MARLBOROUGH DISTRICT COUNCIL

BLENHEIM URBAN GROWTH PLAN CHANGES

PLAN CHANGES 64-71

WAIRAU/AWATERE RESOURCE MANAGEMENT PLAN

Contents

Blenheim Urban Growth Plan Changes

Plan Changes 64-71 Wairau/Awatere Resource Management Plan (WARMP)

1 Overview

Blenheim is Marlborough's social and economic centre. The social and economic needs of the people of Marlborough require that in Blenheim there must always be sufficient land available for new housing. Planning for new housing needs to be long term and the areas chosen must be suitable for their purpose and must be able to be serviced within the economic capacity of the ongoing community. To this end the Marlborough District Council Council has undertaken a major growth strategy over the last four years to address future anticipated demand.

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.

These Plan Changes accordingly propose seven separate areas to the north and west of Blenheim where it is proposed that the zoning be changed from rural to residential. 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.

It is expected that the progressive demands of the market, the need for new services and infrastructure to be put in place and paid for along with the wishes of existing landowners will mean the actual development will occur in a sequence involving closest in areas being developed first. The direct costs of development and some of the consequential costs of development will be required to be met by developers through financial and development contributions. Council's intention is that the rating status of lands within the Plan Change areas will not change until actual development occurs.

Council accordingly puts forward Plan Changes 64-71 to the WARMP under the Resource Management Act (RMA) for careful consideration.

Plan Changes 64-70 implement the necessary statutory framework to accommodate the future residential growth areas. Specifically Plan Changes 64-70 propose to rezone seven separate areas from Rural 3 to Urban Residential Two to enable growth in a coordinated and sustained manner.

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.

This report contains the following sections in respect of the Plan Changes:

- Background including the various growth strategy documents
- Purpose of Plan Changes
- Proposed Plan Change Areas including an assessment of effects
- Proposed Plan Change provisions
- Statutory Assessment including Section 32 analysis.

- Consultation
- Conclusion

2 Background

2.1 Growth Strategy

The Plan Changes arise out of the growth strategy known as "Growing Marlborough" which commenced in 2009. This work was initiated as a council project, involving all departments of council, to plan for the accommodation of residential, commercial and industrial growth of the district through to 2031. The strategy has been a key strategic project for the past four years and assists in the review of the Marlborough RPS and resource management plans, and assists with planning for the provision of community infrastructure and services including the accommodation of residential growth at Blenheim.

Development of the strategy was split in two parts with emphasis first on townships and small settlements in South Marlborough (August 2009 to May 2011) and then in North Marlborough (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.

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.

The relevant growth strategy document in respect of Blenheim is the SMUGS document[1]. The document identified that to the year 2031 approximately 1500 new households in greenfield areas were required to accommodate Blenheim's projected population growth[2]. A further report on residential land availability[3] prepared for Council identified that residentially zoned vacant land at the periphery of Blenheim will meet demand for only a short period (2-5 years).

The SMUGS report initially recommended a number of residential growth areas adjoining the north, east and southwest of Blenheim to accommodate the residential growth.

2.2 Geotechnical Investigations

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 report were reported to the Environment Committee of Council on 3 May 2011[4] and as a consequence 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.

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[1] Southern Marlborough Urban Growth and Development (SMUGS), May 2010, Marlborough District Council (MDC) available on MDC website.

[2] Refer "6.1.4 Projected Residential Growth Needs for Blenheim" Page 117 of SMUGS document.

[3] "Residential Land Availability Blenheim and Renwick Update Report For Period 1 July 2007 to 30 June 2010 (EMS Ltd) January 2011 attached as Appendix 1.

[4] Blenheim Urban Growth Study Geotechnical Evaluation (Opus) May 2012 attached as Appendix 2.

