east and southwest of Blenheim to accommodate the residential growth.
10. The completion of the final growth strategy was delayed due to geotechnical investigations to establish the risk of liquefaction on growth areas identified on the periphery of Blenheim in the SMUGS report. The results of the initial report³ were reported to the Environment Committee of Council on 3 May 2012. As a consequence of the report the growth areas on the east of Blenheim were removed from the growth strategy due to the significant risk and likely severity of liquefaction in the event of an earthquake. This left the growth areas in the north and south west, although the north area (then known as Blenheim Na:Nb) required further detailed geotechnical investigation.
11. As a result of the geotechnical investigations removing areas to the east of Blenheim, further investigations to establish replacement areas to accommodate

¹ Marlborough District Council – Blenheim Urban Growth Plan Changes 64-71 (July 2013)

² Residential Land Availability Blenheim and Renwick Update Report For Period 1 July 2007 to 30 June 2010 (EMS Ltd) January 2011

³ Blenheim Urban Growth Study Geotechnical Evaluation (Opus) May 2012

growth on the periphery of Blenheim were initiated. This resulted in a report called “Revision of the Strategy for Blenheim’s Urban Growth” (November 2012) or the “Revision Strategy” which identified areas in the general north, northwest and west of Blenheim as the preferred areas.

12. These areas were preferred to the south west for residential growth for reasons of connection, reverse sensitivity effects, geotechnical, proximity to Springlands and Westwood retail facilities and clustering growth. In addition, Area 11 in the south west was excluded following a Commissioners decision in August 2012 to refuse a private plan change (Plan Change 59 to the WARMP) by the owners, Colonial Vineyard Ltd, to rezone the area to residential.
13. The plan change was refused on the grounds of reverse sensitivity issues in respect of Omaka Aerodrome and the necessity to undertake a strategic overview particularly in respect of adjoining land. The plan change is subject to appeal and was heard by the Environment Court late last year. A decision has yet to be released. The Revision Strategy also identified this area as more suitable for employment purposes.
14. MDC commissioned further detailed geotechnical investigations to confirm the suitability of the identified areas in the Revision Strategy. The further geotechnical investigations recommended the removal of some land to the north and west of Blenheim due to the risk of liquefaction induced lateral spread (defined as the sideways movement of land) and the requirement in the remaining areas for appropriate foundation design at the time of subdivision to mitigate any effects of lateral spread or liquefaction.
15. With the completion of the geotechnical investigations, the growth strategy has been finalised and is outlined in the document “Growing Marlborough: A Strategy for the Future (March 2013). The Strategy implements the findings of the Revision Strategy and identifies Blenheim N (formerly Na:Nb) and Areas 1,3,4,5 and 6 as future residential growth areas. This report was formally accepted by Council in April 2013. Area 8 is not included as “Growing Marlborough” indicates its future use is dependent on the outcome of the Colonial Vineyards appeal. The Plan Changes document also notes the site is isolated from other areas and the requirement for infrastructure upgrading.
16. The Growing Marlborough document is not as detailed as the SMUGS document in terms of conceptual layouts. However, subsequently Urbanism Plus prepared a document titled “Essential Streets Connections” (ESC) which provides an indicative street network to provide for an “efficient, coherent, and balanced development” of the plan change areas. The recommended street network is included as part of the plan changes with the layouts shown on the respective planning maps.
17. The Growing Marlborough document forms the basis of the plan changes (along with a number of specialist reports) which are described in more detail below.

THE PROPOSED PLAN CHANGES

18. The Plan Changes document notes in the Overview that the MDC has undertaken a major growth strategy over the last four years to assess future anticipated demand for residential housing.
19. The document states that:

The settlement of Blenheim grew around the confluence of the Opawa and Taylor Rivers on low lying fertile land. As Blenheim has grown, development has been towards the higher southern lands but development in this direction has been constrained by fragile loessal soils and limited available suitable land. Under previous planning, including initially the growth strategy, it was thought that significant future development should be directed towards the east where there is available land and relative closeness to essential infrastructure. Development to the north and west was also contemplated.

The Christchurch earthquakes have caused this policy for the future to be reviewed. It is now apparent that certain areas which were previously thought suitable for new housing development are likely not to be suitable on account of ground stability and liquefaction issues. This review has resulted in Council having to identify new areas to the north and the west.”

20. Accordingly MDC propose to rezone seven separate areas to the north and west of Blenheim from Rural 3 to Residential. The Plan Changes document states that:

These areas combined with existing unused resources including areas of infill housing are expected to accommodate the future new housing needs for Blenheim for the next 20 years or so. While these areas proposed for new housing lie on soils of high quality and versatility, in many cases the future use of the soils for food production has already been compromised and as well, the reality has to be faced that the Blenheim urban area has developed on soils of high quality”

21. Specifically Plan Changes 64-70 propose to rezone seven separate areas (Growth Areas 1-7) from Rural 3 to Urban Residential Two to enable growth in a coordinated and sustained manner. The Plan Changes document notes that

The proposed plan change growth areas are based on Blenheim North and Areas 1,3,4,5 and 6 of the “Growing Marlborough” document. The internal boundaries of the plan change areas differ slightly from the Growth Strategy areas to reflect the agglomeration of land holdings held by land owners and to recognise that issues such as the presence of transmission lines are better dealt with in one plan change area rather than two. The plan change areas are of manageable size for planning and infrastructure purposes and assist Council in determining the sequencing of infrastructure.

22. Plan Change 71 introduces a new rule requiring subsoil investigations in identified parts of the growth areas and a new policy promoting integrated roading layouts in the areas.

23. The areas are described in the Plan Changes document as follows:

Plan Change 64 (Growth Area 1)

This area is north of Old Renwick Road approximately 350m east of Thomsons Ford Road. It comprises 22.2 ha and is anticipated to yield approximately 220 dwellings (based on 10 dwellings per developable hectare and existing development). The area has a small number of landowners. The site is zoned Rural 3 but adjoins Urban Residential Two Zoning to the south on the opposite side of Old Renwick Road.

Plan Change 65 (Growth Area 2)

This area is north of Old Renwick Road and is bisected by Thomsons Ford Road. It comprises 39 ha and is anticipated to yield approximately 351 dwellings ((based on 10 dwellings per developable hectare and existing development). The area is owned by a small number of landowners. The site is bisected on either side of Thomsons Ford Road by Transpower 110 kV transmission lines that connect to the substation located on the corner of Old Renwick Road/Thomsons Ford Road (the transmission lines are shown on the WARMP planning maps).

Plan Change 66 (Growth Area 3)

This area is located between Old Renwick and Middle Renwick Road (SH 6) and is adjoined by Rene Street and the Westwood retail area on its western boundary. It comprises 44.6 ha and is anticipated to yield approximately 389 dwellings (based on 10 dwellings per developable hectare and existing development). The area is in a limited number of ownerships. The area is generally comprised in large residential lots, viticulture and raspberry and strawberry growing operations and storage facilities. The site is zoned Rural 3 and adjoins the Urban Residential Two Zone on its eastern boundary.

Plan Change 67(Growth Area 4)

This area is north of Old Renwick Road and adjoins Blicks Lane to the west. It comprises 33.2 ha and is anticipated to yield approximately 238 dwellings (based on 10 dwellings per developable hectare and existing development). The area is in a small number of land owners. The site is zoned Rural 3 but adjoins Urban Residential Two Zoning to the south on the opposite side of Old Renwick Road. The site is generally comprised of large residential lots, grazing and viticulture operations.

Plan Change 68 (Growth Area 5)

This area is north of Old Renwick Road to the west of Waipuna Street. It comprises 20.5 ha and is anticipated to yield approximately 206 dwellings (based on 10 dwellings per developable hectare and existing development). The area has a small number of land owners. The site generally comprises large residential lots, grazing and viticulture operations. The site contains Class 2 Versatile soils. The site is zoned Rural 3 but adjoins Urban Residential Two Zoning to the east at Waipuna Street and to the south on the opposite side of Old Renwick Road.

Plan Change 69 (Growth Area 6)

This area is located between Old Renwick Road and Middle Renwick Road (SH 6) and is adjoined by Rene Street the Westwood retail area on its eastern boundary. It comprises 32.25 ha and is anticipated to yield approximately 270 dwellings (based on 10 dwellings per developable hectare and existing development). The area contains a cold storage building at the north west corner and also packhouse and storage facilities further to the south. The remainder of the area is generally comprised in viticulture and horticulture with a small number of houses.

Plan Change 70 (Growth Area 7)

This area is located in the vicinity of Battys Road, Severne Street and David Street. It comprises 18.2 ha and is anticipated to yield approximately 130 dwellings (based on 10 dwellings per developable hectare and existing development). The area

already has considerable residential development on smaller allotments with the remainder of the area generally comprised in residential larger lots, grazing and horticulture. The ownership is fragmented with a large number of owners. The site is zoned Rural 3 and adjoins the Urban Residential Two Zone on its eastern and northern boundaries.

24. An aerial photograph of the areas is shown on Figure 1 and the plan change areas shown on Figure 2 :



Figure 1



Figure 2

25. The Plan Changes document states that:

While the numbering of the Plan Change Areas 1-7 (as described in Plan Changes 64-70) is an indication of the order of development anticipated by Council there is nothing in the Plan Changes to preclude “out of order development” eg Area 7 could be developed ahead of Area 1. However the sequencing of development will be dependent on other factors such as the availability of services and the timetable for the upgrading of those services.

26. The document goes onto say that:

Council intends for the infrastructure necessary to service the areas to be developed in a sequence which is cost-effective and appropriate and, consistent with Council’s existing policies, to be funded in large part by the persons seeking to develop the land. Currently the areas the subject of these Plan Changes are not serviced by Council in the same way as other land within Urban Residential Zones is serviced and so persons intending to develop the land will be required to contribute to the cost of infrastructure through Financial Contributions under the RMA and through Development Contributions under the LGA.

Plan Change 71

27. Provisions relating to the

- Investigation of sub soil conditions in the areas and
- Provision of an appropriate roading layout in the areas are contained in Plan Change 71.

28. In respect of the first matter, the liquefaction studies established that while there is potential for shallow liquefaction to occur in parts of the growth areas it is not significant enough to preclude development. However, it was recommended that specific foundation design for buildings should be implemented in these areas.
29. Accordingly this matter is addressed by a proposed new rule in Chapter 29 Standard Requirements for Subdivision and Development of the WARMP. The rule requires investigation of subsoil conditions in the growth areas at the time of subdivision consent (the areas are shown on a new Appendix L in the WARMP and are commensurate with the new plan change areas). If the investigation establishes that the soil strength of allotments does not meet specified standards, a consent notice is required specifying that a specific and adequate foundation design is required for any dwelling.
30. In relation to the roading layout, "Growing Marlborough" identified the need for an overall plan of the road network in the growth areas to provide a safe and efficient network and coordination between different landowners. As discussed the indicative layouts, based on the ESC document, are shown on the planning maps for Plan Changes 64-70.
31. Development in accordance with the roading layouts will be implemented by the addition of a new policy in Chapter 23 Subdivision and Development (Proposed Policy 1.18). The policy will be a matter that is required to be had regard to when considering subdivision applications.
32. The plan changes are supported by a number of specialist reports as follows which are attached to the plan changes document as appendices ;
 - Southern Marlborough Urban Growth and Development (SMUGS), May 2010 MDC
 - Revision of the Strategy for Blenheim's Urban Growth (Urbanism Plus)
 - Growing Marlborough-A Strategy for the Future, March 2013, MDC
 - Residential Land Availability Blenheim and Renwick Update Report For Period 1 July 2007 to 30 June 2010 (EMS Ltd) January 2011
 - Blenheim Urban Growth Study Geotechnical Evaluation (Opus) May 2012 and Blenheim Growth Study Stage 2 (Opus) February 2013
 - Blenheim Residential Growth Areas-Essential Street Connections (Urbanism Plus) June 2013
 - Blenheim Urban Growth Provision of Infrastructure Proposed Plan Changes 64-71 (MDC) May 2013
 - Residential Plan Change Transportation Effects (GHD) May 2013
 - Marlborough Urban Growth and Development Study-Assessment of Suitability for Residential Development (PDP) May 2012 (Land Contamination)
 - Versatile Soil Maps 2013.

33. The Plan changes document identifies potential and adverse effects and possible mitigation measures in respect of such matters as reverse sensitivity effects, natural hazards, services, loss of rural land and versatile soils, traffic, loss of rural amenity, contaminated land, and natural and cultural features

SUBMISSIONS AND FURTHER SUBMISSIONS

34. The application was notified on 1 August 2013 with submissions closing on 30 August 2013. A summary of submissions was notified on 14 November 2013 and further submissions closed on 28 November 2013. The omission of a submission to Plan Changes 70 and 71 in the original summary resulted in a further notification on 13 December 2013 which closed on 17 January 2014.
35. A total of 55 submitters and 6 further submitters made submissions. One late submission received on 23 September 2013 was received from M and M Woodbury in respect of Plan Change 65. The further submissions from the Marlborough Branch of Federated Farmers received on 12 December 2013 were also late. The Commissioners must determine pursuant to Section 37 of the Act if a waiver should be applied and the submissions accepted.
36. The further submission from Transpower (NZ) Ltd proposes to amend a set of rules submitted as part of their original submission. The submitter should clarify if the further submission introduces additional material or increases the setbacks as otherwise it may be ultra vires.
37. The further submission from Paul Ham on his own submission appears to introduce additional information. The further submission from M and L Ridgway appears to oppose the submissions of Outer Limits Ltd, Foodstuffs Ltd, John Marris and Kapiti Views Trust.
38. A summary table of submitters and further submitters and my recommendations on the submissions are attached in **Appendix A**. While a number of submitters referred to all of the plan changes in the heading to the submission their actual submission often only referred to one plan change. However a conservative stance was taken in summarising the submissions by referring to all of the plan changes where indicated.
39. In respect of the 55 submitters, 5 submitters support the plan change(s); 14 submitters generally support the plan change(s) but request amendments; and 36 oppose the plan changes(s). The 6 further submitters received were a mixture of support and oppose.
40. The main issues raised by submitters are as follows:
- Loss of versatile soils and rural production
 - Reverse sensitivity effects
 - Geotechnical
 - Traffic and roading
 - Infrastructure
 - Staging
 - Groundwater

- Caseys Creek
- Loss of rural amenity and values
- Population growth does not justify additional areas
- Affordable housing
- Benefits of proposed growth areas

STATUTORY FRAMEWORK

41. Section 72 of the RMA states the purpose of a plan change is to assist a local authority to carry out its functions in order to achieve the purpose of the RMA. Section 74(1) states Council shall change a district plan in accordance with its functions under Section 31 of the Act, Part 2 of the Act, Section 32 of the Act and any regulations (although it is acknowledged MDC is a unitary authority and the WARMP is a combined plan and therefore regional functions may also be relevant).
42. It is understood that as the plan changes were notified prior to amendments made to Section 32 of the RMA in December 2013 the former provisions of the section apply.
43. In changing a plan, regard must be had to any strategies prepared under other Acts (section 74(2)(b) of the Act) and effect must be given to national policy statements and a regional policy statement (Section 75(3) of the Act). The Plan Changes document addresses the above statutory matters.
44. Clauses 1-10 of the First Schedule to the RMA set out the process for the processing of Council plan changes. Under Clause 10 a local authority must give a decision on the provisions and matters raised in submissions and whether to accept or reject submissions and further submissions.

ASSESSMENT OF ISSUES

45. As indicated above the submissions raised a number of issues which are discussed below.

Loss of Versatile Soils and Rural Production

46. A number of submitters oppose the plan changes on the grounds that they will result in the loss of versatile soils for rural and food production. The Plan Changes document acknowledges that the plan changes will lead to the loss of these soils from rural production. While the WARMP refers to “versatile soils” it does not define them, although I understand the term to refer to the higher quality soils originally based on Class I-III soils of the Ministry Works and Development classification. The extent of the soils is shown in Appendix 9 to the Plan Changes and the Soils Report by Mr Sutherland (attached as **Appendix B**) refers to these soils in more detail.
47. I agree that this loss is inevitable if Blenheim is to expand because the town is effectively surrounded by versatile soils except in the south west. However, previous Council decisions have indicated the south west area is not suitable for residential development because of other factors such as the proximity of Omaka aerodrome. Expansion onto versatile soils to the east is not an option because they are prone to liquefaction.

48. Essentially the loss of the soils for rural production verses enabling the soils for residential use requires a balanced judgement to be made in terms of the purpose of the Act. In terms of the WARMP relating to this matter, Objective 1 and the accompanying policies of Chapter 11 Urban Environments relate to existing and future residential development. In respect of Blenheim the policies appear to promote the accommodation of building within the current boundaries (Policy 1.1); lower density residential uses at the Blenheim urban periphery to provide for a transitional environment between expected urban and rural amenities (Policy 1.4) and the extension of existing areas for urban growth to achieve a compact urban form and the maintenance and enhancement of productive soils (Policy 1.5).⁴
49. The Explanation to the above objective and policies states “*The northwestern periphery has been identified as the area most capable of accommodating future residential growth*” (11-4 WARMP).
50. There appears to be some tension in these provisions as while expansion of existing urban areas onto adjacent rural land is anticipated (and specifically the north west area) productive soils should also be maintained.
51. Objective 2 and the supporting policies of Chapter 11 relate to the suitability of locations for residential development including ensuring urban growth does not impact on the life supporting capacity of soils or on the productive capacity of rural land (Policy 2.7).⁵ In addition Objective 12.2.2 of Chapter 12 Rural Environments is to maintain the life supporting capacity of versatile soils of the Rural 3 Zone and

⁴ Objective 1 The maintenance and creation of residential environments which provide for the existing and future needs of the community.

Policy 1.1 Accommodate residential growth and development of Blenheim within the current boundaries of the town.

Policy 1.4 Enable lower density residential use at the Blenheim urban periphery, to provide for a transitional environment between expected urban and rural amenities.

Policy 1.5 Ensure where proposals for the expansion of urban areas are proposed, that the relationship between urban limits and surrounding rural areas is managed to achieve the following:

- Compact urban form;
- Integrity of the road network;
- Maintenance of rural character and amenity values;
- Appropriate planning for service infrastructure; and
- Maintenance and enhancement of the productive soils of rural land.

⁵ Objective 2 To ensure that growth occurs in locations suitable for residential development

Policy 2.7 Ensure urban growth does not adversely impact on the life supporting capacity of soils or on the productive capacity of rural land.

accompanying Policy 1.3 is to “...discourage, as far as practicable, activities which do not rely on the productive capacity of the land of the Rural 3 Zone”.

52. Policy 2.7 and Policy 1.3, on the face of it, appear to be relatively directive as the discouragement of soil resources for urban activities. However Policy 2.7 is qualified by the Explanation to the policy where it states:

In considering areas for future residential development, the productive capacity of rural land needs to be recognised and protected for long term sustainability. However, it also needs to be recognised that expansion of urban areas may inevitably need to be accommodated in rural areas, where it immediately adjoins existing towns/townships. Preference should be given to expansion on marginal or less productive land wherever possible with urban expansion balanced against the need to protect the life supporting capacity of soils.

53. The Explanation recognises that the expansion of urban areas may inevitably need to be accommodated in rural areas where it immediately adjoins existing towns/townships, although preference is to be given to less productive land where possible. In addition Policy 1.3 contains the words “as far as practicable” in discouraging non rural activities.
54. Given that any expansion of Blenheim in the manner envisaged by the Policies of the WARMP it is inevitable that there will be an effect on versatile soils and rural production.
55. The Soils report (attached as **Appendix B**) has undertaken an evaluation of the soils contained in the plan change areas. The report concludes that while the soils are generally excellent for food production, the versatility of the soils is constrained by the presence of numerous small blocks and the infrastructure for “long lived crops” such as cherries and grapes. Mr Sutherland considers that the effects of the plan changes on food production are minor (assuming that viticulture is not the production of food).
56. While I acknowledge the loss of the soils is not an ideal outcome I am of the view that it is acceptable in the context of the plan changes given:
- The demand for the land for residential purposes
 - The absence of other areas to accommodate residential growth
 - Significant areas within the plan change areas are already subdivided into lots of less than 2ha (including for large lot residential use) thereby reducing their potential for rural production.
 - The reference in the WARMP provisions that expansion of the urban area into rural areas is inevitable. While “less productive land” is favoured for expansion “wherever possible or practical”, this option is precluded for reasons already stated. As a consequence, the existing provisions are not undermined by the plan changes but it is appropriate to rezone the areas given the proposed development.
 - The loss of the versatile soils as a percentage of the overall resource in the Rural Zone is very small (just over 2%)

57. The submission from K and L Morgan refers to “residential creep” where rural land adjacent to the new residential boundary will come under pressure for rural residential development resulting in further loss of rural land. I note that the minimum subdivision area in the Rural 3 Zone (which is generally the relevant Rural Zone) is 8ha and my understanding is that this standard is rigorously enforced. Accordingly there would have to be compelling reasons to allow sub standard subdivisions as a non-complying activity.

Reverse Sensitivity Effects

58. A number of submitters have raised reverse sensitivity effects as follows.

Rural Activities

59. The submissions refer to reverse sensitivity effects on existing rural farming operations from the new residential areas. In particular, a number of submitters in the vicinity of Blinks Lane (Plan Change 67) including KE Hale and D. Ballagh, C and L Sowman, AL and VM Gifford and MG Sandall have highlighted reverse sensitivity issues particularly as it relates to the use of the road by heavy machinery during harvest time (February to May). It is noted however that some landowners in Blinks Lane support the plan changes.

60. I note the issue of reverse sensitivity between rural and residential activities already exists at the current rural/residential interface in the district. The WARMP appears to manage this issue in the following way:

61. In Urban Environments Chapter 11 there are the following relevant references:

In the Explanation to Objective 1 on page 11-4 the following is stated:

It is very important that the interface between urban peripheries and rural areas is sustainably managed. The relationship between the urban and rural zonings is the basis of expected amenities, planning for service infrastructure and efficiency, energy conservation and the retention of the rural land for productive uses, along with its character and amenities.

62. In the Explanation to Objective 2 on page 11-5/6 the following is stated:

Although there is a duty under Section 17 of the Act to avoid, remedy or mitigate adverse effects, the Council recognises that the principle rural activities inherently involve effects that may not meet the expectations of an urban environment and that there needs to be compromise of those expectations at the urban/rural interface.

63. There is however no specific rules controlling activities in the Residential zones as they relate to adjoining rural areas.

64. Under 12.2.1.2 Protection of Rural Amenity Values in the Rural Environments chapter the following is stated on page 12-3

However, because of the range of activities that necessarily occur in a rural area, there are levels of noise, dust, traffic generation and smell that are an essential part of rural amenity values.

Although there is a duty under Section 17 of the Act to avoid, remedy or mitigate any adverse effects, the Council recognises that the principle rural activities inherently

involve effects that may not meet the expectations of an urban environment. Urban activities at the rural/urban interface must expect to compromise their urban amenity expectations where there are justifiable and reasonable effects as a result of primary production activities in the rural environment.

65. Under 12.2.1.3 Residential, Commercial and Industrial Development in the Rural Environments Chapter the following is stated on page 12-3:

The maintenance of a rural environment is to some extent dependent on the exclusion of “residential” activity, the two being to some extent incompatible. However, given that it is desirable for a number of reasons to have some residential activity in the rural areas it must be accepted that this will to some extent require rural activities to mitigate environmental effects where these have significant adverse effects on residential activity.