2.3 Revison Strategy

As a result of the geotechnical investigations removing areas to the east of Blenheim, further investigations to establish replacement areas to accommodate growth on the periphery of Blenheim were initiated. This resulted in a report called "Revision of the Strategy for Blenheim's Urban Growth" or the "Revision Strategy". [5]

The Revision Strategy is based on the same assessment principles as SMUGS including Affordable Growth, Efficient Access, Valuable Soils, Healthy Ecosystems, Quality Open Space, Unique Towns, Thriving Tourism and Growing Employment.

The liquefaction studies identified that the only areas available for growth were to the northwest and the southwest. These areas were studied in more detail in a workshop to determine suitable areas based on input from the following disciplines:

- Flooding and stormwater
- Strategic Planning
- Wastewater Infrastructure
- Water Supply
- Geotechnical
- Groundwater
- Open space and Recreation
- Transport
- Community Infrastructure

Various areas in the north west and south west of Blenheim were assessed against the technical disciplines in terms of "least constrained", "constrained" and "most constrained" as identified by council. This analysis was workshop based and the following outcomes identified:

- Areas in the general north and northwest 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 . 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 now subject to appeal and is due to be heard by the Environment Court later this year. The Revision Strategy also subsequently identified the area as more suitable for employment purposes.
- Based on the above, Areas Na:Nb (now called Blenheim North), Area 6 in the vicinity of David Street and Area 8 at Battys Road from the original study and new areas identified as Areas 1,3,4, and 5 in the north west were identified as potentially suitable for growth areas, subject to further geotechnical investigations.

The results were reported to Council in November 2012 in the Revision Strategy. The required number of households identified in the SMUGS document were confirmed albeit with a lower growth scenario than assumed in 2009[6].

[5] Revision of the Strategy for Blenheim's Urban Growth (Urbanism Plus) November 2012 attached as Appendix 3

[6] Refer "3.1 Urban Growth Needs" 14 page of Revision Strategy (Appendix 3)

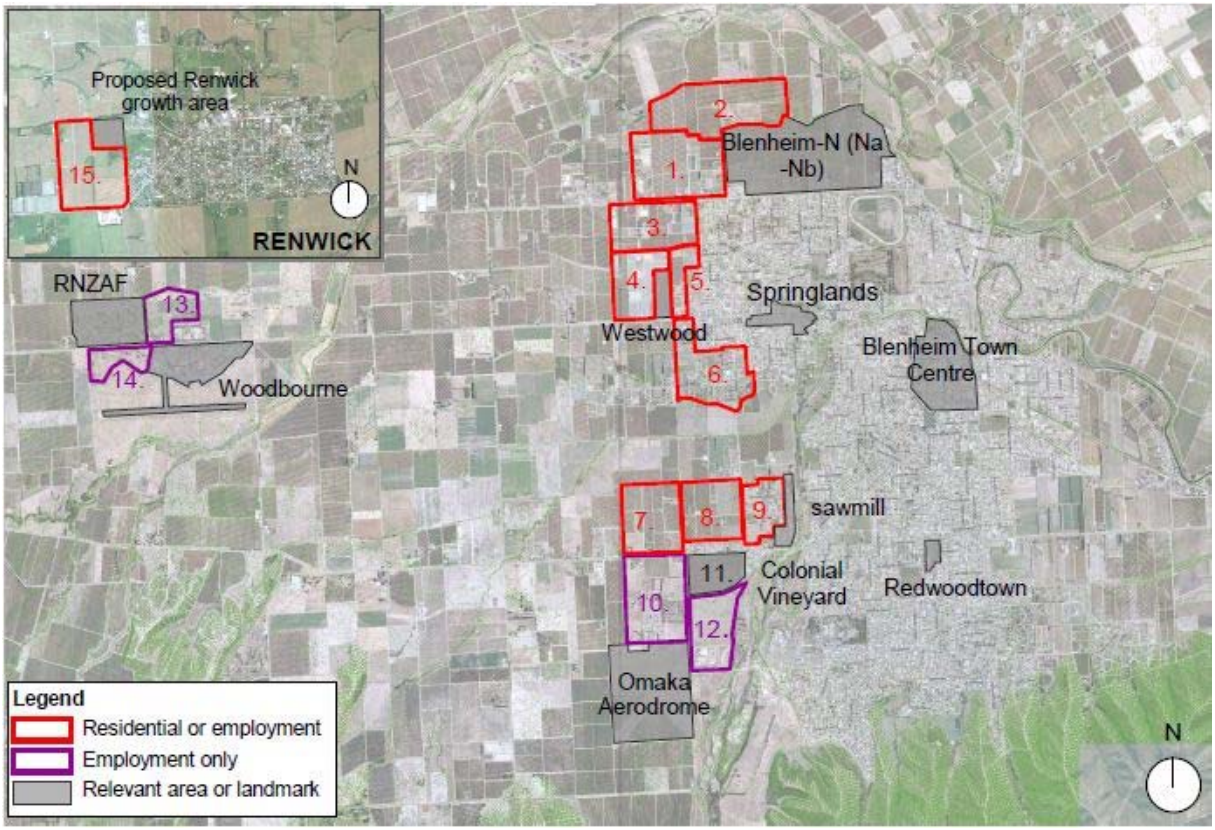
The further geotechnical investigations[7] established the areas were suitable provided:

- Some land in Blenheim North and Area 6 be removed due to the risk of liquefaction induced lateral spread (defined as the sideways movement of land) and
- Buildings in the areas will require appropriate foundation design at the time of subdivision to mitigate any effects of lateral spread.

Other identified residential growth areas were not as favoured because:

- Area 2 has greater liquefaction risk, is relatively disconnected, has transmission lines and is further from retail centres, schools and service infrastructure.
- Area 7 has greater liquefaction risk, relatively disconnected, and would require infrastructure upgrading.
- Area 9 is currently zoned and developed for rural residential and it has significant reverse sensitivity issues

The location of the growth areas referred to above is shown below (Figure 3.4 of Revision Strategy)



2.4 Growing Marlborough Document

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)[8]. The Strategy implements the findings of the Revision Strategy and identifies Blenheim N and areas 1,3,4,5 and 6 as future residential growth areas.

[7] Blenheim Urban Growth Study Stage 2 Geotechnical Evaluation (Opus) February 2013 attached as Appendix 4.

[8] Available on MDC website

Overall, the growth strategy will be used as a basis of guiding growth in residential, commercial and industrial activity to 2031 and beyond and is a key document in the preparation of Plan Changes 64-71.

2.5 Need for Plan Changes

2.5.1 Plan Changes 64-70

While the growth strategy has been underway, the availability of land for residential development in Blenheim continues to reduce, notwithstanding that growth projections are not as high as in 2009. As indicated in Section 2.1 additional greenfield areas are required, particularly as current landowners are not necessarily willing to undertake infill development or necessarily develop appropriately zoned land. The EMS report (Appendix 1) on residential land availability recommends "urgent action" is undertaken to address the shortage.

Land availability has also been a key focus for recent central government initiatives to improve the affordability of housing. Under this scenario the provision of sufficient appropriately zoned land is intended to ensure section prices are not inflated by a shortage of suitable land.

Accordingly, there is a need to proceed with rezoning new areas as identified in the growth strategy. The areas are as follows:

Plan Change 64-Area 1 (comprised of part Blenheim-North (N) of growth strategy)
Plan Change 65-Area 2 (comprised of part Blenheim North (N) and part of Area 1 of growth strategy)
Plan Change 66-Area 3 (comprised of part Area 3 and part of Area 5 of growth strategy)
Plan Change 67-Area 4 (compromised of part Area 1 of growth strategy)
Plan Change 68-Area 5 (compromised of Blenheim-North (N) growth strategy)
Plan Change 69-Area 6 (comprised of part Area 3 and part of Area 4 of growth strategy)
Plan Change 70-Area 7 (comprised in Area 6 of growth strategy)

It is proposed to rezone these areas from Rural 3 Zone to the existing Urban Residential Two zoning in the WARMP (which applies to majority of the existing urban area of Blenheim). The Urban Residential Two Zoning provisions are not proposed to be amended as it is anticipated that the existing provisions are sufficient to provide for the appropriate development of the area.