66. Objective 2 of 12.2 2 and related Policies 2.1 and 2.8 state the following on page 12-6:

Objective 2 To protect rural amenity values of the Rural 3 Zone by encouraging the establishment of a range of activities which do not create unacceptably unpleasant living or working conditions for residents and visitors, nor a significant deterioration of the quality of the rural environment.

Policy 2.1 To recognise that activities permitted in rural areas may result in effects such as noise, dust, smell, and traffic generation but that these will require mitigation where they have a significant adverse effect on the rural environment.

Policy 2.8 To enable rural activities which might generate adverse effects such as noise or smell, to operate in rural areas in accordance with accepted practices, without being significantly compromised by other activities demanding higher levels of amenity.

67. The Explanation to the above on page 12-7 states:

The policies seek generally to enable established rural land uses and associated management practices to continue to operate sustainably in rural areas, so long as the effects from these uses do not constitute a general nuisance or health risk. The Plan sets out the expected amenity levels for rural areas to protect human health and safety. This should ensure that the potential for reverse sensitivity conflicts between the expectations of rural residents and those undertaking rural land uses are avoided, as far as possible.

68. Provision 12.2.3 sets out the Methods of Implementation on page 12-8. The methods include rules and performance conditions. The latter is defined as:

Conditions are included for Permitted Activities to protect rural amenity values and environmental quality. These address matters such as noise, agricultural spraying, building bulk and location and land disturbance.

69. In this respect the Rural 3 and 4 zones contain rules and performance conditions relating to such matters as:

- Noise including frost fans
- Application of agrichemicals (spray drift not to pass beyond the legal boundary)

- Discharge of liquid waste
- Odour (no objectionable or offensive odours beyond the boundary)
- Dust emissions (no objectionable or offensive effects beyond the boundary)
- Discharge of liquid wastes and animal effluent (controlled activity)

70. Anticipated Environmental Results under 12.9 on page 12-26 includes the following:

Land uses and land management practices which do not create unacceptable or significant conflict with neighbouring land based activities, including adjoining urban areas

71. In Chapter 23 Subdivision and Development Issue 23.4 states in part:

...The size and shape of allotments created also provide a means to manage and limit potential amenity conflict where urban residential development is located next to rural land (i.e., on the 'urban periphery')...

72. Objective 1 and Policy 1.6 and Policy 1.8 (page 23-4/5) state the following:

Objective 1 That allotment design size and dimensions created through the subdivision process be determined with regard to the likely activities to be carried out on those allotments, and their effects on amenity values and other resources.

Policy 1.6 Recognise the potential for amenity conflict between the rural environment and the activities on the urban periphery

Policy 1.8 Consider the effects of subdivision on the rural environment in so far as this contributes to the character of the Plan Area, and avoid or mitigate any adverse effects

The Explanation states:

...

Conversely, where circumstances provide potential for amenity conflict between residential development at the urban periphery and adjacent rural activities, there is a need to retain lower density development to enable a transition between expected residential and rural amenities.

...

Although there is a duty under Section 17 of the Act to avoid, remedy or mitigate any adverse effects, the Council recognises that the principle rural activities inherently involve effects that may not meet the expectations of an urban environment. These urban activities at the rural/urban interface must expect to compromise their urban amenity expectations where there are justifiable and reasonable effects as a result of primary production activities in the rural environment.

(This is similar wording to the Explanations to Objective 2 of 11.2.2 and 12.2.1.2 Protection of Rural Amenity Values referred to above.)

73. Rule 28.2.5 (a) and (b) of Chapter 28 Subdivision (page 28-7) state that “*the use of any site*” and “*the shape and position of any lot*” respectively are matters Council reserves control over.
74. On this basis I conclude that the WARMP:
- The WARMP recognises there are issues at the rural/urban interface
 - Urban activities at the rural/urban interface must expect to compromise their urban amenity expectations where there are justifiable and reasonable effects as a result of primary production activities in the rural environment (this sentiment is repeated in three different places in the WARMP). I note that the submission from M and W Woodbury appears to interpret the words in Explanation Objective 2 page 11-5 as not requiring a compromise.
 - Given the presence of residential activities, rural activities are required to mitigate their effects. This is enforced by a number of rules relating to rural operations.
 - There are no controls on residential activities at the rural/urban interface in the other than a policy indication that amenity expectations may be compromised.
 - The use, shape and position of allotments which may include density can be used to manage conflict at the urban/rural interface through the subdivision process.
75. Given that in my view the proposed plan changes are in general accordance with the growth strategy of the WARMP there does not seem to be any particular reason to change the status quo in respect of the rural/urban interface, which as indicated above, appears to be managed by policy expectations, controls on rural activities and subdivision design. Notwithstanding this, potential may exist for some of the mitigation measures identified above by submitters and these are discussed below.
76. A number of mitigation measures are suggested by submitters including removing the plan change(s) areas, non nuisance complaint covenants, a buffer zone, transitional zones such as a rural residential zone or deferred zoning or recognition of existing use rights through such means as scheduling.
77. A “buffer zone” could take the form of a setback of residential dwellings from the zone boundary at the rural/urban interface of 20m - 50m (which generally are the distances applied in other District Plans I am familiar with). This may assist to mitigate some reverse sensitivity effects but outdoor use of the residential site could still affect the adjacent activity. A large setback could affect the rational layout of a residential area but this appears to be anticipated by the WARMP.
78. The alternative of a buffer zone in which no residential activity is allowed including outdoor use is a possibility but the ownership/use/maintenance of a piece of “no mans land” could raise issues. A buffer zone could take the form of a passive use such as a park. It may be premature to determine the location of such a facility at this stage but it appears the subdivision provisions of the WARMP allow MDC to control these types of matters.

79. I also note roads provide some buffer. For example, Old Renwick Road serves this purpose at present and which will be lost in respect of Plan Changes 64, 65 and 67. However to the south Middle Renwick Road and David Street will provide buffers for Plan Changes 66, 69 and 70.
80. A rural residential zone would have to be introduced by way of a plan change. I note that a rural residential zone adjoins the urban area at the south east corner of Blenheim. One of the disadvantages of an adjoining rural residential zone is that it may foreclose on the rational development of more intensive residential activity given the spatial location of rural residential development. Reverse sensitivity effects could also still result depending on the density of the development.
81. A deferred zoning does not appear to necessarily remove the issue of reverse sensitivity except in terms of a time delay. A deferred zoning is usually associated with services provision.
82. In respect of “scheduling” activities which essentially is the request from J Bush and Sons Ltd as it relates to their apiarist business in Old Renwick Road I note that the WARMP contains a Register of Specifically Identified Activities in Appendix G. This includes activities such as Lansdowne Park, Wairau Hospital and ENZA storage shed. Scheduling of sites essentially allows the activities as permitted activities and recognises the substantial investment of existing sites. This option also has the advantage of alerting prospective purchasers/developers to the presence of the facilities.
83. However I understand that scheduling of activities is proposed to be removed from the review of the WARMP. Scheduling essentially results in a number of “spot zones’ and while they may be justified for large activities such as the hospital they are more difficult to justify for smaller activities and the provision for “exceptions” can make a plan less coherent. Existing rural activities, such as J.Bush and Sons Ltd are able to rely on existing use rights.
84. Federated Farmers suggest the use of non nuisance complaint covenants which are an option but more likely to be imposed at subdivision stage. I also note that the submitter indicates that an excessive focus on reverse sensitivity can distort decision making.

Talleys Group Limited and Provincial Coolstores Limited

85. Talleys Group Limited (Talleys) Limited and Provincial Coolstores Limited (PCL) operate coolstores located in proximity to one another at 48 Rene Street and Old Renwick Road respectively. The coolstores are both located in Plan Change Area 69.
86. Talleys submits that there are reverse sensitivity effects in respect of noise and visual effects and notes the potential to expand the existing operation on the site. The submission acknowledges that provision is made for an alternative roading pattern on the planning maps to take account of the coolstore but that this is not considered sufficient. The submission also indicates the proposed rezoning will be inconsistent with several objectives and policies. The submission requests that Plan Changes 66 and 69 be rejected in their entirety.
87. The PCL site submission highlights light spill, traffic movements and operating hours as potential reverse sensitivity effects. Provision is also made for an alternative

roading pattern on the planning maps for PCL but the submitter requests that Plan Change 69 be declined in its entirety or a buffer strip is created around the facility.

88. The submissions are correct in stating that the plan change does not propose any specific measures to take account of the coolstores apart from the alternative roading pattern. It is agreed that the rezoning could be potentially more restrictive with for example permitted activities in the Rural Zone required to comply with noise standards at or within the boundary of a Residential Zone. However it is understood both coolstores were established by way of resource consent and are subject to conditions. For example the Provincial Coolstores resource consent (issued in 1990) states that noise levels are not to exceed 55dBa (day time) and 45dBa (night time) measured at a point 50m from the buildings.
89. The PCL submission states the plan changes are contrary to Objective 2 and Policy 1.8 of Chapter 11 Urban Environments, Policy 1.4 of Chapter 22 and Policy 1.6 of Chapter 23. In respect of Objective 2 the submitter refers to the Explanation (page 11-5/6) which states that there needs to be a compromise at the rural /urban interface. I have referred to this above and have noted that there is no specific rule that implements this except perhaps subdivision design.
90. The reference to Policy 1.8 is a subset of Objective 1 (page 11-24/25) which refers to containing effects within an Industrial zone. The submitter's site is not zoned Industrial and accordingly I believe the policy is of limited relevance.
91. Policy 1.4 also appears to be of limited relevance as it refers to mitigating noise by a roading hierarchy. In terms of Policy 1.6 I have indicated above that this refers to subdivision design.
92. The Talleys submission refers to potential expansion on the site. It is noted that rural industries are discretionary activities so resource consent would be required. In addition to the "reverse sensitivity" provisions in the WARMP referred to above the following is stated under 12.2.1.3 Residential, Commercial and Industrial Development in the Rural Environments Chapter on page 12-3:

Some commercial or industrial activity must necessarily be located in rural areas and in particular activities such as the wine/craft trail are dependent on it, but a general dispersal of business activities to the rural areas can result in a loss of rural amenity values and fragmentation of business areas within settlements with a loss of convenience, accessibility and vitality of business areas.
93. The options in respect of the proposed zoning appear to be the following;
 - Delete the plan changes in their entirety as requested by the submitter
 - Retain the Rural 3 zoning only for the applicant's site
 - Rezone the site as proposed but provide some further mitigation such as a buffer area
 - Subdivision design
 - Provide recognition for the site by scheduling the site in the WARMP
 - Non complaint covenants

- Retain the plan changes as notified.
94. In respect of these options the discussion under “rural activities” above is also relevant. The deletion of the plan changes in their entirety is not favoured as it would result in the deletion of approximately 78ha and substantially undermine the growth strategy. This option also appears to be excessive in terms of the submitters’ concerns. The retention of the Rural 3 zoning for the submitters’ sites is an option but it would not reflect the actual use on the site and would effectively be an isolated spot zone, although as indicated above the coolstores operate under existing resource consents.
 95. The provision of buffer zones is discussed above and is a possibility. Alternatively subdivision design may be able to create some type of buffer and which it appears that MDC has control over.
 96. As indicated above scheduling of sites is a technique already used in the WARMP and has advantages and disadvantages.
 97. Retention of the plan change as notified is essentially signalling that in the long term the site should be used for residential activities. This is consistent with Growing Marlborough in terms of residential and industrial development. However, given the submitters’ concerns and the substantial investment in the facilities the consideration of some “interim protection” such as scheduling may be appropriate. The submitters should comment on these options in more detail at the hearing.

Foodstuffs Ltd and Outer limits Ltd

98. Foodstuffs Ltd operate the Pak ‘n’ Save supermarket on the Westwood retail area opposite the Plan Change 69 area, and opposes Plan Change 69 on reverse sensitivity grounds, particularly as the Pak ‘n’ Save loading area adjoins Plan Change 69 and is separated by a 2m high fence and some landscaping. The submission suggests making residential activities directly adjacent to the retail area obtain resource consent as restricted discretionary activities or require a setback from the boundary. The submission also requests that the Westwood site be rezoned to reflect the existing retail activities on site.
99. Outer Limits Ltd who I understand is the owner of the Westwood retail and business centre oppose Plan Change 69 on the grounds of reverse sensitivity effects. Both Foodstuffs and Outer Limits Ltd have also opposed the roading layout in terms of Plan Change 71. This is dealt with in Traffic Issues below. Outer Limits Ltd also request rezoning of the site.
100. In respect of these submissions the existing resource consent for the Westwood development recognises that there will be some effects on adjoining properties, particularly on the eastern side. Accordingly landscaping is required on all boundaries and fencing and noise attenuation is required on the eastern boundary. Noise is required to comply with limits on the boundary of any existing Residential Zone or the notional boundary of an existing dwelling on another site.
101. It is noted that activities in the Business Neighbourhood Zone of the WARMP are required to address the residential interface in respect of such matters as bulk, location, light spill and noise. The controls in the resource consent do not appear as stringent, presumably because at the time of development it was adjoined by rural zoned land.

102. The options to mitigate reverse sensitivity effects are similar to those suggested for the coolstores. It is acknowledged the loading area may adversely impact on neighbours and in these circumstances a buffer could be created by the placement of lots or the creation of a park at the time of subdivision. As indicated above it appears MDC have the power to control the shape and position of lots. Requiring limited discretionary resource consent for dwellings in proximity to the site is not favoured as it undermines the intent of a residential zone.
103. The request to rezone the Westwood site to recognise existing activities is considered to be outside the scope of the plan changes (see Inclusion of Additional Sites/Areas below). It could however be considered as part of the WARMP review.

Transpower

104. Transpower and a number of other submitters note that Plan Change 65 is traversed by the following National Grid Transmission lines:
- Blenheim – Kikawa A 110kV line including three towers
 - Blenheim – Stoke A 110kV line including three towers
105. In addition part of the southern boundary of Plan Change 65 abuts the northern boundary of Transpower's Blenheim substation. This site is designated in the WARMP as Designation 83. The site is adjoined to the north by Section 1 SO 4932 which is owned by Transpower and contains two transmission towers, a dwelling and accessory buildings. Section 1 SO 4932 is however not designated by Transpower (unlike the adjoining site to the south) and is included in the Plan Change 65 area.
106. Transpower in their submission notes that comment was sought from Transpower by MDC in April 2013 prior to the public notification of Plan Changes 64-71 but that the submitter did not respond in sufficient time for their comments to be included.
107. Transpower refers to the National Policy Statement on Electricity Generation (NPSET) which was gazetted in March 2008. The NPSET recognises the national benefits of transmission and requires regulatory authorities to manage activities so that the existing transmission network is not compromised and reverse sensitivity effects on the network are avoided. Local authorities are required to consult with Transpower to identify an appropriate buffer corridor within which sensitive activities (that includes residential housing) will generally not be provided for in plans.
108. To this end Transpower suggests a number of amendments to Plan Change 65 including the introduction of a "National Grid Yard" (attached as Appendix B to their submission) which extends 12m either side from support structures and an overhead grid line in which only fences and small accessory buildings and limited earthworks are allowed in proximity to towers.
109. Given the requirements of the NPSET I generally believe that the insertion of such a provision is appropriate and for the purposes of the submission I have relied on the provisions contained in their further submission (assuming it is vires).
110. Transpower also notes that the existing WARMP provisions require a restricted discretionary application for subdivisions within 20m of a 100kV line. This rule is supported (subject to some minor amendments) by Transpower but the preferred approach of the submitter is the introduction of a "National Grid Corridor" to the

subdivision rules for Plan Change 65. The corridor will apply to an area 32m either side of a transmission line. Within this corridor all allotments are required to identify a building platform that is outside the National Grid Yard as a restricted discretionary activity. Transpower proposes that the rule will be supported by an objective and policy.

111. Given that there are existing provisions in the WARMP (and which are not opposed by Transpower) that provide an assessment of subdivisions in proximity to transmission lines and the proposed provisions relating to the National Grid Yard, I do not consider it necessary at this stage to implement this particular provision. I am also aware the provisions will only apply to a relatively small area (Plan Change 65) and a more appropriate time for these provisions to be introduced and debated is likely at the time of the WARMP review. I understand that discussions have occurred between MDC and Transpower on this issue.
112. In respect of Section 1 SO 4932, I note that Transpower request that this lot is removed from the Plan Change and the current Rural 3 zoning is retained. Transpower notes that the site acts as a buffer between the substation and any future residential activity and the rezoning sends the wrong signals in terms of its future development. Given the existing development on site and in particular the towers and its buffer role I agree that the site should be deleted from the plan change area.
113. However to provide further transparency to the location of the site and given Policy 13 of the NPSET which recognises the designation process as an effective planning tool, I Transpower are encouraged to designate the site or alter the adjoining designation so that it is consistent with the adjoining substation. This process can occur as part of the upcoming review of the WARMP.
114. In summary in respect of the Transpower submission I consider that:
 - The provisions relating to the “National Grid Yard” should be included particularly given the provisions of the NPSET.
 - The subdivision provisions relating to the “National Grid Corridor” should not be included.
 - Section 1 SO 4932 should be removed from the Plan Change 65 area.

These amendments will require subdivision design to take into account the above constraints when the site is developed. Accordingly and in response to the submission of A and V Gifford development of land containing transmission lines is possible provided the above constraints are taken into account.

Geotechnical issues

115. Submissions received on geotechnical issues raise a number of matters including:
 - Proximity to the Wairau Fault Line
 - Any area should be assessed prior to rezoning and not post in respect of foundation suitability
 - Inconsistency in the application of setback distances from waterways

- Geotechnical reports are indicative only and not definitive and development still represents risk.
 - Specificity of geotechnical requirements
116. In respect to the proximity of the Wairau Fault Line, the submissions note the Opus May 2012 report states the fault line is capable of rupturing in a 7.1-7.6 magnitude quake with a horizontal displacement of 5-7 m. Mr Morris in the Geotechnical Report (attached as **Appendix C** to the Section 42A report) states that the proximity of development to fault lines is addressed in the Ministry for Environment document “Planning for Development of Land on or close to Active Faults” and that the proposed plan change areas comply with the guidelines in this document.
117. In terms of the adequacy of investigations Mr Morris confirms that the Opus reports had regard to the Ministry of Business, Innovation and Employment guidelines (MBIE 2012) for geotechnical investigations in Canterbury and included borehole and penetrometer tests. The significant body of well logs which formed part of the Opus investigations gave a strong corroboration of the soil profiles.
118. MDC has responded to the above reports and the other information detailed in Mr Morris’s report, by rezoning only those areas that are considered suitable for development in a geotechnical sense (Plan Changes 64-70), and requiring penetrometer tests in those areas to establish if subdivision consent notices requiring specific foundation design are necessary (Plan Change 71). It is noted that the Opus studies investigated all of the proposed urban growth areas in the SMUGS report (except for the Colonial Vineyards Site).
119. In my view this approach is a suitable one as it is based on technical advice that takes into account what is an acceptable risk. The suggestion that areas should be assessed prior to rezoning for foundation suitability is not considered practicable or reasonable given the risk of liquefaction identified and the amount of on site testing required. As indicated above the Opus study has been undertaken in accordance with MBIE guidelines.
120. In terms of the specificity of the geotechnical requirements outlined in proposed Rule 29.1.4.2 in Plan Change 71, I agree it is detailed. However in my view the rule can be included as drafted. While it is notated as a rule it is no different from the other large number of required site details for subdivision set out in Chapter 29 of the WARMPP. It provides certainty for applicants and if future requirements do vary it is considered this can be accommodated within the “rule” without a plan change given that a subdivision consent is required in any event.
121. In my view the proposed Rule will better implement Objective 1 and policies (23.2.1) of Chapter 23 Subdivision and Development⁶ given that the provisions require

⁶ Objective 1 That subdivision proposals be carefully assessed in localities where there are significant natural hazards, unless the effects of these can be adequately avoided, remedied or mitigated, and any such mitigation measures do not have significant adverse effects on the environment.

Policy 1.1 Control subdivision of land subject to natural hazards such as inundation, erosion, subsidence, slippage and rock fall

subdivision applications to be carefully assessed where there are known significant natural hazards and these hazards must be appropriately avoided remedied or mitigated. Given that the Blenheim geotechnical studies (which were given impetus by the Christchurch earthquakes) have resulted in the provision of significant information it is appropriate to respond to this by regulatory provisions in the WARMP particularly as Chapter 17 Natural Hazards of the WARMP⁷ acknowledges the earthquake risk present in the district.

- The issue of setback inconsistencies from waterways has been raised by the submitters identified below. P and R Gibson and others in respect of 56,58,58A and 60 Old Renwick Road;
- P and M James in respect of 38 Old Renwick Road and MI and CM Locke of 44 Old Renwick Road.

They argue that a consistent approach would enable them to be included within Plan Change 64 or 68 areas.

The submissions received in respect of land south of David Street and a site at 33 Battys Road being included in the plan change areas also raise geotechnical issues.

These submissions are discussed further below under “Inclusion of Additional Sites”.

122. The submission from JE Marris stating that only areas to the west of Blenheim (Plan Changes 66, 69 and 70) should be developed (rather than the north) for geotechnical reasons does not, in my view, reflect the Opus investigations or Mr Morris’s report which indicate both areas in the west and north can be developed subject to conditions.
123. I consider that there is sufficient information that in terms of Section 32(4) (b) of the Act to proceed with the plan changes having regard to the geotechnical investigations undertaken and the requirement in Plan Change 71 to carry out further investigations and implement appropriate foundation designs.

Traffic and Rooding

124. Submissions received relate to traffic and roading issues including the proposed roading layouts shown on the Planning Maps and referred to in the Essential Streets Connection (ESC) document.
125. The New Zealand Transport Agency (NZTA) supports in part the proposed Plan Changes but has expressed concern about a number of matters. NZTA notes that given the classification of SH 6 (Middle Renwick road) as a Regional Strategic

Policy 1.3 is to “Ensure that the adverse effects on the environment of measures to mitigate the effects of natural hazards on land subject to land subdivision are avoided, remedied or mitigated.” (page 23-2 WARMP)

⁷ For example see Objective 1 which is “To avoid, remedy or mitigate the adverse effects of seismic hazard” and Policy 1.1 which is to “Recognise that Marlborough is in the highest zone of earthquake risk in New Zealand” (page 17-13 WARMP).

Highway its through function should not be compromised. In this respect the following is noted in the GHD Traffic Effects report:

- The SH6 intersections of Battys Road, Colemans Road and Boyce Street are already under investigation and based on assumed different growth scenarios the intersections will definitely require improvement within a few years of residential development occurring on the proposed sites. These intersections will likely require dual lane roundabouts by around 2020 and possible signalisation around 2035.
- The SH6 intersections with Severne Street and Adams Lane will require reviewing around 2020. At this time they should be upgraded to single lane roundabouts. However once the areas are fully developed dual roundabouts will be required.
- The SH6/Westwood roundabout will require dual laning around 2035

126. NZTA states that if the plan changes are to be approved the following relief is sought:

- Network Optimisation take place ahead of any proposed roading improvements where applicable;
- The Council provide further information to justify the need for the recommended roading improvements along SH6;
- The Council delete the indicative road which runs adjacent to SH6;
- The Council remove the indicative roading connection to SH6

127. In response Laura Skilton of GHD (refer "Review of Traffic Submissions on behalf of Marlborough District Council" **Appendix D** of Section 42A report) notes that in respect of the first matter, "network optimisation", which is to maximise the performance of the existing network, is under way through the preparation of a network operating plan by Marlborough Roads . This is anticipated to be completed by May 2014. Network optimisation is supported as it may minimise the need for major investment including some of the identified upgrades in the plan changes. Accordingly it appears that the concerns of NZTA are met in respect of this matter.