The location of the areas is shown on the plan below:

Area 8 in the growth strategy is not included because of its isolation from other areas and the requirement to upgrade infrastructure to accommodate the level of development that Urban Residential Zoning provides for.

2.5.2 Plan Change 71

Provisions relating to

- Investigation of sub soil conditions in the areas and
- Provision of an appropriate roading layout in the areas

are comprised in Plan Change 71.

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.

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 specified parts of the growth areas at the time of subdivision consent. 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.

In relation to the roading layout, the growth strategy 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. This layout is further refined in the document Blenheim Residential Growth Areas-Essential Street Connections (Urbanism Plus) June 2013 attached in **Appendix 5.**

Development in accordance with the indicative roading layouts will be implemented by the addition of a new policy in Chapter 23 Subdivision and Development and inserting the indicative roading layouts for Plan Changes 64-70 on the planning maps. The policy will be a matter that is required to be had regard to when considering subdivision applications.

3 Proposed Plan Change Growth Areas

3.1 Introduction

The proposed plan change growth areas are based on Blenheim North and Areas 1,3,4,5 and 6 of the growth strategy. 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.

3.2 Sequencing of Development and Infrastructure Provision

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.

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.

Required upgrading of infrastructure (including preparation of a detailed Accepted Services plan by Council), funding mechanisms, and the sequence of development is set out in more detail in the Council Report "Blenheim Urban Growth Provision of Infrastructure Proposed Plan Changes 64-71" attached as **Appendix 6** and in Sections 3.4-3.10 of this plan change document.

3.3 Specialist Reports

The growth areas are informed by a number of specialist reports as follows;

Southern Marlborough Urban Growth and Development (SMUGS), May 2010 MDC, on MDC website

Revision of the Strategy for Blenheim's Urban Growth (Urbanism Plus) attached as **Appendix 3**

Growing Marlborough-A Strategy for the Future, March 2013, MDC on MDC website

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

Blenheim Urban Growth Study Geotechnical Evaluation (Opus) May 2012 and Blenheim Growth Study Stage 2 (Opus) February 2013 attached as **Appendices 2 and 4**

In summary, as indicated above, the above documents provide the background and the reasoning for the identification of the proposed growth areas.

Blenheim Residential Growth Areas-Essential Street Connections (Urbanism Plus) June 2013 attached in **Appendix 5**

In summary, the report identifies the essential street connections required in each growth area to provide an efficient and coherent roading network. The networks are intended to maximise connectivity (particularly with contiguous growth areas), encourage walking and cycling, facilitate public transport services, reduce traffic conflicts, promote good urban design principles and recognise the presence of existing dwellings. The proposed roading networks are inserted on the Planning Maps as part of Plan Change 71 in order subsequent development is undertaken in accordance with the networks.

"Blenheim Urban Growth Provision of Infrastructure Proposed Plan Changes 64-71" (MDC) May 2013 attached as **Appendix 6.**

As indicated above the report sets out the required upgrading of infrastructure, funding mechanisms, and the sequence of development.

Residential Plan Change Transportation Effects (GHD) May 2013 attached in **Appendix 7.**

In summary, the report models a number of growth scenarios to identify potential deficiencies in the existing road network as a result of additional traffic movements generated by the growth areas. A number of improvements are suggested to accommodate the expected increase in traffic in order that adverse effects in terms of safety and delay can be appropriately mitigated. These improvements include carriageway widening along parts of Nelson Street (SH6), Old Renwick Road and Boyces Road and monitoring of Battys Road; and intersection improvements at SH 6 intersections of Battys Road, Colemans Road, Westwood, Severn Street, Adam Street and Boyce Street; and the New Renwick Road/Battys Road intersection. These improvements will be staged and many will not be required until after 2027. Intersection improvements include installation of roundabouts and possibly signalisation.