128. In respect of further information Ms Skilton notes that work that has already been undertaken including the Wairau Plains Land Use Study (2008) and subsequent NZTA investigations in respect of the SH6 intersections of Battys Road, Colemans Road and Boyce Street. It is considered that further investigation is not required at this stage until the timing and extent of growth is known with more certainty (particularly as a number of assumptions were made in terms of alternative combinations of growth). The report notes that the choice of roundabouts and the date of implementation is not fixed and can be amended in response to when the extent and direction of urban growth is known with more certainty.

129. I agree with this approach as the GHD study identified that solutions are available to meet different projected growth scenarios. These initial findings can be refined as definitive proposals are received and other solutions considered including the deletion or modification of roundabouts. Accordingly it is not considered necessary to provide further information at this stage.

130. In respect of the connection onto SH6 at the south west corner of Plan Change 69, Ms Skilton notes that the link is shown on the ESC document but it is not specifically shown within the planning map subject to the plan change. The ESC document refers to the connection as a possibility if it becomes feasible in the future. As indicated above NZTA oppose this connection, particularly given the Limited Road Access (LAR) status of SH6, and will only support it if there are “considerable overall benefits to the land transport network.”
131. As the connection does not form part of the plan change planning maps I do not consider any action needs to be taken (the ESC document does not form part of the actual plan change). It appears NZTA may consider the connection in the future if there are benefits for the transport network and this matter can be considered by way of separate planning procedures. This approach is supported by Ms Skilton.
132. In respect to the of the road parallel to SH 6 in Plan Change 69 the submissions of Foodstuffs Ltd and Outer Limits Ltd are also relevant. Foodstuffs Ltd submit that the proposed roading layout showing connection through the Foodstuffs site onto SH6 will require the relocation of some of the carparking associated with the supermarket. It is suggested in the submission that the planning maps and/or new Policy 1.18 should be amended to provide for flexible roading connections. Outer Limits Ltd has referred to the need for an integrated roading structure with Westwood but has not provided any details.
133. It appears that the link through the Foodstuffs site does not technically form part of the plan change as it is outside the marked plan change area. Nevertheless, Plan Change 69 makes it clear there should be some link road through the site and an alternative is suggested below (Figure 3) which shifts the location of the “middle” east- west road avoiding the link through the carpark site.



Figure 3

134. Foodstuffs and Outer Limits should comment on this revised layout at the hearing. However if it is determined that the road shown on the Foodstuffs site on the planning maps is not part of the plan change area it should be deleted. At the time of development the link on the site could be implemented by negotiation or by designation procedures.
135. The amended version still retains a slip road parallel to the southern boundary of Plan Change 69 which is opposed by NZTA because of the potential adverse effects of glare from vehicles using the road on SH6 users. The ESC document states the slip road is desirable for urban design purposes because it will encourage residential activities to front onto SH6 across the slip road rather than turning its back to it. Ms Skilton notes that it appears that the effects of glare could be overcome by fencing or planting and that its deletion is not warranted. I agree with this conclusion and NZTA should comment on this matter further at the hearing if it does not consider this solution is appropriate.
136. K and L Morgan refer to the road connection to Waipuna Road (Plan Change 68), which similar to the Westwood site, is shown on the planning map but outside the Plan Change area. The submitters, who own the parcel of land containing the road connection, object to the connection.
137. The alignment appears desirable from a traffic connectivity point of view. However if it is determined that it is outside the plan change area it should be removed from the planning map, and its formation dependent on negotiation or designation procedures. This also applies to the connection to Old Renwick Road in respect of Plan Change 68.
138. The submissions from AJ Hawke and S. Wilkes appear to indicate that the location of the road on the western side of Thomsons Ford Road is not practical as it bisects two properties. The submitters should clarify these comments at the hearing .
139. In addition a number of submissions raised the following issues in respect of the proposed road layout including those related to the ESC document. These issues included:
 - The proposed “grid pattern” and the avoidance of culs de sac and rear lots
 - Avoidance of rear allotments
 - Alternative locations should be left available to developers.
 - Finalisation of roads and compensation for landowners for roads
 - If compensation is payable where developers are not receiving full potential of roads through their properties.
140. In respect of these matters, the ESC document only shows those roads that provide a “connecting spine.” In my view such a layout is vital given the potential different number of landowners which could result in ad hoc street patterns and lead to road inefficiencies and safety issues. As indicated in the ESC document a large number of additional connecting streets will be required which will enable a flexibility of design for developers and it is appropriate these are identified when the zoning is given effect to through subsequent subdivision consents.

141. It also appears ESC document is based on sound urban design principles and is designed to provide internal and external efficiencies in a safe manner. Notwithstanding this proposed Policy 1.18 does in my view allow some flexibility given proposals must be in “general accordance”. The provision is also at a policy level and does not preclude developers from promoting alternative suggestions at pre subdivision or subdivision stage.
142. While the document refers to avoiding rear allotments as desirable (based on urban design principles) this is not enforced as a rule in the plan changes and such allotments do not appear to be precluded.
143. Development of land including the roading layouts will only normally occur if the landowner is willing to develop. If Council did want to form a road and agreement was unable to be reached with a landowner Council could designate the land for the road. This ultimately results in Council purchasing the required land from the landowner. As indicated above it may also be appropriate to delete those road connections outside of the plan change areas.
144. I consider it highly unlikely compensation would be payable in the manner sought in the fourth bullet point above. Section 85 of the RMA makes it clear compensation is only available if a proposed provision renders land incapable of reasonable use which is not the case here. The detailed development of roads normally forms part of the resource consent process and entails discussion between the applicant and the Council.

Infrastructure

145. Submitters have raised a number of infrastructure/servicing issues including a lack of detail and the constraints of upgrading, including effects on stormwater quality and quantity. Generally I believe that the level of detail provided is appropriate for the plan changes stage, a view which is supported by the report from Mr Walker of MDC (Infrastructure Issues – attached as **Appendix E** to the Section 42A report).
146. Documents such as Appendix 6 of the Plan Changes document establish that the services can be provided and details the necessary connections and upgrading. The documents indicate that while there are existing constraints these will be overcome in time by the upgrading of stormwater and water and sewage systems and identifies that appropriate funding mechanisms are available for this development.
147. My understanding is that the upgrading is conceptual only and decisions such as the placement and use of stormwater ponds (as raised by D. Wilson) can be refined as detailed design is undertaken as part of the subdivision process. In respect of stormwater issues Mr Walker in his report notes that considerable work has been undertaken on this issue including reports and modelling and that sufficient work has been undertaken.
148. Developments will also be required to comply with the WARMP rules and provisions relating to such matters as stormwater quantity and quality. These matters are more appropriately dealt with at the subdivision stage.

Staging

149. The NZIS submission has queried how the stages will be developed in terms of timing including funding. As indicated in the Plan Changes document and Appendix

6 Infrastructure of the plan changes report the current numbering is how Council envisages development will occur. However if the market determines that it is appropriate to develop an area out of sequence this can occur provided the necessary services can be provided in a feasible and economic manner.

150. In respect of funding Appendix 6 refers to the use of a Zone Levy system, which has been successfully used in north west Blenheim, for over ten years, in which Council acts as banker for developments that are required to provide for an infrastructure component in excess of the standard required for their development. Appendix 6 notes that there are circumstances when development may not occur or be delayed such as when a developer will not fund necessary downstream works or funding is required over a short timeframe. The report from Mr Walker (**Appendix E**) also comments on this matter.
151. In my view the approach taken is generally satisfactory. The Plan Changes clearly indicate the growth areas for the longer term providing certainty and choice. Appendix 6 establishes that the areas can be upgraded and sets out the required upgrading in concept form. The development of the "Accepted Services Plan" in more detail appears appropriate particularly if Council knows which land owners are interested in developing their land and when.
152. Development of any land inevitably requires discussions between land owners and Council on servicing and in my view the mechanism envisaged for these plan changes appears to be a satisfactory one for the next detailed stage relating to subdivision.

Rating

153. Some of the submitters have sought assurances that the rating classification of their land will not change from rural to residential thereby resulting in an increase. The issue of rating is not in my view a resource management matter. However the Overview to the Plan Changes contains the statement that "Council's intention is that the rating status of lands within the Plan Change areas will not change until actual development occurs." I understand this is standard practice in many districts.
154. Given that the statement is in a Council document it is my view that ratepayers are able to place reliance on it and provides a reasonable degree of comfort. No change to the WARMP is considered necessary to address this point as it is not a resource management issue.
155. The submission from the JMK Family Trust refers to rating issues in respect of land adjacent to transmission lines. In my view this is not an issue that can be addressed by these plan changes.

Groundwater

156. A number of submissions have alluded to the high water table in areas such as Plan Changes 67 and 70 making development difficult. I understand that several areas of Blenheim have high water tables and have been successfully developed. There are engineering and construction techniques available to enable construction. The report from Mr Walker (attached as **Appendix E**) indicates that while the high water tables can be an issue, constraints can be overcome by appropriate engineering works for dwellings and services. Potential flooding issues can also be managed.

Caseys Creek

157. Submitters have raised the issue of the effects on Caseys Creek including the proposal to pipe part of it. The report from Mr Walker (attached as **Appendix E**) states the reason for piping the western part is because of hydraulic issues. He also notes the creek is dry for much of the year with spring flows entering further downstream.
158. In terms of other effects it is anticipated the subdivision consent will address issues in and around Caseys Creek including appropriate setbacks and margins. There are also a number of rules in the WARMP relating to matters such as the discharge of stormwater and contaminants and setbacks from waterways which will provide further protection of the waterway.

Loss of Rural Amenity and Values

159. A number of submitters have raised the issue of loss of rural amenity and values as it relates to such matters as visual impact, landscape noise, habitat loss, traffic and air pollution.
160. I agree there will be a change to these amenities and values and that such a change is an inevitable consequence of the rezoning. These matters must be weighed up in an overall consideration of the proposal having regard to Part 2 of the RMA. Generally I consider they are not significant enough to reject the plan changes. I also note that the WARMP or Growing Marlborough does not identify any significant ecological features or landscapes such as waterways within the Plan Change areas but encourages local enhancement where possible. These improvements can be managed through the subdivision process.

Population Growth Does Not Justify Additional Areas

161. Submissions received state that Blenheim's population growth does not justify the additional areas and will result in such issues as the degradation of land not immediately utilised. It is suggested that more multi unit development is required in Blenheim.
162. In respect of this I note the following:
 - The growth strategy and the Residential Land Availability Study clearly shows there is a shortage of appropriately zoned land to the year 2031 and that the areas proposed are necessary to accommodate this demand. I note there is a buffer provided (population of 1184 persons for Blenheim⁸).
 - I believe it is good planning to have a buffer or oversupply as it provides for greater choice and contingencies such as an unanticipated rapid growth rate. As indicated in the plan changes document this reduces the risk of land unavailability as development is dependent on private landowners in most part. The Plan Changes document notes that current landowners are not necessarily willing to undertake infill development or develop appropriately zoned land.

⁸ Figure 3-4, page 28 -Growing Marlborough

- A planning period of twenty years plus (2011-2031) is a reasonable one as it provides certainty in the longer term and enables planning of infrastructure which require a reasonable lead in time because of the cost of investment.
 - It is likely that the residential growth will be gradual given the population growth and infrastructure constraints.
 - Growing Marlborough supports more intensification in the existing urban areas and it is understood this will be addressed in the review of the WARMP.
163. I agree there is the possibility that land may become degraded and not utilised to its full potential if not immediately developed for residential purposes but this is dependent on a number of factors including the attitude of landowners and their aspirations and the return on the land in the interim and rate of development. I also note that parts of the plan change areas are already occupied by larger residential lots and a number of these can be expected to continue in this form in the short to medium term.

Affordable Housing

164. Submitters have referred to an absence of information in respect of the provision of affordable housing. This is a complex issue that needs to be addressed at national and district level and also involve private developers as well as other parties such as charitable trusts. It is noted that the Affordable Housing: Enabling Territorial Authorities Act 2008 which allowed local authorities to develop affordable housing policies was repealed in 2013 and replaced by legislation such as the Social Housing Reform Act 2013 which promotes a broader approach to this issue.
165. The plan changes do not foreclose on affordable housing and as development of areas progresses the matter may well be addressed by the parties (and others) identified above utilising government legislation.

Inclusion of Additional Sites/Areas

166. A number of submissions have requested that sites currently outside the plan change areas be added to areas and become part of the plan change areas.

Legal Situation of Inclusion of Additional Sites/Areas

167. As a preliminary matter it appears necessary to determine if the submissions requesting additional sites are “on” the plan changes in accordance with clause 6 of the First Schedule to the RMA. The leading cases on this matter appear to be *Sloan v Christchurch City Council (2008) NZRMA 556* and *Option 5inc v Marlborough District Council, HC, CIV-2009 -406-144*.
168. In the former case the Court did not accept that a submission from National Investment Trust requesting the rezoning of a parcel of land from Rural to Business was “on” the plan change as the subject site was not included in the original variation and therefore did not relate to the “pre-existing status quo”. In the latter case the High Court upheld the decision of the Environment Court, which ruled that a submission which proposed to rezone approximately 50 residential properties to a central business zone was not “on” the plan change because there was no direct notification to the residential property owners.

169. The cases also indicate that whether a submission is “on” a plan change” is one of fact and degree to be determined by the circumstances of the particular case. In the circumstances of Plan Changes 64-71 it is noted there are differences with the above cases in that a number of the sites are not extensive in area, they directly adjoin the plan change areas and/or are owned by the submitters.
170. Nevertheless they represent areas that were not part of the original plan changes and persons adjoining those sites (particularly those who were not included in the original plan change areas) may not be aware of the proposed addition to the rezoning. In this respect I note that the further submissions received by MDC do not generally relate to additional sites.
171. The Commissioners are likely to consider this matter further at the hearing but at this stage I recommend that the additional sites are rejected because they are not “on” the plan changes. However if the Commissioners decide otherwise the resource management matters of the various sites/areas are assessed below.

Land between Old Renwick Road and Plan Change 68 (Growth Area 5)

172. Submitters have questioned whether this general area will become an “island” with the small area reducing its viability for rural activities and resulting in reverse sensitivity issues. Submitters suggest sites are included in the plan change areas; or utilised for large lot rural residential; or have deferred residential status; or that the Plan Change 68 area is excluded from consideration.
173. It is my understanding this land is excluded from Plan Change because of geotechnical setbacks required from Caseys Creek making it unsuitable for residential development and because some sites such as 56, 58, 58A and 60 Old Renwick Road are not part of the original growth studies (this is referred to in more detail below).
174. Given the geotechnical issues identified inclusion of the sites for residential, large lot residential or deferred zoning is not favoured. The retention of the rural zoning create certainty that rural activities such as viticulture or horticulture can continue. While reverse sensitivity is a potential issue it is noted that the areas already contain large residential properties and adjoin existing Urban Residential 2 zoned land in the vicinity of Waipuna Street (see also comments in Reverse Sensitivity of Section 42A report).
175. Individual sites within this area are discussed below.
- ***26 Old Renwick Road (Blk XV1 Cloudy Bay Survey District)***
176. Herkt Properties Ltd submit that 26 Old Renwick Road (Lot 1 DP 1150) should be added to Plan Change 68 because the proposed zone boundary cuts their property into a size that is not viable. It appears part of property is excluded in order to retain the required geotechnical setback from Caseys Creek. In addition the location of a zone boundary does not necessarily result in a rural site becoming unviable (as it is a line only) and can continue to be used for rural activities. It is acknowledged the returns from urban development may be greater than a horticulture use.
177. As indicated above some of submitters query the consistency of the geotechnical setbacks from Caseys Creek which result in the exclusion of some sites from the plan change areas and I comment on this below.

- **56, 58, 58A and 60 Old Renwick Road**

178. P and R Gibson (60 Old Renwick Road) and I and J Campbell (56 Old Renwick Road), R and K Davis (58 Old Renwick Road), and B Hayton and S Stark (58A Renwick Road) have requested that their sites at Old Renwick Road be included in either Plan Change 64 or 68 which they adjoin, on the basis that exclusion on geotechnical grounds is not justified as their sites are not within a buffer of 100m of a spring associated with Caseys Creek
179. The report from Mr Morris (**Appendix C**) indicates that the submitters' sites were not included as part of the Opus investigations as the sites were not considered for urban growth in the growth strategies ie it did not form part of the area variously identified as N1, N-a, Blenheim -N or Growth Areas 1 or 5. I understand the sites were not originally included because the site was already subdivided to an urban density (although not to a density possible under Urban Residential 2). All the sites have reasonably substantial dwellings on them.
180. Mr Morris goes onto say that in geotechnical terms he considers that the submitters' sites are at considerable risk from lateral spread given the proximity of potentially liquefiable soils and that there is no inconsistency. Mr Morris is of the view that without specific geotechnical investigation a precautionary approach should be taken and that rezoning is not appropriate.

- **38 and 44 Old Renwick Road**

181. P and M James in respect of 38 Old Renwick Road and MI and CM Locke of 44 Old Renwick Road have queried the exclusion of the above sites on the basis of the Opus investigations in respect of Caseys Creek and consider that ground testing in the area is incomplete. To this end they have sought advice from a professional engineer who recommends further testing.
182. Mr Morris in his report reiterates the potential for lateral spread from Caseys Creek is a significant risk and that based on existing information a precautionary status is justified such that rezoning should not occur.

Land south side of David Street

183. TC Rougham and K and L Morgan have requested that the south side of David Street (including 102 Battys Road) is included in Plan Change 70 particularly given the nature of existing residential development. The submissions do not specify the precise area that should be rezoned and the submission of K and L Morgan appears to refer to a "transition" area.
184. I note that an area south of David Street was included in the original growth areas but deleted following the Opus investigations. The February 2013 Opus report noted that "lateral spreading is likely to be a significant issue in Area 6 , particularly along the southern boundary where up to 7.7m of soft silt and clay soils are present adjacent to the Old Fairhall Stream" (Area 6 page 8). This matter is also referred to in the Growing Marlborough report on page 39 under Area 6. The report from Mr Morris considers it is not appropriate to rezone the area without further information.

33 Battys Road

185. W and C Lindstrom adjoin the southern boundary of plan Change 70 and have requested the inclusion of 33 Battys Road in the plan change area. The applicant submits they were advised that their site is not included because of proximity to a manmade creek and spring and potential for liquefaction. The submitters indicate that despite “2 major earthquakes” they have not seen any evidence of liquefaction.
186. Mr Morris in his report notes that investigations found the submitters’ property is in the higher range for lateral spread and that while the closest test information does not necessarily indicate susceptible soils caution should be exercised as the soil structure is variable. Mr Morris indicates further detailed investigation is required in respect of the suitability of the property if it was to be included.

Other Alternative Areas

187. Submitters have suggested alternative sites such as Omaka Aerodrome (suggests this is relocated), Burleigh, Ben Morven Road and Renwick are investigated and suggest the MDC evaluation is incomplete and inadequate. I note Council has been through an extensive growth option study that involved extensive consultation. Various options were considered including those referred to above and were discounted (although growth at Renwick is proposed) for a variety of reasons. I understand that the Ben Morven Road area did not form part of the original studies but that MDC consultants, Urbanism Plus subsequently commented on the area in a letter dated 24 May 2013 (attached as **Appendix F** to the Section 42A report) and concludes that the area does not offer any advantages for urban growth. Accordingly the other alternative areas are not favoured at this stage.
188. In summary a number of additional sites and areas are suggested in submissions. For these to be considered initially the legal test of whether the respective submissions are “on” the plan changes must be passed. As indicated above there appears to be doubt as to this, particularly in relation to those sites that do not adjoin the proposed areas or are in ownership other than the submitters.
189. There are also a number of technical reasons which mitigate against their inclusion, including geotechnical issues. At this stage inclusion of the additional sites and areas is not recommended but this may change following submissions at the hearing.

Support of Proposed Growth Areas

190. Submissions expressed support for the plan changes for the following reasons:
- Some areas are already largely residential such as Plan Change 70 area.
 - The plan changes enables coordination and avoids ad hoc development
 - A reasonable supply of land will assist in constraining housing costs
 - The plan changes will provide a choice of “quality” sections
 - The Plan Changes will meet an “urgent need” (Kapiti Views Trust).

191. In general I agree with these submissions given that the outcome of the plan changes will be the sustainable growth of Blenheim in a planned and efficient manner.

STATUTORY ASSESSMENT

192. Having regard to the matters raised in submissions I am of the view that the plan changes, subject to some amendments, are able to meet the relevant statutory tests as set out below.

193. Part 2 of the Act is referred to in Sections 32, 72 and 74 of the RMA, all of which pertain to plan changes. In terms of Section 5, the plan changes will enable people and communities to provide for their social and economic wellbeing that will meet the reasonably foreseeable needs of future generations (until at least 2030). A natural resource, in the form of versatile soils, will be diminished in terms of its productive capacity although this appears to be an inevitable consequence if Blenheim is to expand from its historical location. Potential adverse effects arising from the plan changes can be adequately managed by the provisions of the plan changes and the WARMP provisions.

194. There do not appear to be any matters of national importance that are of particular relevance (Section 6). Some Other Matters in Section 7 that are of relevance include the efficient use of resources (Section 7b). The location of the plan changes adjacent to existing infrastructure will assist in the efficient use of infrastructure. It is acknowledged that there is the possibility that land may become degraded and not utilised to its full potential if not immediately developed for residential purposes.

195. The amenity values and quality of the environment (Sections 7(c) and (f)) will inevitably change over time but as indicated above in the overall assessment this is not considered a major factor particularly if the new environments created through the subdivision process are of a high standard. In terms of Section 8 of the Act no particular iwi issues have been raised.

196. Generally I consider the proposed Plan Changes are the most appropriate for achieving the relevant objectives of the WARMP. The proposed areas, which are derived from an extensive growth strategy exercise, are consistent with the existing approach in the WARMP which is to provide for residential development where it adjoins existing residential development and in a compact form that enables the efficient provision of infrastructure and roading.

197. As indicated above there are tensions with the expansion onto versatile soils but the WARMP acknowledges this as a likely consequence with the growth of Blenheim. It is also acknowledged there will be tension at the urban/rural interface in terms of reverse sensitivity. The WARMP indicates there is some inevitability about these issues and that at the interface residential activities have to accept a compromise in terms of their amenities. Subdivision design can be used to mitigate effects and other measures such as setbacks (including the "National Grid Yard") and scheduling can be considered.

198. The provisions relating to the requirement for subsoil investigations and foundation design will better achieve Objective 1(Chapter 23.2.1) by promoting suitable mitigation measures in a potentially hazard prone land and the particular policy relating to the road layout is considered appropriate to ensure that a safe, efficient

and integrated road network is implemented at the time of subdivision in order Objective 1 (Chapter 23.5.1) is better achieved.