Marlborough Urban Growth and Development Study–Assessment of Suitability for Residential Development (PDP) May 2012 (Land Contamination) attached in **Appendix 8.**

In summary, the report identifies that in terms of land contamination, the areas subject to the proposed plan changes are generally suitable for residential development provided further investigation of identified hot spots arising from such uses as pesticide use and storage, fuel storage and sheep dips is undertaken at a later stage.

Versatile Soil Maps 2013 attached as **Appendix 9.**

The Versatile Soil map shows that the Blenheim urban area is almost entirely surrounded by versatile soils which have high potential for agricultural production. The soils are mostly Class 2, the lesser valuable soils and also some Class 1, the most valuable. The exception to this presence of versatile soils is the south western area around Burleigh which does not contain versatile soils. As indicated above, Area 11 in this vicinity, was rejected by the Hearing Commissioners as unsuitable for residential development.

Accordingly the urban expansion of Blenheim to the north, east or west will inevitably result in some encroachment on these soils. Accordingly residential development in Areas 1-7 will affect existing versatile soils. However, overall the growth areas will only take up an estimated 2.18 % of versatile soils in the Rural 3 Zone (calculated on growth areas of 209.6 ha and total versatile soil areas in Rural 3 Zone of 9,590.9ha)

The Land Parcel Size Within Growth Areas 1-7 map, also in **Appendix 9** shows that a significant number of land parcels in the growth areas are in smaller holdings of less than 2 hectares. Many of these holdings do not utilise the soils for agricultural production and are in effect large residential lots.

The specialist reports are referred to in more detail below.

3.4 Plan Change Area 1 (Plan Change 64)

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. The site is generally comprised in large residential lots, grazing and viticulture. The site contains Class 2 Versatile soils. The area is located in reasonable proximity to schools, early childhood facilities and shopping although these facilities are generally located on the opposite side of Old Renwick Road.

The area is comprised in Blenheim North of the growth strategy.

The actual and potential adverse effects of residential development and mitigation measures are outlined below:

Table 1

Actual or Potential Adverse Effects	Comment	Mitigation
Reverse Sensitivity Effects-Rural Activities	Residential activities will be located adjacent to rural activities which may result in reverse sensitivity effects relating to such matters as noise and spray drift.	No specific measures proposed. Some tension between rural and residential activities already exists at present in the area. Residential development is likely to be gradual which may assist in reducing impact. Rural activities are also subject to existing WARMP rules in respect of activities such as frost fans and spray drift to limit adverse effects.
Natural Hazards ▪ Liquefaction ▪ Flooding	The liquefaction study commissioned by MDC confirms there is a low risk of liquefaction in a seismic event. There are no flooding issues.	To require foundation design for dwellings where required following subsoil investigations.
Services	General	
	Services need to be extended within the existing road reserve to the boundary of the Area 1.	A requirement to connect to Council services will be a condition of Resource Consent.
	Services within Area 1 need to be installed to a standard that is acceptable to Council.	A requirement to design and install services to Council Code of Practice standard will be a

Actual or Potential Adverse Effects	Comment	Mitigation
		condition of Resource Consent.
	Services within Area 1 need to be installed to cater for the greater area they intend to serve.	An "Accepted Services" plan prepared by Council will show proposed infrastructure layout and size. A requirement to install services in accordance with the "Accepted Services" plan will be a condition of Resource Consent.
	Water	
	The initial stages of the development of Area 1 can be adequately serviced by Council infrastructure that exists following upgrades of existing infrastructure within Old Renwick Road. Upgrades of existing infrastructure will be required within McLauchlan Street or Hutchison Street, following the initial stages of development within any of the areas north of Old Renwick Road.	Development Contributions will fund the Old Renwick Road and McLauchlan Street or Hutchison Street upgrades.
	Connections with neighbouring areas and existing infrastructure around the periphery of Area 1 will be required as Development progresses.	The "Accepted Services" plan will show proposed infrastructure layout and size.
	Sewer	
	The development of Area 1 can be adequately serviced by Council infrastructure following upgrades of part of the existing infrastructure within McLauchlan Street. Upgrades of the remaining parts of McLauchlan Street will be required following the initial stages of development of Areas	Development Contributions will fund the McLauchlan Street upgrades.

Actual or Potential Adverse Effects	Comment	Mitigation
	1,2 or 5.	
	Pumping stations are required within Area 1.	The "Accepted Services" plan will provide pumping station positions.
	Stormwater	
	The Development of Area 1 can be adequately serviced by Council infrastructure following upgrades of existing Casey's Creek and Pumping station.	
Loss of rural land and versatile soils	Residential development will lead to a loss of rural land and thus production and reduction in the potential of versatile soils. The liquefaction prone land to the east of Blenheim cannot be economically developed and accordingly development on versatile soils is inevitable if residential growth is to be accommodated.	A number of lots have already been subdivided to a size that makes them marginal for agricultural production. No mitigation is proposed, and the area is a relatively small proportion of versatile soils in and around Blenheim.
Traffic	The proposed roading for the area shown on the planning maps provides for an integrated and safe network. In particular two connections are shown onto Old Renwick Road. Old Renwick Road will require upgrading.	Implementation of roading layout on the planning maps. Improvements in capacity of Old Renwick Road; and improvement of intersections with Mowat and Coleman Roads (although possibly not until 2030).
Severance	The area is located to the north of Old Renwick Road which potentially creates a severance effect such as crossing to schools and other facilities on the opposite side of Old Renwick Road	Upgraded pedestrian crossing points on Old Renwick Road.
Loss of rural amenity	Residential development will inevitably lead to some effect on rural amenity such as loss of	No specific mitigation is proposed although any development is likely to be

Actual or Potential Adverse Effects	Comment	Mitigation
	rural outlook and increased noise.	gradual which may assist in reducing impact. Existing dwellings are integrated into the proposed roading layout.
Contaminated land	Area suitable for development subject to further investigations of limited number of hotspots.	Undertake investigation at subdivision/development stage
Natural and Cultural Features	Area does not contain any identified natural feature of significance having regard to the findings of the growth strategy and the provisions of the WARMP. Area does not contain any feature of cultural or historic significance having regard to the findings of the growth strategy, NZHPT register, Iwi consultation and the WARMP.	Further opportunity to assess effects at subdivision stage.

3.5 Growth Area 2 (Plan Change 65)

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). 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 in large residential lots, grazing and viticulture. The site contains Class 2 Versatile soils. The area is located in reasonable proximity to schools, early child hood facilities and shopping although these facilities are generally located on the opposite side of Old Renwick Road.

The area is comprised in Blenheim North and Area 1 of the growth strategy.

The actual and potential adverse effects of residential development and mitigation measures are outlined below:

Table 2

Actual or Potential Adverse Effects	Comment	Mitigation
Reverse Sensitivity Effects-Transpower	Transmission lines bisect the area in the vicinity of Thomsons Ford Road.	Potential no build zones either side of the transmission lines with