199. Based on the assessment undertaken, it is concluded that in terms of Section 32 of the Act the proposed provisions are the most appropriate way to achieve the objectives of the WARMP. The benefits of the Plan Changes outweigh the costs and the provisions achieve a high level of effectiveness and efficiency. There is sufficient information available to proceed and risk of acting is considered to be low compared with the risk of not acting.
200. Section 74 (2) of the Act states regard is to be had to strategies prepared under other Acts. In this respect the growth strategy documents prepared under the Local Government Act 2002 provide a sound basis and justification for the plan changes.
201. Section 75 (3) of the RMA states that the plan changes shall give effect to any national policy statement and the regional policy statement. The submission from Transpower enables a response to be made in respect of giving effect to the NPSET as it relates to the presence of transmission lines in the Plan Change 65 area. Accordingly I consider effect is given to this national policy statement. No other national policy statements appear particularly relevant.
202. In terms of the regional policy statement, the Marlborough Regional Policy Statement (RPS) was made operative in 1995. The RPS does not directly address the issue of urban growth but contains objectives and policies relating to such matters as soil productivity (6.1.5), amenity values (7.1.7), scale and location of activities (7.1.10), roading (7.1.15) infrastructure (7.1.21) and hazard mitigation (7.4.2).
203. Overall I consider that the plan changes will give effect to the RPS because the plan changes:
 - Implement the “growth” provisions of the WARMP which as settled provisions in turn give effect to the RPS
 - Implement a safe, integrated and efficient road network within the Plan Change areas and;
 - Regulates activities in potentially hazard prone areas by requiring sub soil investigations and appropriate foundation design if required.

CONCLUSION

204. The proposed plan changes implement an MDC growth strategy which was commenced in 2009 and completed in 2013. The plan changes provide for anticipated residential growth in Blenheim over the next twenty years or so. In my view the plan changes are also in general accordance with the growth objectives and policies of the WARMP in that the proposed expansion areas adjoin the existing urban area and are generally in a compact form. The changes also implement the WARMP provisions in respect of natural hazards by avoiding the most susceptible areas and implementing appropriate mitigation measures.
205. There is some tension in the WARMP provisions relating to versatile soils and urban expansion but it is anticipated by the Plan and in these circumstances the plan changes are an appropriate mechanism. Given the current circumstances, including

the location of such soils, there is no other option than to develop versatile soils for residential purposes.

206. Reverse sensitivity is also a significant issue but I note this issue currently exists at present. The WARMP addresses this matter in a variety of ways but in terms of regulation appears to rely on appropriate subdivision design as mitigation. Accordingly at this stage I believe the status quo should apply (except for recognising the Transpower lines) although other options such as setbacks and scheduling may be considered.
207. Generally it appears other adverse effects can be avoided, remedied or mitigated. The areas can be adequately serviced over time with appropriate infrastructure and that appropriate policy and funding mechanisms are in place. Issues such as rating and affordable housing are best addressed in other forums.
208. A number of additional sites and areas are suggested and it must be determined if the relevant submissions are “on” the plan changes. However because of geotechnical reasons and their separation from the existing urban area the additional sites do not lend themselves to inclusion.
209. Given the number of issues raised in submissions an overall judgement is required. In my view having regard to the purpose of the RMA I consider that the plan changes, subject to some amendments, are the most appropriate to achieve the objectives of the WARMP.

RECOMMENDATION

210. I recommend that Plan Changes 64-71 be approved subject to the following:

1. Section 1 SO 4932 (Transpower site) is deleted from Plan Change 65.
2. Add the following Rule to Chapter 32.0 Urban Residential 1 and 2 Zones

32.1.9 Buffer Corridor provisions around National Grid Transmission Lines

32.1.9.1 All earthworks within the National Grid Yard shall:

- a) Be no deeper than 300mm within 12m of any National Grid support structure foundation
- b) Not create an unstable batter that will affect a National Grid support structure; and
- c) Not result in a reduction in the ground to conductor clearance distances below what is required by Table 4 of NZECP34.

Provided that the following are exempt from points a) above:

- Earthworks undertaken by a Network Utility Operator; or
- Earthworks undertaken as part of agricultural or domestic cultivation, or repair, sealing or resealing of a road, footpath, driveway or farm track.

32.1.9.2 Permitted Activity Standards for buildings and structures within the National Grid Yard

a) On all sites within any part of the National Grid Yard any buildings and structures must:

(i) Be a fence up no more than 2.5m high; or

(ii) If they are for a sensitive activity, not involve an increase in the building height or footprint where alterations and additions to existing buildings occur; or

(iii) Be network utilities within a transport corridor or any part of electricity infrastructure that connects to the National Grid; or

(iv) Be an uninhabited horticultural structure; or

(v) Be any public sign required by law or provided by any statutory body in accordance with its powers under any law.

(vi) An accessory building for a sensitive activity that is no more than 2.5m high or 10m² in area.

b) All buildings or structures permitted by XX a) (ii) to (vi) must be at least 12m from any National Grid support structure and must comply with at least one of the following conditions:

(i) A minimum vertical clearance of 10m below the lowest point of the conductor associated with National Grid lines; or

(ii) Demonstrate that safe electrical clearance distances required by NZECP34 are maintained.

Note: Vegetation to be planted around the National Grid should be selected and/or managed to ensure that it will not result in that vegetation breaching the Electricity (Hazards from Trees) Regulations 2003.

The New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34: 2001) contains restrictions on the location of structures and activities in relation to transmission lines. Compliance with this code is mandatory. Compliance with this plan does not ensure compliance with NZECP34:2001

3. Add the following to Rule 32.5

- Within any National Grid Yard the following are non-complying activities:

a) Any building or addition to a building for a sensitive activity.

b) Any change of use to a sensitive activity or the establishment of a new sensitive activity.

c) Any building or, structure not permitted by Rule XX (above permitted activity rules).

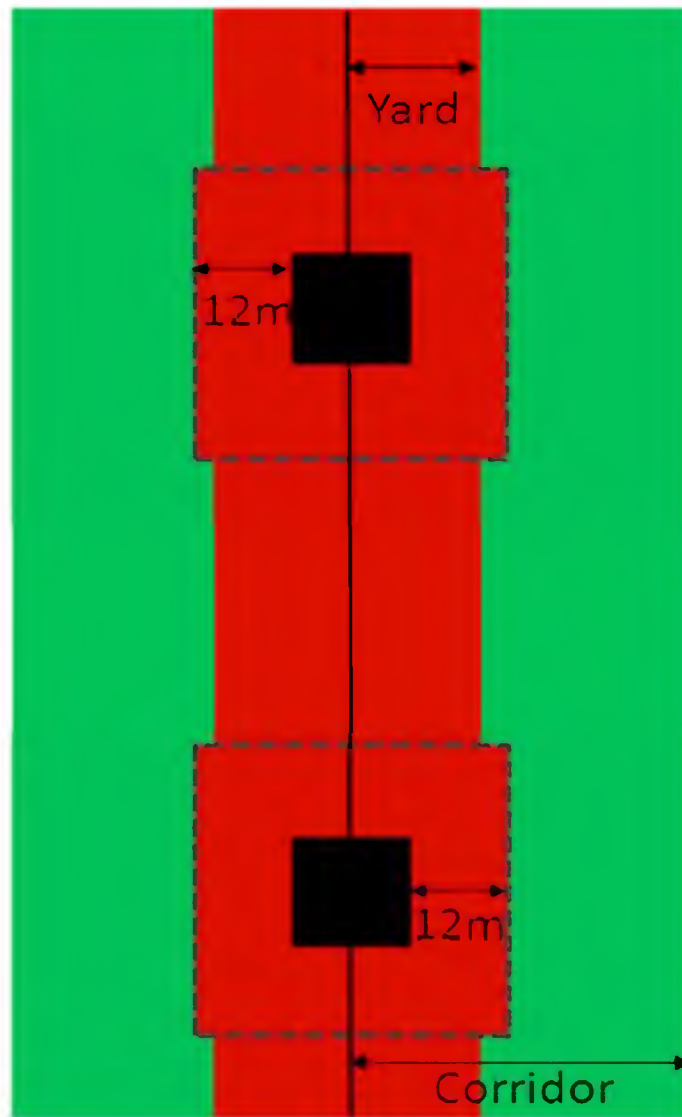
4. Add the following definition for “Sensitive Activities” as a consequential amendment

Sensitive activities in respect of National Grid high voltage lines means those activities that are particularly sensitive to the National Grid high voltage transmission lines.

Such activities include residential activities, day care centres, papakainga, schools, and hospitals.

5. Add the following definition for "National Grid Yard" to the Definitions Section as follows:

National Grid Yard means the area located 12 metres in any direction from the outer edge of a National Grid support structure and the area located 12 metres either side of the centreline of an overhead National Grid line (refer to diagram).



Not to scale

LEGEND



Tower

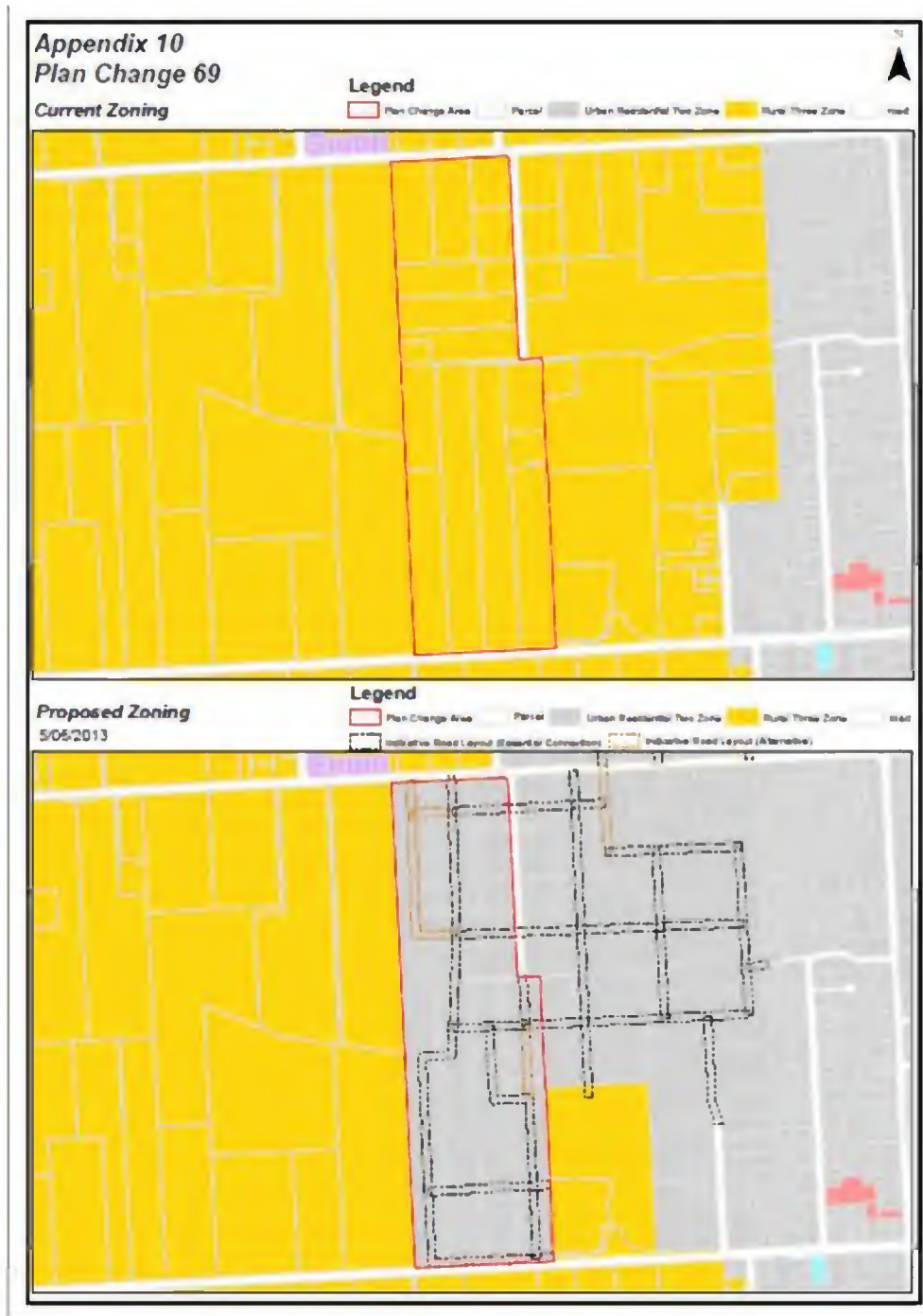


Centreline

6. Amend Plan Change 69 planning map by:

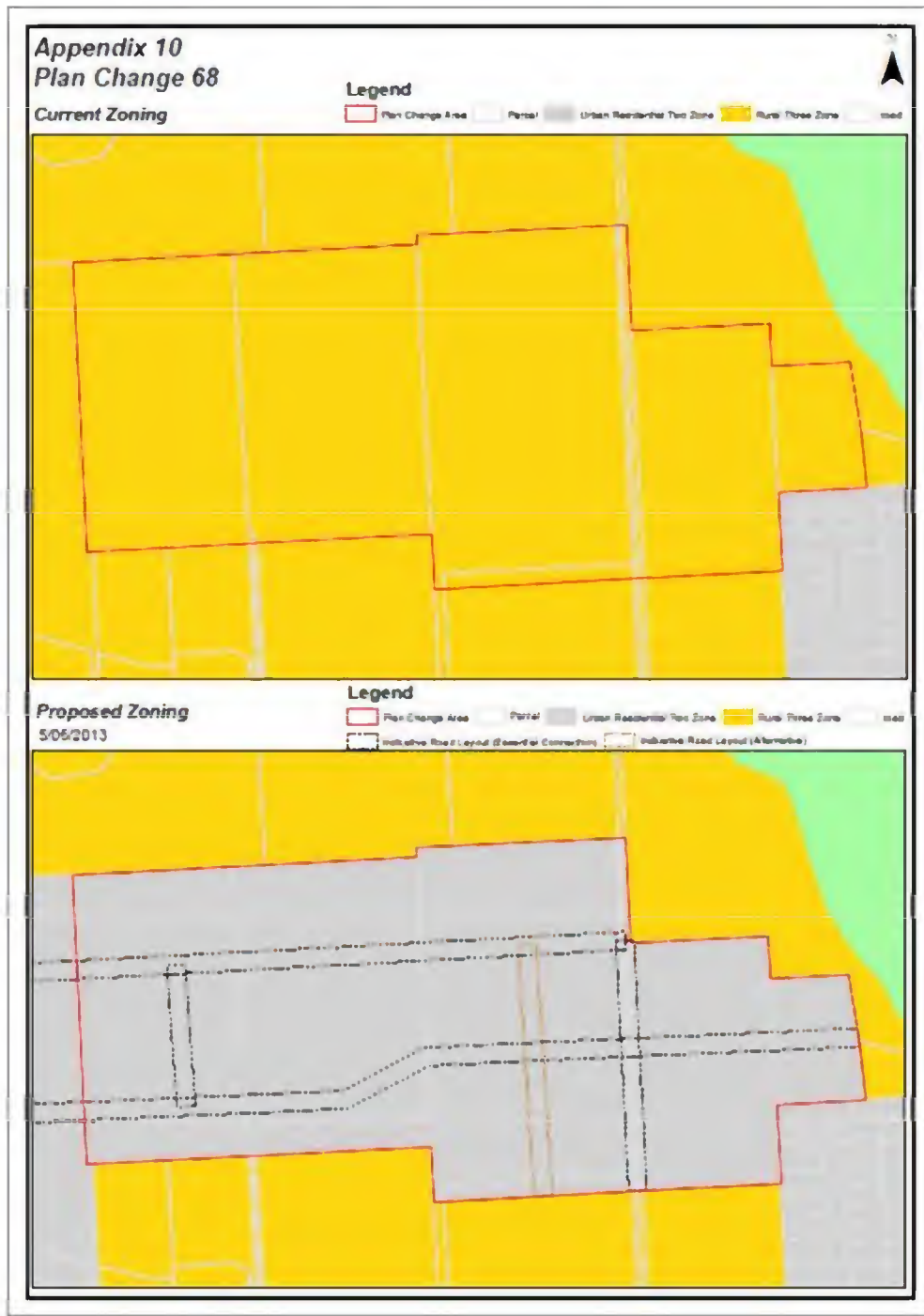
(i) Deleting the link road shown on Westwood site (if this is determined to be legally appropriate) and:

(ii) Amending location of east-west road in Plan Change 69 adjacent to Westwood site as shown below:



7. Amend Plan Change 68 planning map by:

(i) Deleting the link road to the east and south of the Plan Change area (if this is determined to be legally appropriate) as shown below:



February 4 2014.

Appendix A

Summary Table – Submitters on Marlborough District Council Plan Changes 64-71

	Submitter	Plan Change(s) Submitted on	Support(S)/ Oppose(O)	Further Submission (o)-oppose (s)-support	Recommendation on Submission
1.	G.J Barnett	64 - 70	O	1(s)	Reject
2.	R.W Beardsworth	64 - 71	O	1(s)	Reject
3.	J. Bunting	64 - 71	S	2(o)	Accept
4.	A.M Campbell	64 - 69	O	1	Reject
5.	M. Cresswell	64 - 69	O		Reject
6.	Deluxe Properties Limited	64 - 71	S	2(o)	Accept
7.	A. Drew & C. Maffey	64 - 69	O	1(s)	Reject
8.	J.T Ford	64 - 70	O		Reject
9.	K. Fowler (Mainland Residential Limited)	64	S		Accept
10.	P and R Gibson and others	64 and 68	O		Reject
11.	M.L Gifford	64 ,65, 67, 68	O	3(s)	Reject
12.	P. Ham	64 - 71	O	6(s)	Reject
13.	T. Harrison	64 - 71	O		Reject
14.	A.J Hawke	64 - 71	S/O		Accept in part
15.	P.G & M.T James	64 - 71	S/O		Accept in part
16.	Kapiti Views Trust	64 - 71	S/O	1(s) 1(o)	Accept in part
17.	K.O Lawrence	64 - 71	O		Reject
18.	M.I and C.M Locke	64 -71	S/O		Accept in part
19.	A. Mackenzie	64 - 69	O	1(s)	Reject
20.	Marlborough Province of	64 -71	S/O	1(s)	Accept in part

	Federated Farmers				
21.	J. E Marris & A.L Marris	64 - 71	S/O	1(s) 1(o)	Accept in part
22.	R. Mason	64 - 69	O		Reject
23.	K. & L. Morgan (2 submissions)	64 -71	O	2(s)	Reject
24.	Nelson-Marlborough Branch of New Zealand Institute of Surveyors	64 - 71	S/O	1(s)	Accept in part
25.	New Zealand Transport Agency	64 - 71	S/O		Accept in part
26.	T. Orman	64 - 69	O	1(s)	Reject
27.	K.J Saville-Smith	64 - 71	O		Reject
28.	D. Wilson	64 - 70	S/O		Accept in part
29.	D.L Price	65 – 67, 69 and 70	O	1(s)	Reject
30.	J. Bush & Sons Limited	65 and 67	O	1(s)	Reject
31.	A.L & V.M Gifford	65 and 67	O		Reject
32.	Transpower New Zealand Limited	65	O	1(s)	Accept in part
33.	The JMK Family Trust	65	S/O	1(s)	Accept in part
34.	M & M Woodbury	65	O	1(s)	Reject
35.	H.E.F & C.M.T Jones	65 - 71	S/O		Accept in part
36.	Outer Limits Limited (3 submissions)	66, 69 and 71	S/O	1(o)	Accept in part
37.	Talleys Group Limited	66 and 69	O		Reject
38.	H and J Armstrong	67	S		Accept
39.	W and C Barnett	67	S/O		Accept
40.	K.E Hale & D. Ballagh	67	O		Reject
41.	ML Gifford	67	O		Reject
42.	R.N & G.W Hale	67	O		Reject
43.	C. & L. Sowman	67	O	2(s)	Reject
44.	M.G Sandall	67	O		Reject

45.	Stark Family Trust	67	S/O		Accept in part
46.	Herkt Properties Limited	68	O		Reject
47.	B.R Stanton	68	O	1(s)	Reject
48.	Foodstuffs (South Island) Properties Ltd	69 and 71	O	1(o)	Reject
49.	Provincial Coolstores Ltd	69	O		Reject
50.	I.J Brooks	70	O		Reject
51.	P. Brooks	70	O		Reject
52.	P. Gissing	70 and 71	S		Accept
53.	W. & C. Lindstrom	70	O		Reject
54.	S.C Ramsay	70	O		Reject
55.	T.C Rougham	70	O		Reject

Appendix B

**EVALUATION OF SOILS PROPOSED FOR URBAN EXPANSION
TO THE WEST, NORTH WEST OF BLENHEIM, & COMPARISON
OF SOILS TO THE SOUTH EAST OF BLENHEIM**

PREPARED FOR:

MARLBOROUGH DISTRICT COUNCIL

PREPARED BY:

*RD SUTHERLAND
PALMS LTD*

February 20

BIBLIOGRAPHIC REFERENCE:

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February, 2014

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1. INTRODUCTION

This report is an evaluation of soils proposed for urban expansion to the west and north west of Blenheim urban area, and comparison of soils to the south east of Blenheim.

2. THE BRIEF

Prepare a report on the likely soils to be encountered in the areas of Blenheim Urban Growth Changes that have been advertised on Plan Changes 64-71 of the Wairau/Awatere Resource Management Plan. Compare the soil characteristics of the soils identified with soils to the south east of Blenheim. Review current use of the land identified.

3. REPORT PREPARATION

Preparation of this report utilised published soil reports and maps and also utilised data captured on investigations for particular clients with the Plan Changes areas as adjacent. No new soil mapping has occurred.

All published data has wide scale differences ranging from 4 miles to 1 inch NZ Soil Bureau 1968, Harris & Birrell 40 chain to 1 inch, and Rae & Tozer 1-50,000, this exercise has been an integrated one of existing data and the writer's own experience of soil investigations in the area.

4. BACKGROUND

Plan Changes 64-71 to the Wairau/Awatere Resource Management Plan drew a number of submissions concerned about the loss of high quality and versatile soils and suggested alternative locations for urban expansion.

The writer has undertaken soil assessments on a limited number of properties, primarily for viticulture purposes and has used the data collected from these studies to supplement data from previous soil investigations of the Wairau Plains. Soils identified follow the classification developed for soil assessments of the Blenheim – Renwick District in 1990.

5. SOILS IDENTIFIED WEST & NORTH WEST OF BLENHEIM

There are three main soils identified within the Plan Change area that have been formed on the younger terraces of the Wairau River. These soils are formed in relatively recent alluvium. Periodic flooding of the Plains from the Wairau, Opawa and Taylor River systems have ensured regular deposits of silt and in places gravels onto the plain surface. In many areas where the deep soils are present such as in the Plan Change Zones buried soil sequence are evident indicating the soil building processes that have occurred before flood protection of the Wairau Plains.