Actual or Potential Adverse Effects	Comment	Mitigation
Transmission 110kV Lines		the area used for open space and roading. As yet Transpower have not responded in respect of possible mitigation measures. Rule 28.3.5 of the WARMP requires subdivision proposals located within an area 20m either side of 110kV transmission lines to be considered as discretionary activities and mitigation could be addressed at this time.
Reverse Sensitivity Effects-Rural Activities	Residential activities will be located adjacent to rural activities which may result in reverse sensitivity effects relating to such matters as noise and spray drift.	No specific measures proposed. Some tension between rural and residential activities already exists at present in the area. Residential development is likely to be gradual which may assist in reducing impact. Rural activities are also subject to existing WARMP rules in respect of activities such as frost fans and spray drift to limit adverse effects.
Natural Hazards • Liquefaction • Flooding	The liquefaction study commissioned by MDC confirms there is a low risk of liquefaction in a seismic event. There are generally no flooding issues-see Stormwater comment below.	To require foundation design for dwellings where required following subsoil investigations.
Services	General	
	Services need to be extended within existing road reserve to the boundary of the Area 2.	A requirement to connect to Council services will be a condition of Resource Consent.
	Services within Area 2 need to be installed to a standard that is acceptable to Council.	A requirement to design and install services to Council Code of Practice standard will be a condition of Resource Consent.
	Services within Area 2 need to be installed to cater for the greater area they intend to serve.	An "Accepted Services" plan prepared by Council will show proposed infrastructure layout and size.

Actual or Potential Adverse Effects	Comment	Mitigation
		A requirement to install services in accordance with the "Accepted Services" plan will be a condition of Resource Consent
	Water	
	The initial stages of development of Area 2 can be adequately serviced by Council infrastructure that exists following upgrades of existing infrastructure within Old Renwick Road. Upgrades of existing infrastructure will be required within Murphy Road, following the initial stages of development of any of the areas north of Old Renwick Road	Development Contributions will fund the Old Renwick Road and Murphy Road upgrades
	Connections with neighbouring areas and existing infrastructure around the periphery of Area 2 will be required as development progresses	The "Accepted Services" plan will show proposed infrastructure layout and size
	Sewer	
	Area 2 east of Thompsons Ford Road can be adequately serviced by Council infrastructure following upgrades of existing infrastructure within McLauchlan Street	Development Contributions will fund the McLauchlan Street upgrades
	Area 2 west of Thompsons Ford Road can be adequately serviced from pipelines within Magnolia Drive. Upgrades of existing infrastructure will be required within Adams Lane, following initial stages of Development	The "Accepted Services" plan will provide the position of the proposed infrastructure
	Pumping stations are required within the Area 2	The "Accepted Services" plan will provide pumping station positions
	Stormwater	
	The Development of Area 2 can be adequately serviced by Council	

Actual or Potential Adverse Effects	Comment	Mitigation
	infrastructure following upgrades of existing Casey's Creek and its pumping station, and following infrastructure installed by the developers within Area 1	
	Stormwater Retention Ponds are required within the Area 2 to limit the discharge to Casey's Creek	The "Accepted Services" plan will provide Retention Pond positions and details
Loss of rural land and versatile soils	Residential development will lead to a loss of rural land and thus production and a reduction in the potential of versatile soils. The liquefaction prone land to the east of Blenheim cannot be economically developed and accordingly development on versatile soils is inevitable if residential growth is to be accommodated.	A number of lots have already been subdivided to a size that makes them marginal for agricultural production. No mitigation is proposed, and the area is a relatively small proportion of versatile soils in and around Blenheim.
Traffic	The proposed roading for the area shown on the planning maps provides for an integrated and safe network. In particular two new connections are shown onto Old Renwick Road and three onto Thomsons Ford Road. Old Renwick Road will require upgrading.	Implementation of roading layout on the planning maps. Improvements in capacity of Old Renwick Road and the intersection with Thomsons Ford Road and Murphys Road (although possibly not until 2030).
Severance	The area is located to the north of Old Renwick Road which potentially creates a severance effect such as crossing to schools and other facilities on the opposite side of Old Renwick Road	Upgraded pedestrian crossing points on Old Renwick Road.
Loss of rural amenity	Residential development will inevitably lead to some effect on rural amenity such as loss of rural outlook and increased noise.	No specific mitigation is proposed although any development is likely to be gradual which may assist in reducing impact. Existing dwellings are integrated into the proposed roading layout.
Land Contamination	Area suitable for development subject	Undertake investigation at

Actual or Potential Adverse Effects	Comment	Mitigation
	to further investigations of limited number of hotspots.	subdivision/development stage
Natural and Cultural Features	Area does not contain any identified natural feature of significance having regard to the findings of the growth strategy and the provisions of the WARMP. Area does not contain any feature of cultural or historic significance having regard to the findings of the growth strategy, NZHPT register, Iwi consultation and the WARMP.	Further opportunity to assess effects at subdivision stage.