5.1 WAIRAU SOILS

There are two phases of Wairau Soils being;

1) Wairau Series

A well-drained loamy alluvium. These soils are deep silt loams greater than 75cm with brown silt loams and fine sandy loams. Buried profiles are common and widespread illustrating the depositional history and formation of the Wairau Plains.

2) Wairau Series Mottled phase.

This series is moderately well drained formed from recent loamy alluvium. Soils are deep greater than 75cm with dark grey brown silt loams overlying brown silt loams. Red and grey mottles occur in the C horizon below around 40cm. This is a slight drainage impediment resulting from fluctuating ground water tables in winter, early spring.

As with Wairau Series Soils variation occurs with well drained sandy loam thickness overlying loamy soils and moderately deep and moderately well drained silt loams overlying stony/gravel layer. Buried profiles are also common.

Inclusion of stony Rapaura Series may be present towards the northern extent of the proposed Plan Change area.

5.2 GROVETOWN SERIES SOILS

The third primary soil in the north west immediately adjacent to Old Renwick Road and David Street vicinity are Grovetown Series Soils.

This series is imperfectly drained soil formed in recent loamy alluvium. Again soils are deep in excess of 75cm and are characterised by dark grey brown clay loams or heavy silt loams often with red mottling in the A horizon. B horizons are greyish brown silt loams with distinct red mottling. C horizons are grey silt loams with distinctive red mottles. Grey and red mottles are indicative of fluctuating groundwater levels in winter and early spring.

Again there is some variation within the series which indicate imperfectly drained deep sandy loam soils and buried silt loam profiles and then covering of recent alluvium (up to 50cm).

To the south of David Street Paynter Series soils that are poorly drained occur. It is likely that there are inclusions of such soils in Grovetown Series especially to the east of PC70.

6. SOIL VERSATILITY FOR PRODUCTION USE

6.1 DISCUSSION

Concerns have been expressed in submissions on the loss and versatility of these soils from rural production and in particular food production. In the writer's opinion the soils are versatile but do have both physical and cultural limitations.

Evaluation of soil versatility has followed the system outlined by Wilson and Giltrap (1984).

The table below provides ratings for a range of soil properties that are important for a range of cropping options be they broad acre, wheat, barley, peas, corn or horticultural crops including viticulture, berry fruits and market gardening with soil management requirements for these crops. The information indicates what is limiting and non-limiting to crop production.

Such a rating uses interpretation of morphological properties of the soils.

Table 1: Soil Characteristics - West, North West Blenheim

Soil Class	Potential root depth (cm) (P.R.D.)	Root depth limitations	Penetrability of P.R.D.	Readily available water (mm)	Soil water Deficit (mm)	Aeration status	Air filled porosity	Stoniness	Traffic-ability	Response to drainage
Wairau series	>75	none	very easy	>130	<400	very good	very high	stoneless	all year	N/A
Wairau series mottled phase	>75	none	easy	>100	<430	good	very high	stoneless	slight limitations	good
Grovetown series	45-75	aeration	moderate	50-75	470-450	moderate	high	stoneless	slight limitations	good
Potentially Encountered										
Rapura series	15-45	water retention	very easy	25-50	515-485	very good	very high	Slightly stony over very stony	all year	N/A
Paynter series	30-45	aeration and root penetration	moderate	50-75	485-450	poor	very low	stoneless	severe limitations	very poor

Tozer & Rae 1990

Table 2: Soil Versatility - West, North West Blenheim

Soil Class	SOIL ROOT ZONE CRITERIA				MANAGEMENT CRITERIA			SITE CRITERIA			VERSATILITY CLASS	
	Root penetration Index (p)	Soil water deficit (d)	Aeration status (w)	Air filled porosity index (v)	Stoniness class (s)	Traffic-ability class (b)	Irrig. frequency Class (RAWC) (l)	Slope Class (t)	Erosion Risk (c)	Flood risk (f)	Dry-land	Irrigated
Wairau series	1	4	1	1	1	1	1	1	1	1	4d	1
Wairau series mottled phase	1	4	2	1	1	2	1	1	1	1	4d	2bw
Grovetown series	3	5	3	1	1	2	2	1	1	1	5d	3pw
Potentially Encountered												
Rapura series	1	5	1	1	1-2	1	3	1	1	1	5d	3i
Paynter series	3	5	5	5	1	4	2	1	1	1	5dvw	5vw

Tozer & Rae 1990

The above index allows a soil versatility class to be made.

Table 3: Soil Versatility Classification – West, North West Blenheim

Versatility Class	Rating	Intent
1	Very versatile	Capable of production of a wide range of crops with few production or management limitations.
2	Versatile	
3	Moderate versatile	Production of a moderate range of crops with greater management requirements.
4	Limited versatility	Production of a limited range of crops with large management inputs and/or lower yields.
5	Very limited	Production and management options versatility are severely limited
6	Non-versatile	-

Tozer & Rae 1990

As can be expected by analysis of soil characteristics and relating these to soil morphology, versatility an index enables a rating to be derived as illustrated above.

There is only one soil on the Wairau Plains that fits Versatility Class 1, which is the Wairau Series. Class 2 although versatile is a step down and includes the Wairau Series Mottled Phase.

Class 3 includes the Grovetown Series and Rapaura Series (which is possible inclusion soil series to the north of the zones).

Class 5 includes the Paynter Series. These soils are slowly permeable and have impeded drainage, poor aeration and root penetration. They require a high level of management input and likely to be an inclusion within the broader Grovetown Series Soils.

7. CULTURAL & EXISTING LAND USE CONSIDERATION

A review of the areas under each Plan Change Zones shows that the use of the land has substantially changed from what was once broad acre cereal cropping, lucerne, small seeds, peas, for processing and seed and fattening land for sheep and cattle. As illustrated below these are the current present uses observed in each of the Plan Change Zones.

- PC64 East of Thompsons Ford Road and North of Old Renwick Road.
Ten individual titles dominated by two large vineyard blocks.
Five residences and other three crops (feijoa) on two titles. Grazing/lifestyle on two titles.
- PC65 North of Old Renwick Road and bisecting Thompsons Ford Road;
East Thompson Ford Road – 5 titles
2 grape blocks and 1 large grassland title and two smaller residential titles (one is Transpower owned).
- West Thompsons Ford Road – 11 titles
3 viticulture properties and 6 large lifestyle, grazing titles including 1 beekeeping enterprise and 1 market garden.
- PC67 North Old Renwick Road to Blinks Lane – 13 titles
3 large viticulture blocks and 1 smaller block
9 lifestyle properties with grazing small scale market gardening, flower production.
- PC66 South Old Renwick Road and East Renee Street to Middle Renwick Road
4 large viticulture properties
2 cherry blocks – covered
1 significant berry fruit production property
1 industrial site – storage
1 glasshouse
19 residential sites of various sizes including grassland and probable periodic cropping.
- PC69 South Old Renwick Road – West Renee Street – 14 titles
10 viticulture blocks
2 industrial cold stores and other storage site.

2 residential Lots
1 agricultural/horticultural service centre
3 large cherry orchards

Plan Change 68

4 large viticulture allotments
1 smaller bare block grassland.

PC70 David Street, Sevene Street, Battys Road

East of Battys Road 4 various lifestyle blocks
1 wood/coal storage.

West Battys Road to Sevene Street
18 larger residential lifestyle properties
2 larger grassland blocks occasionally cultivated.
Some flower growing and small seeds (onion).

West Sevene and North David Street – 14 titles
Generally of larger size including grazing.

A Plan Change 68, 64, 65, Pt 66, Pt 67, Pt 69, Pt 70 are dominated by Grovetown Series/ Pt west and north of PC67 is Wairau Series Mottled Phase Soils while Pt PC66 are Wairau Series Soils. Part of PC70 also has elements of Paynter Soils present.

7.1 DISCUSSION

As earlier illustrated the Versatile Soils are focused on parts of the Proposed Plan Change although it can be said that there is variation and decline in versatility over some Plan Change due to property size and landowner preferences.

Versatility has been constrained by cultural change. That is viticulture dominates the larger properties and is the high end of productive value for viticulture and other crops.

Other uses for the production of food are limited by property size although there are landowners undertaking a variety of economic activities including cherries, berry fruit and market gardening. There are several “industrial” sites being packing houses, cool storage and greenhouse production.

Further the number of titles is substantial already as illustrated above. It is unlikely that those soils will change from existing production patterns of viticulture to other field crops and certainly not the industrial activities that have developed overtime in area. Namely cool stores, service facilities, storage buildings, glasshouses which are high value buildings with an established footprint over the soil of the area.

8. CONTRAST WITH SOUTH EAST BLENHEIM

South east of Blenheim was considered an appropriate for further urban expansion however the potential for liquefaction from the underlying geology was considered to create excessive cost in development.

Four soils are identified in this area south of the Opawa River to Riverlands. They are dominated by Paynter/Temaka Soils that are present from the urban boundary. They are generally low lying heavy silt loams that are poorly drained. They have a very dark grey brown A horizon over a B horizon of grey clay with distinct clay skin and red mottles. C horizons are deep of grey clay and intense red mottling. At depth sand and shell deposits are encountered in soils and can often be high in sodium.

Two sand based soils also occur in the area being;

- (A) Murray Soils located to the north of Alabama Road that covers a small belt approximately 100m wide. They are well drained soils formed in dune sands that have been partly buried by recent loamy alluvium from flooding from the Wither Hills and Taylor/Opawa Catchments.
- (B) Tahunanui Series Soils are identified in a small block at "the sand dunes". These soils are extensively drained soil formed in the dune sands. They are deep soils of loamy sands at A horizon and brown to grey sands in the B and C horizons. With depth the sands are quite loose.

Along the fringe hill country of the Wither Hills small farms have developed soils correlated with Eyre-Paparua Soils that are shallow stony/sandy silt loams derived from alluvium with a thin loess curve generally deposited on fine silt in flood events.

Inclusion of Motukara Soils can be found within the Paynter/Temaka Series Soils. They are sandy loams to clay loams derived from recent alluvium. They are affected by sodium and can be seen to have salt tolerant grasses and herbs present.

Table 4: Contrast with Soil Characterises

Soil Class	Potential root depth (cm) (P.R.D.)	Root depth limitations	Penetrability of P.R.D.	Readily available water (mm)	Soil water Deficit (mm)	Aeration status	Air filled porosity	Stoniness	Traffic-ability	Response to drainage
Paynter series	30-45	aeration and root penetration	moderate	50-75	485-450	poor	very low	stoneless	severe limitations	very poor
Tahunanui series	>75	none	very easy	>65	<470	very good	very high	stoneless	all year	N/A
Murrays series	>75	none	easy	>120	>400	good	very high	stoneless	slight limitations	N/A
Potentially Encountered										
Eyre/Paparua series	45	none	easy	35-50	515-485	very good	very high	moderately stony/very stony	all year	N/A
Motukara series	>75	over time root penetration sodium	limited	50-75	485-450	good	very low	stoneless	very poor	very poor

Tozer & Rae 1990

Table 5: Soil Versatility South East Blenheim

Soil Class	SOIL ROOT ZONE CRITERIA				MANAGEMENT CRITERIA			SITE CRITERIA			VERSATILITY CLASS	
	Root penetration Index (p)	Soil water deficit (d)	Aeration status (w)	Air filled porosity Index (v)	Stoniness class (s)	Trafficability class (b)	Irrig. frequency Class (RAWC) (l)	Slope Class (t)	Erosion Risk (c)	Flood risk (f)	Dry-land	Irrigated
Paynter series	3	5	5	5	1	4	2	1	1	1	5dvw	5vw
Tahunanui series	1	5	1	1	1	1	2	1	1	1	5d	2i
Murrays series	2	4	2	1	1	2	1	1	1	1	4d	2bpw
Potentially Encountered												
Eyre/Paparua series	1	5	2	1	2	1	3	1	1	2	5d	3i
Motukara series	4	5	6	5	1	4	3	1	1	2	6w	6w

Tozer & Rae 1990

The above index allows a soil versatility class to be made.

Table 6: Soil Versatility Classification

Versatility Class	Rating	Intent
1	Very versatile	Capable of production of a wide range of crops with few production or management limitations.
2	Versatile	
3	Moderate versatile	Production of a moderate range of crops with greater management requirements.
4	Limited versatility	Production of a limited range of crops with large management inputs and/or lower yields.
5	Very limited	Production and management options versatility are severely limited
6	Non-versatile	-

Tozer & Rae 1990

Tahunanui and Murray soils are 2 Versatile.

Eyre/Paparua series falls into versatility class 3.

Paynter soils fit into class 4 and Motukara soils class 5-6 due to water logging and salinity issues.

From a present use perspective the area is dominated by viticulture while vegetable production has in the past been sought in along both sides of Alabama Road and north to the Opawa River. A wide range of vegetable and seed crops have been grown here while interspersed also with grain crops and sheep and beef grazing.

Much of the area has been transformed to viticulture which also relies in drainage and water table management. The effects of sodium can be observed on numerous titles.

In the writer's opinion this area although producing very good shallow rooting crops it does pose challenges for deep rooting species, unless crop and soil management are designed to overcome the issues of high water tables and high sodium levels in soils.

9. CONCLUSION

From a soil physical perspective the soils are generally excellent for production of food. There is however only one elite soil small in area. Land use changes have seen numerous small blocks develop and the variety of cropping models. However versatility is constrained by block size and the presence of infrastructure for long lived crops such as cherries and grapes. The dominant land use is viticulture and that production is for wine production and not food.

The effect of the Plan Change on total food production in the writer's view is minor.

10. BIBLIOGRAPHY

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RD Sutherland
February, 2014

Appendix C

Geotechnical Report - Section 42A report

Marlborough District Council- Blenheim Urban Growth Changes 64 - 71 Wairau Awatere Resource Management Document

1. This report is prepared in response to submissions received to Plan Changes 64-71 as they relate to geotechnical issues. The report sets out the background to geotechnical investigations undertaken as part of the plan change process and addresses the issues raised in submissions.
2. My name is **Neil Alexander Morris**
3. My position with Council is Projects Officer.

Qualification

Present

4. I hold the degree Bachelor of Arts in Geography from Massey University.

Previous

5. Institution of Structural Engineers, London examinations culminating:

Corporate Membership, 1971: Chartered Engineer

6. New Zealand Institution of Engineers:

Corporate Membership, 1973: Registered Engineer

Other

- Member of the New Zealand National Society for Earthquake Engineering.
- Member of the New Zealand Structural Engineering Society.
- Member of New Zealand Risk Management Society.
- Member of the Environment Institute of Australia.

I have ceased membership of these organisations in all instances.

7. In-service training pertinent to this matter –

28 January 2014

Comments : Submissions to Plan Change

May 1985	Engineering Geology for Local Government, Canterbury University
Nov 1993	Fundamentals of Earthquake Engineering, Auckland University
Sep 1999	Risk Management, Canterbury University
Aug 2000	Ultimate Limit State Design of Foundations, Auckland University
Nov 2002	Risk Management, Institution of Engineers Australia

Regular Attendance at the NZ Society for Earthquake Engineering Technical Conferences to maintain an awareness of developments in the field.

Experience

8. I was a Structural Design Engineer from the late 60s until 1981 working in a consultancy, and on my own account briefly, My work included domestic, low-rise commercial and industrial structures, road and rail bridges and site stability investigation; for all phases, namely, site investigation design specification, construction supervision and contract management.
9. I was been involved in the administration of District Planning in Marlborough for almost 17 years from 1981 comprising 8 years with the Marlborough County Council as Assistant Executive Officer with responsibilities for the day to day administration of the Marlborough County District Scheme including Scheme Changes, Planning Applications and Subdivisions. Additionally I was the Engineer for the Purposes of the Bylaws and supervised the administration of building and health regulation, I performed other duties under the Local Government Act relating to regulation and control.
10. On creation of the District Council I was District Planner for 7 years with responsibilities for the District Plan administration, Bylaws regulation and related matters under the Local Government Act.
11. I moved to a newly created position of Resource Management Projects Officer from February of 1997. My duties in this role are in natural hazards planning, risk and liability management, dealing with one-off planning matters initially including mediation of planning applications and chairing Resource Consent pre-hearings. More latterly I have been involved in Earthquake-prone buildings and implementation requirements for the upcoming dam safety program.

BACKGROUND

Introduction

12. The issue of liquefaction investigations in Marlborough District has fallen, generally, into three phases. The first of these being consideration of the hazard for the District being a desktop project carried out for Council by Victoria University in 2000. This work could be characterised as being a pilot for planning detailed investigation.
13. The second phase was the more specific considerations arising from the intentions signalled to rezone land east of Blenheim. This coincided with work being done to develop three dimensional modelling of the aquifers in the valley from, mainly, Renwick to the coast and this is covered below under "Prior Considerations".
14. The third phase was the specific geotechnical investigations by Opus Consultants and comprised in their Stage 1 and Stage 2 reports scheduled below.

Prior Considerations

15. Considerable work has been carried out, led by Mr Peter Davidson of this Office, to understand the lithology of the aquifer system of the lower Wairau Plains ("the Plains"). Working with Paul White of GNS (Wairakei) a three dimensional model has been constructed showing the location and nature of the major sediment layers. A key element of that work is the comprehensive record of the wells distributed over the plain. While not logged to geotechnical standards; the information is able to be used in understanding the probable seismic response. I put together a background paper, for internal use, regarding soil sensitivity to seismic shaking in June 2011.
16. The soils most sensitive to seismic disturbance are the fine sands and silts in the ground water environment. Mr White was able to model the locations on the plains having an indicative potential for liquefaction and displayed this graphically making this information available over the period 2011- 2012. In August 2012 a particularly graphic illustration was produced by Mr White showing the variability of the potential for liquefaction and basically confirmed the decision that was made to abandon the proposed eastern areas following the Opus report of May 2012 (Stage 1 Vol 3 in the schedule below)
17. An additional source of information was specific geotechnical work carried out in the Riverlands Industrial Estate for a Council initiated District Plan Change 49.
18. The Marlborough Growth Strategy project had reached a point where some areas east of Blenheim and the area called "Na:Nb" to the north were identified as possible locations for expansion. An in-house working group and a geotechnical engineer from MWH Consulting

Engineers (Paul Woperis) and a representative of Marlborough Lines convened to review the then state of knowledge of soils characteristics in 2011 . The Marlborough Lines official was able to give information about specific investigations in the Riverlands / North East area and Mr Woperis gave advice on geotechnical considerations all giving rise to the need for some detailed investigation. It was quite evident that the eastern areas being proposed for development was problematic for urban expansion and for that purpose registrations of interest were called for to undertake further investigations. Opus was selected and who assisted in preparing a Brief for Work.

19. Marlborough Lines Limited made available some relevant details contained in a report prepared for them (MWH, 2011 “Mayfield to Riverlands 33kV line upgrade proposal “ . Of significance was the sampling done for tower locations and the indicative liquefaction potential at those locations.

Geotechnical Investigations

20. The second phase of the Urban Growth Study was the commissioning of investigations of the sub-soil characteristics resulting in two stages both being carried out by Opus Consultants; their reports are set out for reference as follows –

Stage/Volume	Report Title	Purpose
Stage 1		
Volume 1	Preliminary Geotechnical Appraisal - November 2011	The objective was to define a strategic planning horizon and assist in the acceptability of geotechnical hazards
Volume 2	Site Investigations Factual Report – March 2012	Describes the quantitative information derived from each sampling point
Volume 3	Interpretative Report – May 2012	Derives information from the field data for decision making
Stage 2		
Volume 1	Site Investigations Factual Report – January 2013	Describes the quantitative information derived from each sampling point
Volume 2	Interpretative Report - February 2013	Derives information from the field data for decision making

21. Stage 1 its self is in two parts with Volume 1 setting the hazard-scape for consideration when setting policy. Volumes 2 and 3 had as an objective confirmation of the understanding of the limitations of the soils in the areas selected for the growth study. These being the areas named

as "Na:Nb" north of Blenheim and E1, E2 and SE east of Blenheim and shown on Map 1 in the Appendix

22. Stage 2 of the investigations revisited Na:Nb and seven other area on the western side of Blenheim numbered 1 to 6 and 8 and shown on Map 2 in the Appendix attached to my evidence. The objective was to characterise the soils for their engineering capability and to determine suitability for rezoning. As the primary objective was suitability for residential purposes regard was to be had for the Ministry for Business Innovation and Enterprise "Guidelines"(April 2012) being circulated for development of land in Christchurch.

Stage 1 Investigations

23. Stage 1 its self is in two parts with Volume 1 setting the hazard-scape for consideration when setting policy.
24. The second part had as an objective confirmation of the understanding of the limitations of the soils in the areas selected for the growth study. These being the areas named as "Na:Nb" north of Blenheim and E1, E2 and SE east of Blenheim and shown on Map 1 in the Appendix
25. The findings in the Opus Report (Stage 1 Volume 3 – see schedule above) were summarised in a report to Council by myself (Appendix – Report May 2012). The anticipated findings were confirmed that there are prohibitive development costs to be expected to address the estimated seismically induced settlements in the eastern areas. The findings for the area Na:Nb was considered to be equivocal and it was considered this area should be revisited in a more comprehensive manner as part of a Stage 2 investigation.

Stage 2 Investigations

26. Stage 2 of the investigations revisited Na:Nb and six other areas on the western side of Blenheim numbered 1 ,3, 4, 5, 6 and 8 and shown on Map 2 in the Appendix. The objective was to characterise the soils for their engineering capability and to determine suitability for rezoning. As the primary objective was suitability for residential purposes regard was to be had for the Ministry for Business Innovation and Enterprise "Guidelines"(April 2012) being circulated for development of land in Christchurch.
27. The findings of the Opus investigations (Stage 2 Volume 2 – see schedule above) were summarised by myself in a report to Council (Appendix – Report March 2013)
28. The investigations showed the presence of soils sensitive to seismic shaking in most of the areas evaluated to varying degrees. The predictive model was for a 1:500 year event being essentially the standard for consideration in this context. The expected behaviour being liquefaction and in some locations lateral spread.

29. Given the relatively soft mantle soils of nominal depth 2 metres a range of settlements are predicted (see March 2013 Report) and these generally were considered to align with the MBIE guideline categorised as TC2. This means that specific design would be required for residential buildings.
30. All the areas considered would require further specific geotechnical investigations when presenting for consents, this aligns with the MBIE guidelines. The objective of this requirement being to determine if there were localised area requiring especial consideration.
31. While the investigations identify areas having potential for the soils to spread laterally they did not go so far as to evaluate the degree of lateral spread that might be expected. The evaluation of soils for their propensity to spread laterally would have required a significantly greater level of investigation and was not contemplated.
32. If competent layers proved to be deeper on detailed investigation then the engineering solutions would be commensurately more significant. It was considered that the indicative settlements would be a design consideration to be addressed when submitting a resource consent for subdivision. Subsequently, in conjunction with other Council staff I drafted a proposed rule to be inserted into the WARMP requiring subsoil investigations and foundation design as required. This rule forms part of Plan Change 71.

Summary

33. To assist understanding a very simplified model of the lithology of Blenheim environs is outlined here by using reference lines projected north / south along Redwood Street and Bells Road respectively. The division between marine and alluvial is arbitrary as a consequence and shown on Map 3 in the Appendix attached to my evidence..
34. East of Redwood Street the soil structure is one of a thin soft mantle of “recent” soils generally of decreasing thickness going east overlying soft marine sediments. This area includes the eastern areas identified in the initial growth strategy and are considered to incur a significant penalty on development .
35. West of Bells Road and on the valley floor the structure consists of a soft mantle nominally 2 metres thick overlying alluvially derived gravels generally exhibiting good structural competence.
36. The intervening space between Bells Road and Redwood Street generally sees a competent gravel layer overlain by soft soils derived from the alluvial process of settling out. Various historical and current waterways disrupt the horizontal continuity and incised features give rise to the potential for lateral spread.

Comments : Submissions to Plan Change

37. In general the soft mantle in the areas identified in the plan change exhibits varying degrees of susceptibility for settlement and will require specifically designed foundations.

Comments on Issues Raised in Submissions

<p>12 - P & R Gibson and others. (13258341)</p>	<p>Points raised in the Submission</p> <ol style="list-style-type: none"> 1. The report makes it clear that the issues for our property are not liquefaction-induced ground subsidence 2. The amounts of ground subsidence given above are not sufficient to warrant wholesale exclusion on development 3. ground damage due to lateral spreading reduces at a distance greater than 130m from a river or stream 4. the effects are likely to be limited given the relatively thin deposits of liquefiable material
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Comment

38. The first sentence of the first paragraph of the Opus Report (Stage 2 Vol 2) at 6.6.1 is clearly specific "...areas under consideration for urban growth land use rezoning..." (page 11) The Submitters land was not part of the defined investigation area. The closest exploratory point is CPT 3 (Appendix – Map 2 being Figure 1 Stage 2 Vol 2) and in my opinion, taking into account the investigation results for both Stages 1 and 2, it is not unreasonable to conclude that for the Submitters land, the figures quoted for land subsidence in 6.6.1 (40mm-70mm) are the current best estimate of the effects that can be induced by a seismic event.
39. 6.6.1 para 2 is interpreting the findings of field results which show that directly and by informed interpretation all the study areas are susceptible to seismically induced settlement. Consideration of the results by Opus leads to their conclusion (para 2) that the risk is manageable. I summarised the matter in a report to the Environment Committee March 2013 (attached to my evidence as an Appendix). Given the extent of the susceptible soils and the adjacent investigation points it is more likely than not that the Submitters land would be consistent with the Area Na:Nb than not.
40. The quoted extract from the Opus report (5.5.4 page 8 second para) uses the word "reduces" which leaves hanging the questions – where does it cease or how little is tolerable. Further, the quoted extract is selective and it is of more relevance to consider the comments further on under the head "Area Na:Nb" (page 11) at the second sentence where an emphasis is placed on the eastern end which is interpreted, here, as reasonably including the Submitters land.
41. The submission makes reference to "130 metres" but does not present any technical basis for applying this to the Submitters circumstances. Caseys Creek is incised approximately a metre (perhaps more) and about 2 metres wide at least to the point between the Gibson and Hayton properties and it is the distance perpendicular **from** the creek that is one of the determining

factors for the effects lateral spread. The next factor is one of height differential and last, the presence of liquefiable soil. On the information available both of the factors are present. The sample point CPT03 (Stage 1, Vols 2 & 3) indicates the level of liquefiable soil being close to the stream invert and the Gibson / Hayton residences within a nominal 50 metres and the other Submitters dwellings somewhat closer.

42. At this time I am not aware of any measure as to an acceptable degree of land disturbance in the form of dispersed cracking or block sliding that can be induced by a seismic event.
43. In the Submission page 6 para 2 the Submitter refers to excerpts from my report of March 2013 about the exclusionary distance in respect of lateral spread beyond 100 metres and that some form of control be considered. The Submission appears to be drawing a conclusion that beyond 100 metres I have view that development is acceptable. That might be a reasonable laypersons conclusion having missed that at paragraph 11 in the Report I say "...that at some distance from the margins it may be economic to provide measures..." and this forms the basis of the Recommendation referred to. The intrusion into Na:Nb along the northern boundary has been discussed and not excluded because it was felt this could be addressed possibly geotechnically given the distances involved or by control of lot size, for instance.
44. I would concur that the small area forming the eastern most extent of PC68 is questionable given the lineal extent of the waterway adjacent and that consideration be given to re-examining its merits.
45. In summary, I do not consider the investigations to date are sufficient to justify the inclusion of the Submitters sites and in the absence of any further technical information addressing the matter of lateral spread the arbitrary inclusion of the Submitters land should not be considered.

<p>17- P G & M T James</p> <p>13260060</p>	<p>Points raised in the Submission</p> <ol style="list-style-type: none"> 1. Under the head "Appendix 4 -..." para 3 it is stated the property was excluded because of potential for lateral spreading 2. At para 6 it is suggested that testing is incomplete
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Comment

46. There are 3 sample points reasonably proximate to the Submitter's property, namely, CPT 4 (Stage 1 Vol 3 Fig 3), CPT 221 and BH115 (Stage 2 Vol 2 Fig A3. See Appendix Diagram 4).

Figure A3 is not overly clear as to its portrayal of the presence of sensitive soils and additional information has been supplied by Opus (Appendix – Diagrams 1, 2 & 3).

Comments : Submissions to Plan Change

Comparing the information of these diagrams it will be noted that the interpretation for BH 115 (Appendix Diagram 3) does not indicate a sensitive soil layer and the strength evaluation at 2.5 metres is in respect of the gravel layer, which is very competent. The soil description, in my opinion, is indicative of low strength consistent in general with the results across Na:Nb. Of particular relevance for the Submitter's property is the interpretation for CPT 221 and the presence of Caseys Creek. These are in my opinion clear indicators that lateral spread is a significant risk and as the submission refers to detailed geotechnical investigation would be necessary.

47. The Opus investigation was sufficient to identify that while there is a potential for liquefaction, there are no specific standards either regulatory or optional for this type of site investigation. When developing a brief of work for Stage 2 particular regard was had for the Ministry for Business Innovation and Enterprise (MBIE – at that time publication date April 2012) "Guidelines" prepared for Christchurch and as noted at 4.1 of the Interpretative Report (Stage 2 Vol 2).
48. Accordingly I do not support the inclusion of the Submitter's site.

20 - M I and C M Locke 13260069	See P G & M T James above.
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23 - J E & A L Marris 13258409 17 – New Zealand Institute of Surveyors Nelson-Marlborough Branch 13371234	Points raised in the Submission 1. Questions the robustness of the investigation
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Comment

49. Prior to the Canterbury earthquakes ,there were no specific investigation standards either regulatory or optional for residential development. . As a consequence of the Canterbury events and for the purposes of developments in Canterbury the Ministry for Business Innovation and Enterprise developed a "Guideline" for development in Canterbury in April 2012. The first

Comments : Submissions to Plan Change

issue of the guideline was had regard to when carrying out the Stage 2 Opus investigations. The Guideline has been updated but does not introduce any increased rigour that needs to have regard to.

It was considered that given the strong lithological similarities with parts of Christchurch then the approach of the Guideline, as appropriate, be adopted for Marlborough District in the programme of subsurface investigation to indicate whether the nominated growth areas should be considered for rezoning.

As for the Guideline there will a second phase of investigation to determine the needs for any particular proposal presented in support for an application for that activity by way of proposed Rule 29.1.4.2 in Plan Change 71..

As a consequence I consider that the investigations are sufficiently robust for the plan change process.

10 - A L & V M Gifford 13251446	Points raised in the Submission 1. Proximity of the Wairau Fault
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Comment

50. Development proximate to fault lines is addressed in the Ministry for Environment document "*Planning for Development of Land on or close to Active Faults*". Observance of this guide has been practice since 2003. This document has been had regard to and does not preclude development in proximity to the Wairau fault line as indicated by these plan changes.

The processing of subdivision applications also incorporates a checking document "Advisory Practice in Respect of the Presence of Fault Lines :2007 version 4" (Council file reference C270-12).

16 – W and C Lindstrom 13258404	Point raised in the Submission 1. Property was excluded because of the potential for liquefaction
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Comment

51. The Submitter's property is in "Area 6" and in general the investigation found that predicted settlement's were in the higher range (Report to Committee March 2013 Tables 1 and 2). The potential for lateral spread is significant given the intersecting waterways.

Comments : Submissions to Plan Change

52. The test information closest to the Submitters property does not indicate susceptible soils but caution must be exercised when extrapolating as the soil structure is very variable.

No comment can be made about the subject property as this would require specific geotechnical evaluation and in the absence of this information I consider the site should be excluded.

20- K and L Morgan 13371051	Point raised in the Submission 1. The Plan Change...should...include south side of David Street
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Comment

53. The Submitters property is south of the "Area 6" and was not the subject of the Stage 2 investigations. Subject to specific investigation the indications are that there are seismically susceptible soils as described in BH101 for a significant depth.
54. I do not consider it appropriate the submitters land be rezoned on the information presently available.

25- T C Roughan 13249166	Point raised in the Submission 1. The Plan Change...should...include south side of David Street
-----------------------------	--

Comment

55. The Submitter's property is in "Area 6" and in general the investigation found that predicted settlements were in the higher range (Report to Committee March 2013 Tables 1 and 2).
56. The boreholes on the southern side are variable, BH 101 (Appendix – Diagram 5) reports a significantly low SPT test value of N=4 at 2 metres depth whereas there are no SPT test reports for BH102 or 201 although soils appears to be of similar character this is considered to be indicative of low bearing capacity.
57. The cross-section shown in Figure A7 shows the presence of susceptible soils and I consider that on the information available, it is imprudent to rezone, land south of David Street.
58. The potential for lateral spread posed by the Old Fairhall Stream that bounds the southern side of Area 6 cannot be discounted given the information available by BH's201 & 102 and CPT 202

Comments : Submissions to Plan Change

& 203 (Appendix – Diagram 5) . It is noted that BH 101 shows sensitive soils close to the surface for a depth exceeding one metre.

59. As a consequence it is not considered appropriate the submitters land be rezoned on the information presently available.

Appendices

Report – Neil Morris ,May 2012

Report – Neil Morris, March 2013

Diagrams – Information received 15/01/2014

1 – Clarification of the profiles BH 114 and CPT 221

2 – Additional geotechnical interpretation BH 114

3 – Additional geotechnical interpretation BH 115

4 - Figure A3 in Vol 2 Stage 2 Opus Report February 2013

5 – Figure A7 in Vol 2 Stage 2 Opus Report February 2013

Map 1 – Being Figure 2 in Vol 2 Stage 1 Opus Report May 2012

Map 2 – Being Figure 1 in Vol 2 Stage 2 Opus Report February 2013

Map 3 – Locality map showing general division of sediment types

Public Excluded Liquefaction Investigations - Urban Expansion (*Environment Committee 3 May 2012*)

(Clr Jerram) (Report prepared by Neil Morris)

E225-M01-04

Purpose

1. The purpose of this report is to inform the Committee of the outcome of a study into the potential for liquefaction in areas identified to accommodate urban growth in and around Blenheim.

Background

2. The Marlborough South Urban Growth Strategy identified five possible areas for urban expansion in Blenheim (W2, E1, E2, SE and NA-Nb). At the strategy decision meetings in 2011, Councillors supported in principle the consideration of future rezoning of all of these sites, except W2 (Colonial Vineyard) due to the plan change application received for that site. The four supported sites were investigated for their geo-technical characteristics and in particular the response to seismic shaking in early 2012. The results of the investigation are included in the **separately attached** report "*Blenheim Urban Growth Study Geotechnical Evaluation*".
3. The spatial locations investigated are shown in Figure 1 of the Report.
4. The investigations comprised 12 probes hydraulically thrust to depths ranging from 2.5 to 19.5 metres and three bores to depths between 12 and 18 metres to sample the actual sediments. The field sampling results have been used to model likely soil behaviour.
5. An assessment has been made of ground settlement using fault movements on –
 - Awatere Fault – Recurrence Interval = 820 – 950 years
Richter Magnitude : 7.5
 - Wairau Fault – Recurrence Interval = 1150 – 1400 years
Richter Magnitude : 7.1 to 7.6
 - Vernon Fault – Recurrence Interval = 2000 – 3500 years
Richter Magnitude : ?
6. An estimated range of possible settlements have been determined using possible return periods –

Return Period Event	Predicted Subsidence (millimetres)			
	Area Na-Nb	Area SE	Area E2	Area E1
1 in 500 years	25-75	100-125	100-175	150-225
1 in 1000 years	25-75	100-150	125-200	175-250

Return Period Event	Predicted Subsidence (millimetres)			
	Area Na-Nb	Area SE	Area E2	Area E1
1 in 2500 years	25-75	100-150	150-200	200-250

Lateral Spreading

7. Lateral spreading of land adjacent to waterways was well illustrated in the Christchurch events and the possible solutions similarly illustrated.
8. Figure 2 in the Report identifies that there is susceptibility in the four areas. It is thought to be sufficient here to say that given the scale of the indicative development it would be improbable that treatment of the ground would be economic.

Implications of the results

9. Arising from the events in Christchurch the Department of Building and Housing (DBH) developed a set of criteria for use when considering redevelopment on land having the potential for settlement and set out in "advisory". This has no mandatory force so it is not required to be observed, however, at this time there is no reasonable basis for ignoring that advisory and accordingly the following is compiled –

Technical Category	Deformation Limits Vertical Settlement		Implications for Foundations
	Service Limit State	Ultimate Limit State	
1	15	25	Standard NZS 3604
2	50	100	DBH Enhanced Solutions
3	> 50	> 100	Pile, Ground Improvement

10. The DBH also have given guidelines for the extent of geo-technical investigation that is expected to be carried out, first, for changes to the District Plan then for detailed subdivision. This investigation can only be considered to be of a "pilot" nature in terms of those guidelines.
11. On the basis of the information in the report it would appear that none of the areas proposed for expansion would be able to employ standard residential foundations (eg; NZS 3604), namely Technical Category 1. Area Na-Nb appears to fall into Category 2 requiring special design for foundations. The other three areas would require special geo-technical solutions.
12. Given the Technical Category 3 rating for growth areas E1, E2 and SE, the high costs of treating the land and constructing appropriate foundations, and the costs and risks to new services (roads, sewer, water and stormwater), it is recommended that these areas be excluded from the Growth Strategy and from further Council rezoning consideration.
13. The response to Na-Nb is not as clear-cut with a better Technical Category and therefore less expensive construction costs. The limited number of probes and bores, combined with the potential for variation in ground conditions across the site, justify further geotechnical investigation.

14. The above recommendations have significant implications for the Growth Strategy and it is appropriate for these to be considered in more detail. Given the relationship between the Growth Strategy and the current review of the resource management framework, it is recommended that this matter be referred to the Plan Review Sub-committee.

Recommended

1. That the information and the report "*Blenheim Urban Growth Study Geotechnical Evaluation*" be received.
2. That the growth areas E1, E2 and SE be excluded from the Growth Strategy and from further Council rezoning consideration.
3. That further geotechnical investigation of growth area Na-Nb be undertaken to create a representative risk profile for development in this growth area.
4. That the implications of the 2 and 3 above on the Southern Marlborough Growth Strategy be referred to the Resource Management Plan Review Sub-committee for further consideration.
5. That the landowners of the growth areas be supplied with a copy of the report.
6. That the report be publicly released once notification of landowners is completed.

Geo-technical Investigations 2012 - Urban Growth Stage 2 (Environment Committee 21 March 2013)

(Clr Dew) (Report prepared Neil Morris)

M225-M01-02

Purpose

1. The purpose of this item is to report the results of the geo-technical investigations carried out in the period October - November 2012

Authority to Act

2. Under the Local Government Act 2002 (the Act) Council has the authority to give effect to the decisions it makes under the Act, subject to sufficient consideration of all options.

Investigation Objective

3. The objective of the investigations was to characterise the soils in selected areas on the north and west periphery of the Blenheim urban area for consideration for urban use.

Factual Findings

4. The investigations comprised 27 borehole, 18 Cone Penetrometer Tests (CPT), a shear wave velocity test and laboratory examination of sediment size, distribution and characterisationⁱ
5. The bores vary in depth but are generally about 15 metres, the CPT generally reached refusal around 2 metres where compact gravel layers were encountered.
6. The report is 217 pages in length showing the individual logs.

Interpretative Findings

7. The findings are contained in a separate documentⁱⁱ drawing from the factual report and some key aspects are commented on here. This report has been circulated to Councillors.

Consolidation of Soils

8. Areas 6 and 8 have properties making them susceptible to settlement over time by imposed surcharge from, for instance, buildings. An evaluation of this would be required to be made as part of any development proposal to ensure that allowance can be made for buildings, in particular.

Seismically Induced Subsidence

9. The relatively high water table in the localities of Na:Nb, Areas 1,3,4, 5 and 6 along with the presence of susceptible soils is expected to cause subsidence to varying degrees. Area 8 appears to be the least susceptible as the water table is at a greater depth than the other sites. The estimated settlement under three design scenarios is set out in Table 2 below; for development approval there will be a need for controlling provisions to ensure these effects are properly catered for.

Area 6

10. The land in this area is the most problematical given the level of the water table and the bounding water courses. Lateral translation is a risk for much of the area and while there may

be engineering solutions it is noted that these have not, in the Christchurch experience, been entertained because of the anticipated cost.

Lateral Spreading

11. A number of the areas are bounded by waterways and risk buffers assigned. It is possible that at some distance from the indicated margins it may be economic to provide measures to control movement and this could be covered in the Policies and rules drafted in the Plan change with some considered technical advice.

Developmental Standards

12. There are no specific standards prescribed for the development of land in this context; however, having regard for the strong similarities between some areas of eastern Christchurch and the areas under consideration here the guidelines of the Department of Building and Housingⁱⁱⁱ are seen to be particularly pertinent.
13. An extract from the guideline provides:

Table 1 - DBH Guideline

Technical Category	Deformation Limits Vertical Settlement		Implications for Foundations
	Service Limit State	Ultimate Limit State	
1	15	25	Standard NZS 3604
2	50	100	DBH Enhanced Solutions
3	> 50	> 100	Pile, Ground Improvement

14. The two criterion, "Service Limit State" and "Ultimate Limit State", are descriptors of performance in the ordinary course of the life of buildings and in the event of reaching design loading.
15. The investigation reports the following in Table 3 of the Interpretative Report:

Table 2 - Opus Predicted Settlements

Return Period Event	Predicted Seismic Subsidence (millimetres)						
	Area Na-Nb	Area 1	Area 3	Area 4	Area 5	Area 6	Area 8
1 in 500 years	0-50	0-50	0-56	0-50	0-25	0-25	0-25
1 in 1000 years	0-50	0-50	0-65	0-55	0-25	0-45	0-25
1 in 2500 years	0-50	0-50	0-65	0-60	0-25	0-65	0-25

Comments

16. Using the DBH classification for seismic subsidence set out in Table 1 above, Table 2 above highlights those parts for Areas 5, 6 and 8 that align with the DBH recommendations for the ultimate limit state. That is to say that for the design event the settlement would be acceptable. What is not established in this project is whether the soils will meet service loading requirements or if some treatment would be required, for instance cutting out and replacing weaker soils.
17. It must be particularly kept in mind that for Area 6 it is severely compromised by the risk of lateral translation.
18. Accordingly there remains a need to determine by way of detailed investigation what remediation work might be required to meet the service limit state in each case.
19. The other areas appear to meet the ultimate limit state for category 2 (DBH Enhanced Solutions) and similarly there would be a need for investigation to meet the service limit state.
20. The forgoing has also to take account of the probable compression induced settlement which combined with the liquefaction settlement may be limiting as noted particularly for Area 8.
21. It is thought pertinent to keep in mind an observation of the Christchurch Royal Commission in this context:
"...remained incumbent ... to ensure that any earthquake risk associated with the land subject to development and/or subdivision plans was considered, and where necessary managed and/or mitigated. Where appropriate, applicants should have been required to undertake geotechnical investigations or other hazard assessment and if, as a result of those inquiries, risk was found to be present, mitigation actions should have been identified and monitored."
At Volume 7 - 5.8 para. 3^{iv}

Note

22. The southern portion of Area 5 is the subject of a Resource Consent application, the hearing of this matter has not been held at the time of this report.

Summary

23. It is considered that land in the 50 metre and 100 metre buffers noted on Figure 3 of the Opus Interpretative report be excluded from consideration.
24. The land in the 100-200 metre buffers be subject of controls addressing lateral spread.
25. The data indicates that soil characteristics exhibit properties requiring remedial treatment generally and in some instances may be uneconomic (e.g. lateral constraint).
26. For the most part development should be able to proceed within well-defined control rules.

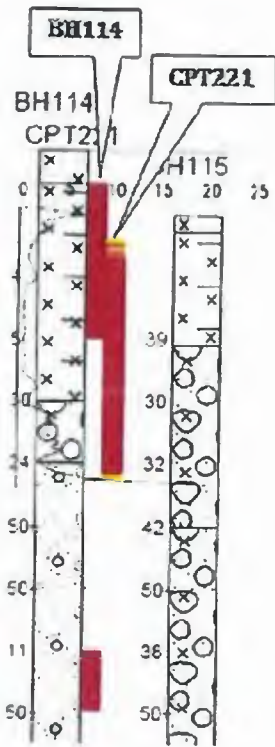
RECOMMENDED

That the "Blenheim Urban Growth Study Stage 2 - Interpretive Report" be received.

Comments : Submissions to Plan Change

- ⁱ Williams, Mason & Brabhakaran 2013. *Blenheim Urban Growth Study Stage 2 Factual Report* .
Opus International Consultants Limited. 217 pages.
- ⁱⁱ Mason and Brabhakaran, 2013. *Blenheim Urban Growth Study Stage 2 Interpretive Report* .
Opus International Consultants Limited.
- ⁱⁱⁱ Department for Building and Housing, 2012. *Guidelines for the investigation and assessment of subdivisions on the flat in Canterbury*. Version 2 September 2012.
- ^{iv} Canterbury Earthquakes Royal Commission, *Roles and Responsibilities*. Volume 7

DIAGRAM 1



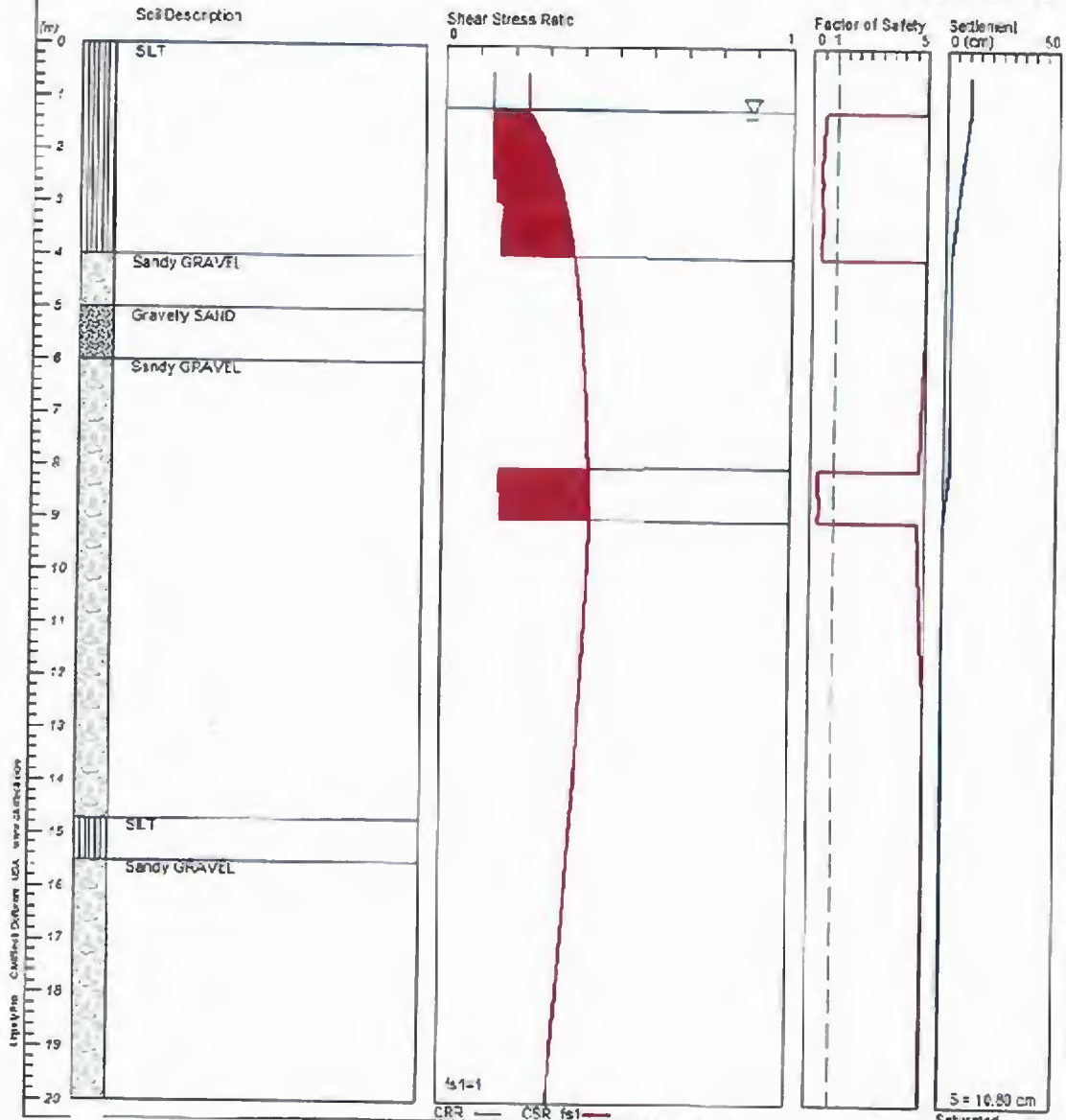
DIALGRAM 2

Blenheim Urban Growth Study

Phase I

Hole No.=BH 114 Water Depth=1.2 m

Magnitude=7.5
Acceleration=0.37g



CRR — CSR fs1 —
Shaded Zone has Liquefaction Potential
38 Old Renwick Road

S = 10.00 cm
Saturated —
Unsaturat. —
1 in 500 yr

DIAGRAM 3

Blenheim Urban Growth Study Phase I

Hole No.=BH 115 Water Depth=1 m

Magnitude=7.5
Acceleration=0.37g

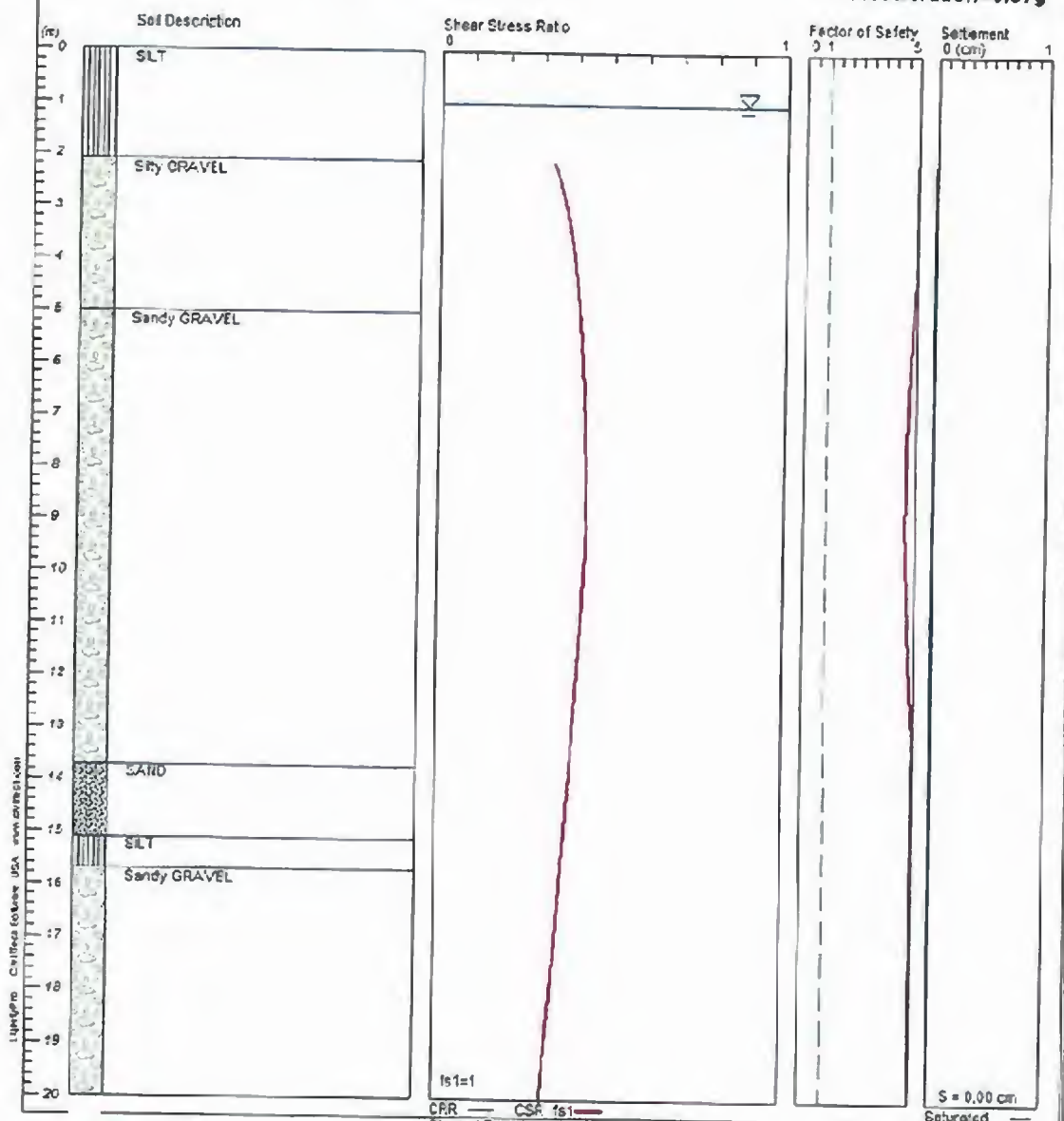


Diagram 4

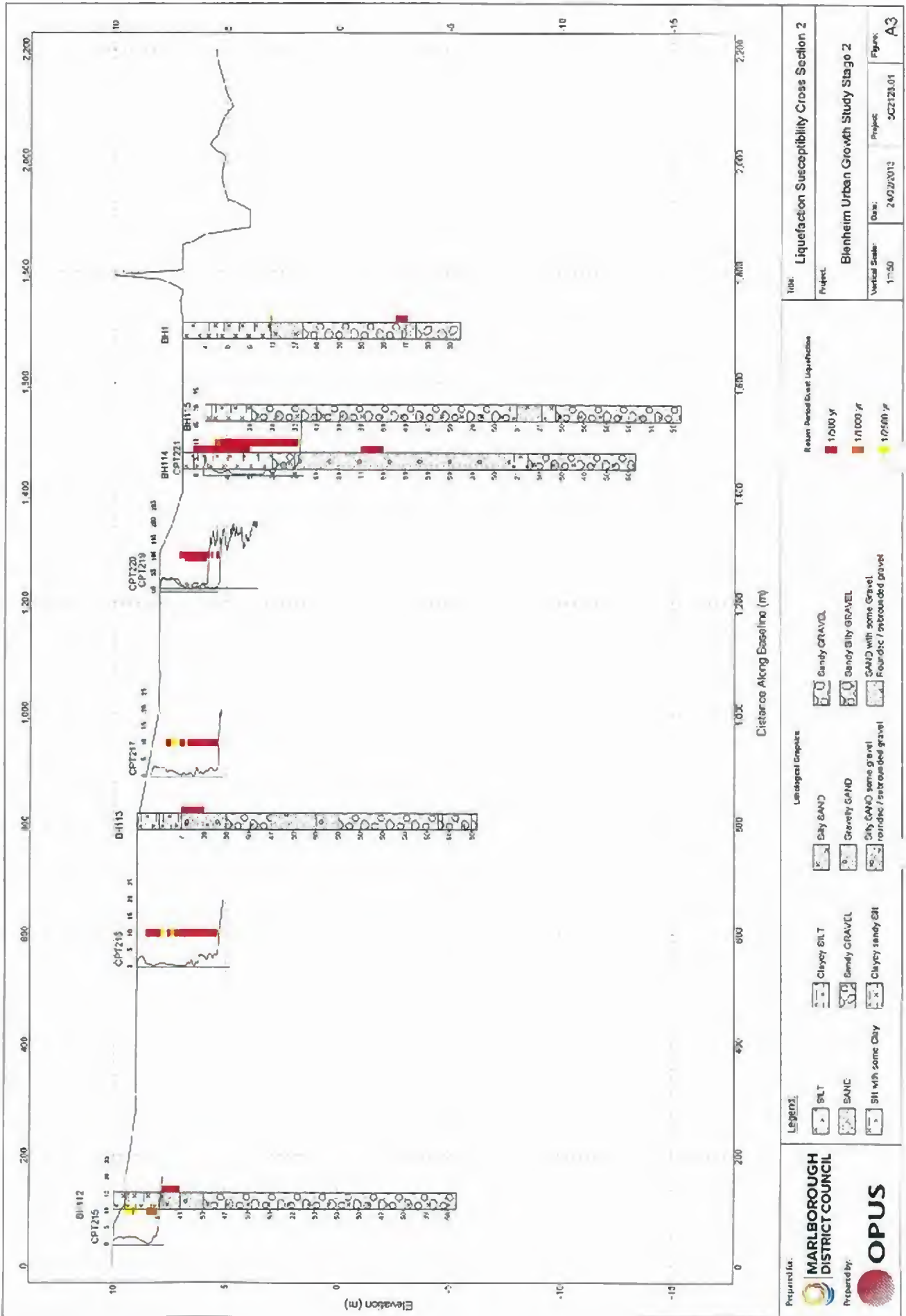
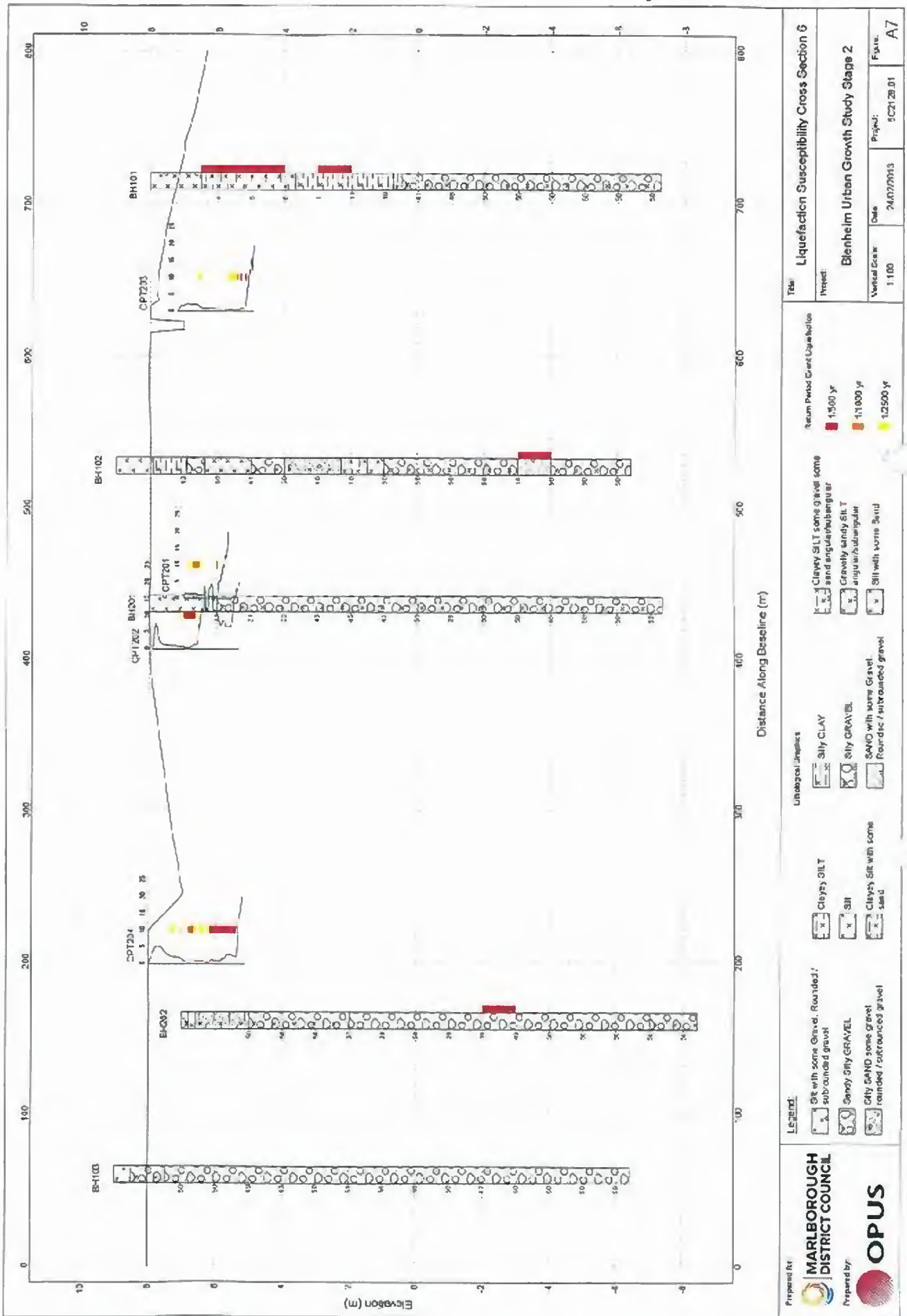
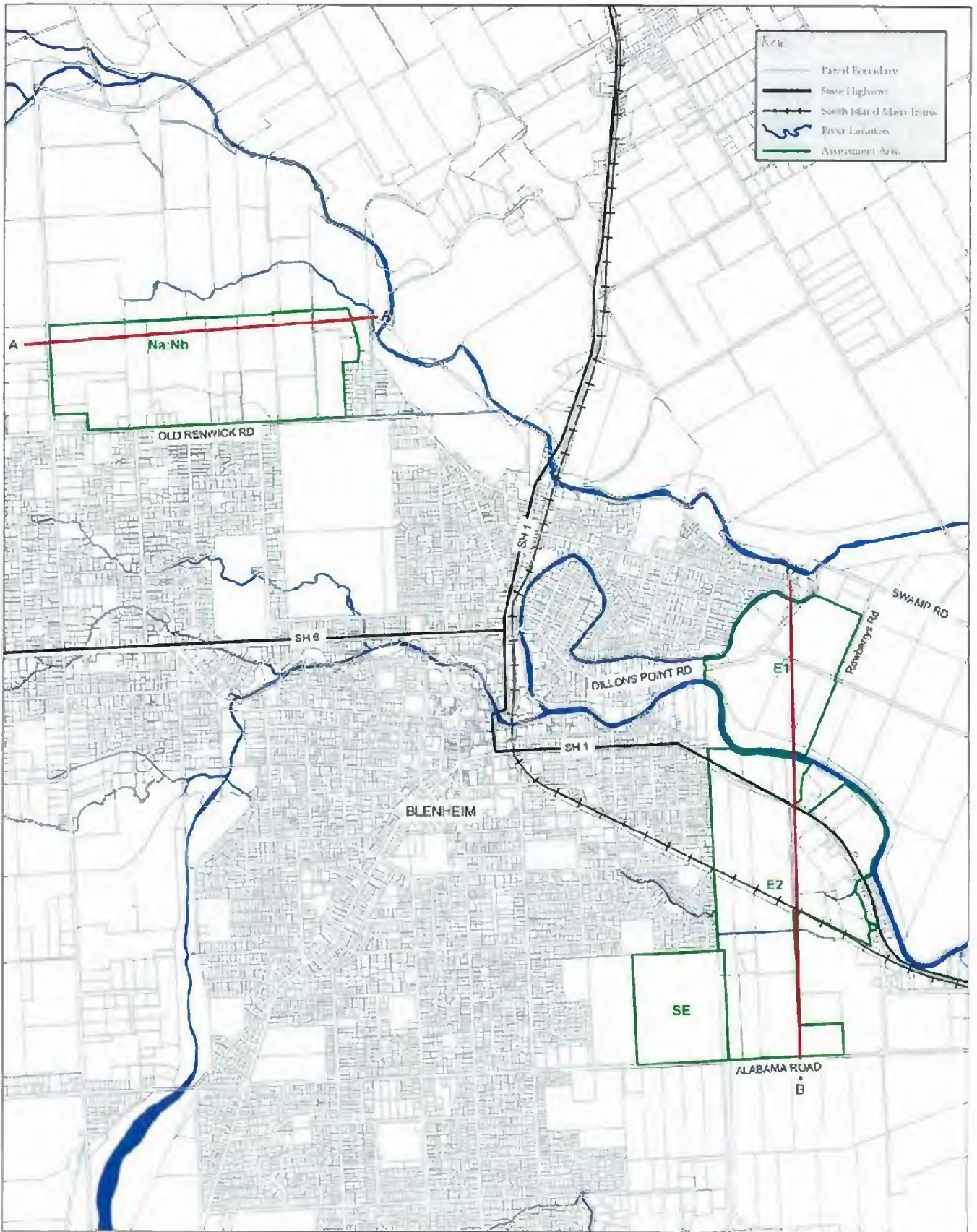





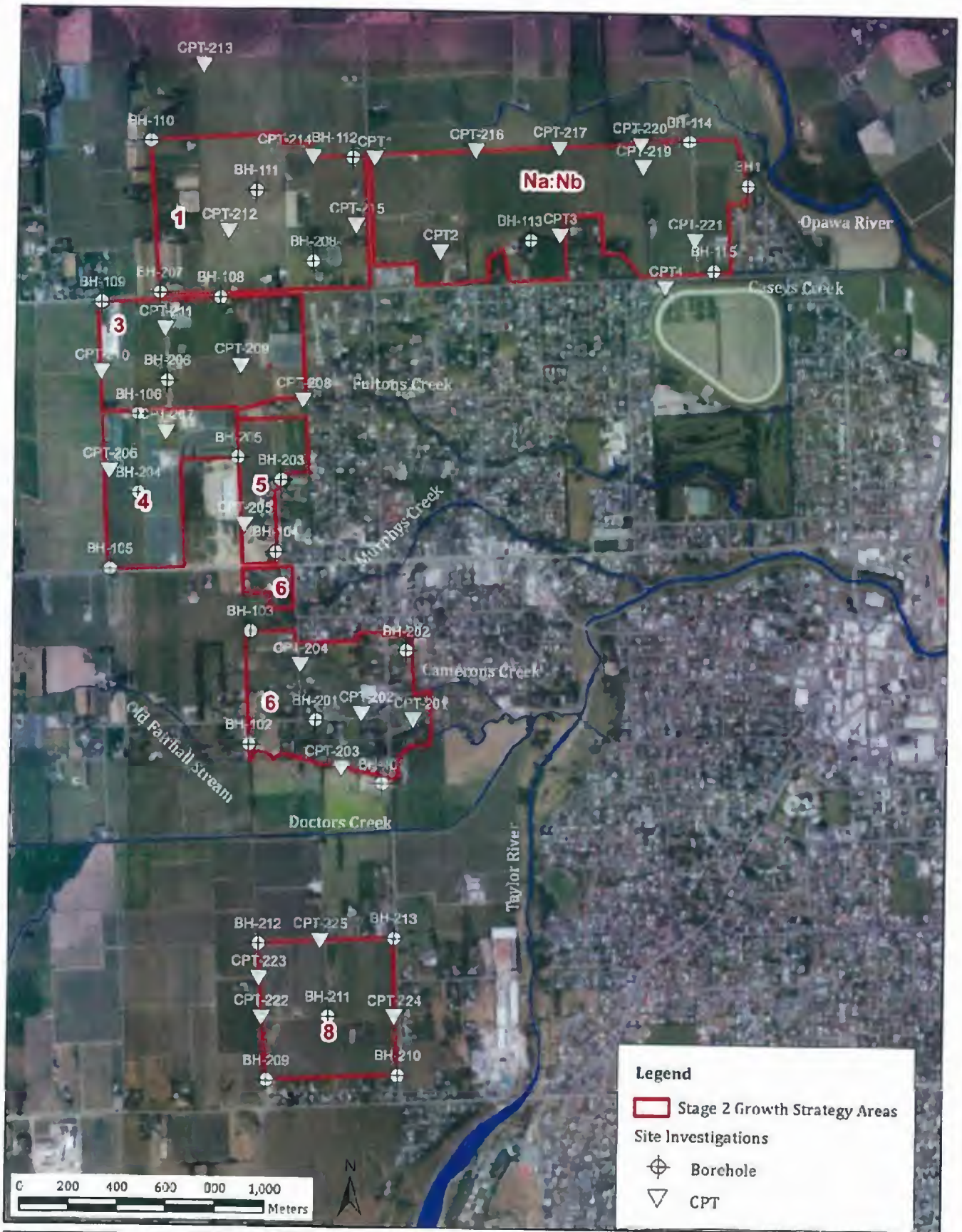
DIAGRAM 5



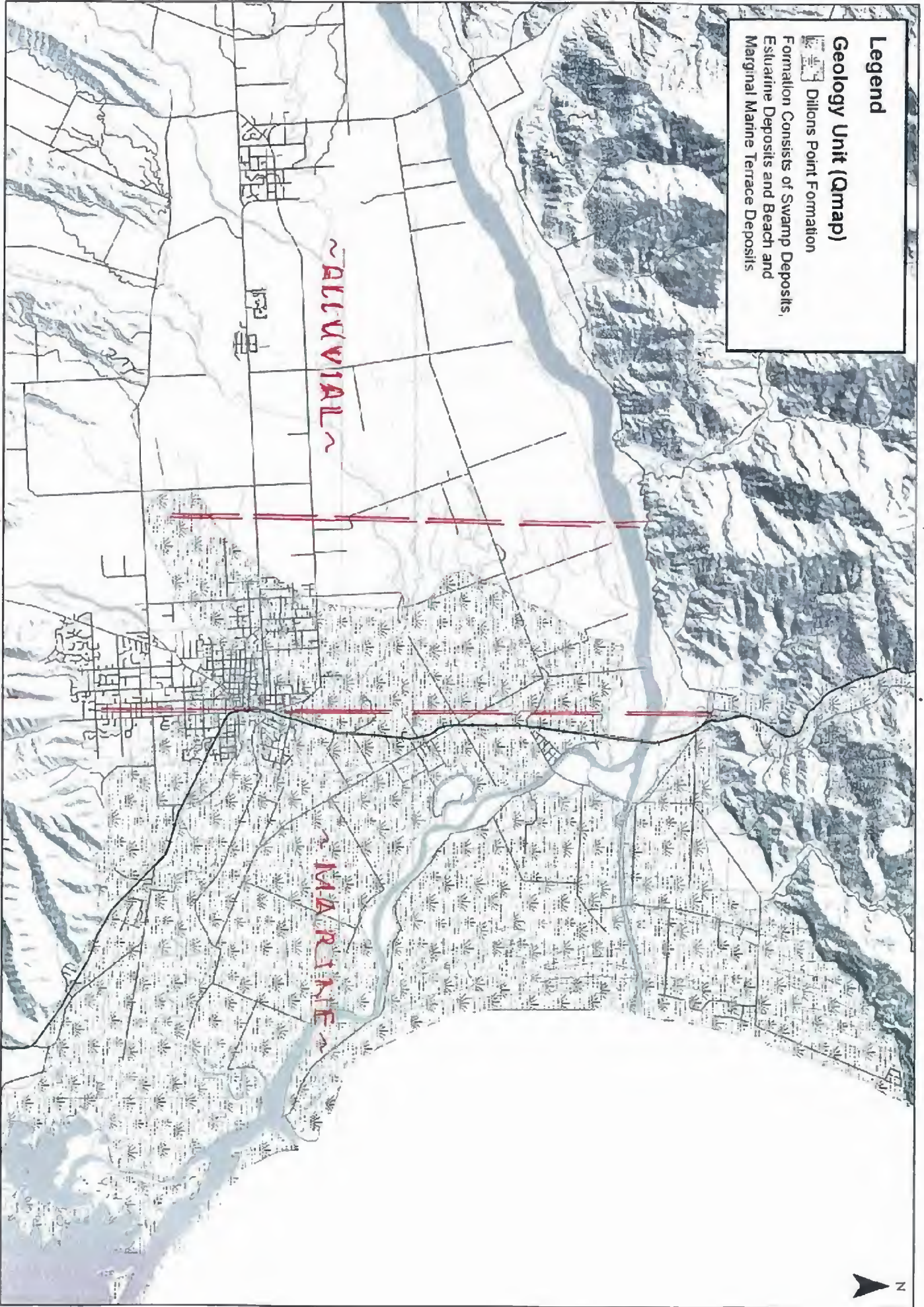
MAP 1



Prepared for:		Prepared by:		Title:							
								Cross Section Location Plan			
								Project:			
				Blenheim Urban Growth Study							
Scale:	Date:	Project No:	Figure:								
1:25,000 (A4)	May 2012	SC2128.00	2								





Prepared For:	Prepared By:	Title:	Site location map		
		Project:	Blenheim Urban Growth Study Stage 2		
		Scale:	Date:	Project No:	Figure:
		1:20,000	Feb 2013	5C2128.01	1



Legend

Geology Unit (Qmap)

-  Dillon's Point Formation
-  Formation Consists of Swamp Deposits, Estuarine Deposits and Beach and Marginal Marine Terrace Deposits



Appendix D



UNDER THE

Resource Management Act 1991

AND

IN THE MATTER

Marlborough District Council proposed
District Plan Changes 64 - 71

REVIEW OF TRAFFIC SUBMISSIONS ON BEHALF OF MARLBOROUGH DISTRICT COUNCIL

23 January 2014

1. Introduction

My full name is Laura Skilton and I obtained the New Zealand Certificate in Engineering (Civil) in 1987. I am a technical member of the Institute of Professional Engineers New Zealand (IPENZ) and a member of the IPENZ Transportation Group.

I have 25 years' experience in traffic engineering and transportation planning. Since 2005 I have been employed by GHD as a senior transportation planner.

I prepared the Residential Plan Changes – Transportation Effects report for Marlborough District Council. The purpose of that report was to assess the transportation effects of road and intersection capacity and safety on the existing roading network from the proposed residential growth areas. Seven separate residential areas had been identified and each area has been assessed both singularly and collectively. The existing Wairau Plains Transport Model had been used to assess the effects. The report assesses the transportation effects of the proposed residential land changes only. It includes an associated growth in infill residential land and the required employment growth to accommodate the residential effects. However no analysis has been undertaken for the specific effects of the proposed employment areas.

2. Submissions

Several of the submissions related to concerns of urban spread, some of which included comments relating to the need for increased transport facilities and infrastructure.

The only specific submission on transport was made by the New Zealand Transport Agency (the Transport Agency) who indicated that they support in part the proposed plan changes.

In general the Transport Agency is concerned that the through function of the State Highway (SH6) may be compromised as a result of the plan change and has requested five points of relief should the plan change be adopted by Marlborough District Council. These points are:

1. Network Optimisation take place ahead of any proposed roading improvements where applicable;
2. The Council provide further information to justify the need for the recommended roading improvements along SH6;
3. The Council delete the indicative road which runs adjacent to SH6;
4. The Council remove the indicative roading connection to SH6; and
5. Any other means to address matters raised by the Transport Agency in their submission.

3. Response to general submissions

Several submitters were concerned regarding the location of the sites and that they would be better used for agricultural purposes, in particular due to the additional transport requirements. While these submitters did not specifically say they sought traffic relief, I have provided some background information.

The Wairau Plains Land Use Study, undertaken in 2008, assessed three alternative growth distributions using a land use transport model which predicts future travel demand for alternative landuse distributions. The conclusion of the report was that well managed land use growth was preferable to ad hoc growth and that the closer the growth areas were to the existing land uses, the less overall transport costs would be incurred by the community. The proposed sites are consistent with the study recommendations. If these sites were not chosen for residential growth, alternative sites would be required and most likely to be further from the existing urban environment and requiring more new infrastructure and at a higher overall cost to the community.

Summary

I recommend rejecting the comments that the locations will increase transport costs as alternative locations, which will be required should this plan change not proceed, will increase transport costs by a greater amount.

4. Response to NZTA submission

My responses to the submissions raised by the Transport Agency are discussed below.

4.1 Network optimisation

Network optimisation is about reviewing the existing roading network and evaluating ways of maximising its performance and capacity to enable road controlling authorities to make it more cost-effective and potentially minimise the need for major investment in new infrastructure while still making the transport system more reliable and efficient, as well as safer. The outcomes of these reviews are contained in a Network Operating Plan which seeks to identify priorities and a road network for different users and then determine the level of service and any mitigation works required.

Marlborough Roads (the Transport Agency Blenheim, which is responsible for both State Highway and Marlborough District Council roading functions in Marlborough) is in the process of preparing a network operation plan for this region. This is anticipated to be completed by May 2014.

I agree with the Transport Agency that the existing network should be optimised prior to any road improvements. By maximising the performance and capacity of the existing network this may minimise the need for major investment in new infrastructure while still making the transport system more reliable and efficient, as well as safer. Accordingly some of my suggested upgrading may not be required or the time frame for which they have been identified as being required may be extended.

Summary

I agree with the Transport Agency that this is sensible approach to maximising the capacity of the existing network and note that it is already underway.

4.2 Justification for roading improvements

The Wairau Plains Land Use Study was undertaken in 2008 identified several intersection improvements that would be likely to be required in the short medium and long term, regardless of which land use distribution occurred in the future, as natural growth was putting pressure on several key intersections, including several on SH6. As a result of this study, the Transport Agency commissioned a separate study specifically reviewing three intersections on SH6 which are already facing congestion, Boyce Street, Colemans Road and Battys Road. This study recommended roundabouts at these locations however the benefit cost ratios were low due to the design and the land take requirements, but smaller intersections compromised safety. Investigations are still underway. The GHD Residential Plan Changes – Transportation Effects report has assumed that roundabouts at these locations will be constructed regardless of the re-zoning.

The requirement for any other roading improvements is dependent on the speed and location of the future development. The GHD Residential Plan Changes – Transportation Effects report was a higher level desktop study due to there being 7 areas for residential growth and a large number of alternative combinations of future land use scenarios, especially for intermediate years. As a result the recommendations were made based on the total intersection volumes only with no detailed analysis being carried out due to the significant amount of variation possible.

Having reviewed my report and specifically those intersections on SH6, I agree that while some of the intersections have high flows, the side road flows are low, and therefore the roundabouts may not be justified. As the recommendations were only suggestions I would expect that greater investigation would be undertaken at a more appropriate time and as such the choice of roundabouts as a possible intersection treatment is certainly is not “fixed” nor is the implementation date of 2020, etc.

Due to the significant number of areas being reviewed for residential growth and some degree of uncertainty regarding the level of development and time frames I do not believe that any further analysis is required at this stage. My analysis was designed to simply identify those areas of the network that may require improvement works to accommodate the increased growth and indicate if the works required would be minor or significant ie a change of intersection control. I am satisfied that the effects of the proposed growth areas are not greater than the effects which might occur if the growth occurred at another location.

Summary

I recommend rejecting the Transport Agency’s request for additional justification at this stage as any improvement works that are subsequently required as part of the residential growth will be fully assessed at the time based on known information and the most suitable solution identified and installed. Any funding application will be subject to the appropriate funding policies of the time.

4.3 Deletion of road adjacent to SH6

The reason given for the request to delete the indicative road adjacent to SH6 is due to potential adverse effects from light glare. While I agree that this can be a problem, there are a number of engineering solutions that can be employed to mitigate against this, ie fencing, planting or designation as a one way route.

The benefits of having a parallel section of road include fewer accesses onto SH6, better control of turning movements and less disruption to through traffic. By maintaining the parallel road the urban design features residential nature of the area can be maintained while protecting the through function of SH6.

Summary

I recommend rejecting the Transport Agency's request for deletion of this roading option as I believe the potential adverse effects can be adequately mitigated and the benefits of protecting the through function of SH6 warrant its inclusion.

4.4 Removal of indicative roading connection to SH6

The Plan Change 69 planning map does not show an indicative connection onto SH 6 adjacent to the Westwood development and is therefore not part of the plan change. This connection is shown as part of the "Essential Connections" and identified as being necessary only if feasible in the future.

The Transport Agency has stated that "unless there are considerable overall benefits to the land transport network" then they would not support any additional at grade connection to SH6.

I agree with the Transport Agency that no connection is required unless there are significant benefits, however as the layout is indicative only, considerable investigation will be required to determine the appropriate location and formation of any future connections. This investigation will be undertaken at the most appropriate time based on known information and the most suitable solution identified and constructed subject to extensive consultation with the Transport Agency at the time.

Summary

I recommend rejecting the Transport Agency's request for deletion of this roading connection as it is not part of the Plan Change and the inclusion of it in any future roading network will be robustly investigated at the time.

5. Conclusion

In conclusion I recommend rejecting the relief sought by the Transport Agency to the extent identified for the reasons stated above.

Appendix E

Record Number: 1431871
File Ref: E225-M01-02
Date: 31 January 2014

**Report prepared by: Brett Walker (Infrastructure Engineer)
Marlborough District Council**

Infrastructure Report - Plan Changes 64-71 to WARMP

Purpose

This report is in response to issues raised by submitters in respect of the above plan changes.

In particular I comment on:

- Lack of detail including stormwater provision;
- Zone Levies;
- Piping of Caseys Creek;
- High watertable.

1. Lack of detail

I consider the level of detail provided in Tables 1-7 in Sections 3.4-3.10 of the Plan Changes document (July 2013) and Appendix 6 Blenheim Urban Growth Provision of Infrastructure is appropriate for the Plan Changes. These details identify the nature of the required upgrading, constraints and funding mechanisms. While conceptual in nature the upgrading is based on a number of detailed reports commissioned by Council.

For example in respect of stormwater investigations, which was raised by submitters in particular, Council has carried out many studies of receiving systems affected by the plan changes including Murphys Creek, Caseys Creek, Fultons Creek, Camerons Creek and the Wairau aquifer groundwater.

Council has employed its own in-house hydraulic modeling specialists B Williman, K Christensen, L Kuta and occasional consultants to carry out hydraulic modeling on the various receiving streams, and on groundwater soakage possibilities. Reports and file notes include:

- Murphys Creek Hydraulic Analysis; K Christensen Jan 2007.
- Stormwater Discharge to Murphys Creek, Resource Consent U061021; Evidence of B Williman Aug 2008.
- Interim Hydraulics Review of Murphys Creek Stage 2; L Kuta, Sept 2010.
- Fultons Creek Flood Flows Upstream of Murphys Road. File Note B Williman Dec 2006.
- Caseys Creek and Blenheim North Development; L Kuta, June 2013.
- Caseys Creek Improvement Works; B Williman, Oct 2011.
- Camerons Creek Study; Davidson Partners, April 2002.
- Fultons Creek Stormwater Application for Resource Consent U960163, Assessment of Environmental Effects; T H Jenkins and Associates Ltd, June 1997.

- Stormwater Management and Groundwater Soakage Systems – Christchurch Experience and Potential Applications for Blenheim; Pattle Delamore Partners Aug 2010.

The above reporting was used in conjunction with contour information to establish stormwater schematics for each area. These schematics were used to prepare the diagram provided within Appendix 6, and to calculate Zone Levies.

Stormwater discharges to the various receiving waters within Blenheim will be monitored to ensure water quality is in compliance with current and proposed standards. These standards are currently being reviewed as part of Council's update to its Resource Management Plans.

As a precursor and a first stage to managing stormwater quality, Council has initiated a stormwater quality monitoring program. This commenced in December 2013, and this will run over a number of years. This involves collection and analysis of samples of both receiving waters and stormwater at 23 sites around Blenheim.

To complement this, a "real time" water quality monitoring station on Murphys Creek was installed in October 2013. This takes readings at every 15 minute intervals and sends information back to Council offices via telemetry.

Council is confident that sufficient investigation has been carried out to show that stormwater can be adequately disposed of to appropriate service levels for each proposed new zoning. Further investigations are actually still proceeding to fine tune design and mitigation measures.

The results of these investigations will be incorporated in Accepted Services Plans to be prepared by MDC, as set out in Appendix 6, and include details of:

- "Essential Connections" – the road network and road widths;
- Routes for reticulation – pipes and open channel – utilizing the road corridor where feasible;
- Reticulation capacity requirements – pipe sizes, channel profiles, stormwater storage pond capacities, pump station capacities;
- Land to be acquired or easements to be created outside the road corridor.

2. Zone Levy

Council acquires funding by way of charging a zone levy at time of development to pay for services that are required for the greater area of the zone.

Zone levies are used to compensate developers for the additional costs of construction work that they must undertake on their property to cater for the greater area of the zone.

The basic steps that are taken include:

- The additional works are scheduled;
- The cost of the additional works are calculated using historic rates;
- The cost is spread over the area of the zone;
- The costs are added to make up the Zone levy.

In addition, the property owners will also be compensated for the effect of providing land to accommodate wider than normal roads and stormwater retention areas that are required for the greater area of the zone.

Items included within the Zone levy will be scheduled, and these costs will be estimated based on historic contract rates.

It should be noted that this process is of benefit to the developer. Council is simply acting as "Banker" to allow service installation to progress with regard to the whole of each zone to achieve an outcome that is satisfactory to the community.

3. Piping of Caseys Creek

The western part of Caseys Creek appears dry much of the year, with spring-fed flows entering downstream (further east).

The contributing stormwater catchment to Caseys Creek is reasonably flat. A proposed open channel would need to be deep enough to accommodate the stormwater pipelines required to convey stormwater from further afield. A deep open channel located within the western area of Caseys Creek was considered, but omitted for the following reasons:

- Vehicle entrance ways would need to be culverted;
- Side batters would be such that road reserve widths would become excessive; and
- There would be a high chance that stagnant water would sit in the bottom causing nuisance in a residential area.

The creation of a shallow road side swale is still an option. A pipeline would still be required to keep hydraulics at a level to accommodate the incoming stormwater from further afield.

4. High watertable

There are other existing residential areas within Blenheim where the groundwater levels are high.

Building control typically requires additional engineering input at time of building consent application if the foundations are not able to be constructed in accordance with standard practice covered by the building code.

The stormwater systems will be designed in accordance with the Council's Code of Practice. Stormwater events up to a 50 year return event will be catered for. The building code also provides design parameters to ensure floor levels are constructed to a height above potential surface water levels.

High watertables can be an issue during construction of service trenches, and can cause overloading of the Council sewer mains to deteriorate throughout their life.

The depth of sewer mains within the high groundwater areas will be kept to a minimum. This in turn creates a need for more pumping stations than what would be expected within a dry area. Construction of trenches will still reach groundwater levels in some cases. At that time contaminated groundwater will require treatment prior to being released to any waterbody. There are engineering techniques - some better than others depending on the site to remove the heavier silts from dirty water.



BRETT WALKER
MARLBOROUGH DISTRICT COUNCIL – INFRASTRUCTURE PROJECTS ENGINEER

Dated: 31-01-2014

Appendix F

urbanism +

24 May 2013

Jamie Lyall

Marlborough District Council

PO Box 443

BLLENHEIM 7240

Dear Jamie

BLLENHEIM'S URBAN GROWTH IN THE BEN MORVEN ROAD AREA

You have asked us to assess the advantages and disadvantages of Blenheim's residential expansion taking place in the Ben Morven Road area. We understand that the area to be considered is not referring to any specific land holdings, but a broad reference to the area located to the west of the Omaka Aerodrome. It is indicated in the Appendix to this document.

BACKGROUND

As you know, since 2009 Urbanismplus has been involved in assisting the Council with its planning for urban growth and development within the District. During this process a large part of the work has been dedicated to Blenheim's expansion. In 2010 recommendations were made for expansion into areas located to the east, north and southwest of Blenheim, while in 2012 the eastern growth areas were replaced by areas to the northwest. The latter resulted from an increased awareness of the risk of liquefaction and lateral spreading on the land to the east in the event of an earthquake, which was identified by Opus International Consultants after extensive onsite testing.

In both cases these strategies were recommended after comprehensive consultation and assessment from a wide range of technical disciplines, during integrated processes, facilitated by Urbanismplus. The outcomes of these processes are based upon a balance between best practice urban growth principles, which are summarised and explained in *Growing Marlborough, A strategy for the future, District-wide overview & Decisions Summary, March 2013*. These include:

- **Affordable growth:** Responding to the projected increase in population and activity in a way that is affordable in the long term.
- **Efficient access:** Making sure that access to goods and services is provided in an affordable and more environmentally friendly way.
- **Valuable soils:** Conserving valuable and productive soils for future generations.
- **Healthy ecosystems:** Restoring, growing and connecting valuable ecosystems.
- **Quality open space:** Providing good quality and sufficient public open space for people to recreate and children to play in.
- **Unique towns:** Retaining and reinforcing the unique character and role of the different urban settlements.
- **Thriving tourism:** Complementing Marlborough's natural area and viticulture-based tourist attractions with more urban visitor attractions and facilities.
- **Growing employment:** Providing and protecting settings that respond to economic needs and stimulate economic growth.

The above is a synthesis of the principles and approaches explained on pages 35, 36, 37 and 39 of *Southern Marlborough Urban Growth & Development, Wairau-Awatere Settlements, A strategy for the future, May 2010*, whereby the key guiding principles are derived from *People + Places + Spaces, A design guide for urban New Zealand, Ministry for the Environment, March 2002*.

It should be emphasised that it was found during the design and planning processes that a balance between these principles had to be found, as individually these may not always lead to the same outcomes, or in some cases outcomes may even conflict to some extent. During the processes these tensions were highlighted and worked through with the various technical experts. These processes, as well as their outcomes, are documented in the abovementioned strategies.

It should also be stressed that all recommended growth areas have both advantages and disadvantages, which are documented in the full reports, as well as possible recommended ways to address the disadvantages and capitalise on the advantages.

ASSESSMENT

We understand that the suggestion to accommodate urban growth in the Ben Morven Road area is mainly based upon the desire to preserve the valuable and productive soils in the areas to the northwest of Blenheim, currently being earmarked for expansion.

It should be stressed that the Ben Morven Road area was not considered as part of the urban growth planning process, simply because the starting point was to look for areas contiguous to the existing town, given the guiding principles outlined above.

Although this suggestion may be based on one of the principles that guided the urban growth planning process ('Valuable soils'), we do not believe that it would be in line with the majority of the principles, most notably 'Affordable growth', 'Efficient access', 'Quality open space', 'Unique towns', and 'Growing employment'. This is explained in more detail below.

Affordable growth

Allowing residential development to occur in the indicated location will effectively lead to an additional small settlement, which is very likely not in a location where:

- urban growth will take place in an efficient manner (in a more rural setting it is likely that the residential lots will be larger than on the edge of town), and where it will be most affordable from an infrastructure perspective;
- existing services and facilities (community, open space and recreation, infrastructure) could be easily utilised or built upon;
- multiplier benefits and opportunities for one activity to stimulate others will occur;
- long term maintenance costs and debt burdens on infrastructure and services for the community and individuals could be minimised by maximising connections per kilometre of service and minimising the overall length of service kilometres;
- the existing town and its facilities and amenities will be enhanced through the clustering of growth in and around it; and
- a range of amenities will be within easy walking distance (open spaces, jobs, schools, shops, and so on).

Efficient access

Allowing residential development to occur in the indicated location will lead to:

- increased travel distances to Blenheim and its facilities, when compared to expansion on the edge of the town, generating negative environmental and economic effects;
- a lower likelihood of viable active and less-energy intensive transport options, such as walking and cycling, which offer health, economic and environmental benefits; and

- a lower likelihood of viable passenger transport options, which offer equity benefits for the elderly and the young, who are less able to use motor vehicles to meet their daily needs.

Quality open space

Allowing residential development to occur in the indicated location will likely offer fewer opportunities to use existing residential public open spaces and recreational facilities more efficiently.

Unique towns

Allowing residential development to occur in the indicated location will effectively lead to an additional settlement, whereby growth will be less likely to contribute to the development of Blenheim as a vibrant economic and social hub when compared to expansion on the edge of the town.

Growing Employment


- It is unlikely that residential development occurring in the indicated location will feature a diverse mix of compatible activities, including employment uses. In comparison, expansion areas on the edge of the existing urban areas, which have a stronger relationship with the existing urban area with its 'movement economy' and mix of activities, will likely (if only slightly) better promote built outcomes that stimulate local employment.
- It is likely that residential activities within the suggested area would be impacted upon by the possible adverse effects generated by activities in the proposed employment area around Omaka Aerodrome. If so, this would not only negatively impact on the amenity of a possible residential area, but also put the proposed employment land development at risk of reverse sensitivity, which would damage its economic viability.
- It would be important to assess whether residential activities within the suggested area would be negatively impacted upon by the noise generated by activities on the Omaka Aerodrome and / or the airport at Woodbourne. If so, this would not only negatively impact on the amenity of a possible residential area, but also put either of these facilities at risk of reverse sensitivity, which would have negative economic consequences for the District.

CONCLUSION

In conclusion, we do not see that the possible advantages of growth being accommodated in the indicated area would outweigh the disadvantages associated with it. Neither do we see the possible advantages outweigh the advantages associated with the growth areas identified through the abovementioned processes.

Please feel free to contact us if any of the above requires further clarification.

Yours sincerely,



Wayne Bredemeijer
Senior Urban Designer
Urbanismplus Ltd

Appendix: Indicative location of the area subject to this assessment