3.6 Growth Area 3 (Plan Change 66)

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. The site contains Class 1 and 2 Versatile Soils. The area is located in reasonable proximity to schools, early child hood facilities and shopping centres.

The area is comprised in Areas 3 and 5 of the growth strategy.

The actual and potential adverse effects of residential development and mitigation measures are outlined below:

Table 3

Actual or Potential Adverse Effects	Comment	Mitigation
Reverse Sensitivity Effects-Industrial/Retail Activities	Residential activities could be located in proximity to the storage/packaging activities and/or retail activities on the adjoining Westwood retail site which may result in reverse sensitivity effects relating to such matters as noise and traffic.	No specific measures proposed although it is not uncommon for residential development to be located in proximity to retail development. Residential development is likely to be gradual which may assist in reducing impact.
Reverse Sensitivity Effects-Rural Activities	Residential activities will be located adjacent to rural	No specific measures proposed. Some tension between rural and

Actual or Potential Adverse Effects	Comment	Mitigation
	activities which may result in reverse sensitivity effects relating to such matters as noise and spray drift.	residential activities already exists at present in the area. Rural activities are also subject to existing WARMP rules in respect of activities such as frost fans and spray drift to limit adverse effects.
Natural Hazards • Liquefaction • Flooding	The liquefaction study commissioned by MDC confirms there is a low risk of liquefaction in a seismic event. There are generally no flooding issues-see Stormwater comments below.	To require foundation design for dwellings where required following subsoil investigations.
Services	General	
	Services need to be extended within the existing road reserve to the boundary of the Area 3.	A requirement to connect to Council services will be a condition of Resource Consent.
	Services within Area 3 need to be installed to a standard that is acceptable to Council.	A requirement to design and install services to Council Code of Practice standard will be a condition of Resource Consent.
	Services within Area 3 need to be installed to cater for the greater area they intend to serve.	An "Accepted Services" plan prepared by Council will show proposed infrastructure layout and size. A requirement to install services in accordance with the "Accepted Services" plan will be a condition of Resource Consent.
	Water	
	The development of the northern part of Area 3 can be adequately serviced by Council infrastructure that exists following upgrades of existing infrastructure within Murphy Road	Development Contributions will fund the Murphy Road upgrades.

Actual or Potential Adverse Effects	Comment	Mitigation
	The development of the mid section of Area 3 can be adequately serviced by Council infrastructure that exists within Roseneath Lane.	
	The development of the southern part of Area 3 can be adequately serviced by Council infrastructure that exists within Rose Street.	
	Connections with neighbouring areas and existing infrastructure around the periphery of Area 3 will be required as development progresses.	The "Accepted Services" plan will show proposed infrastructure layout and size.
	Sewer	
	The initial stages of the northeast part of Area 3 can be adequately serviced by Council infrastructure within Adams Lane. Upgrades of existing infrastructure will be required within Adams Lane, following initial stages of Development.	
	The initial stages of the remainder of Area 3 can be adequately serviced by Council infrastructure within Rose Street. Upgrades of existing infrastructure will be required within Rose Street, following initial stages of Development	
	Pumping stations are required within Area 3	The "Accepted Services" plan will provide pumping station positions
	Stormwater	
	The northern part of Area 3 and some of the south west part of Area 3 can be adequately	

Actual or Potential Adverse Effects	Comment	Mitigation
	serviced by Fulton's Creek	
	The southern part of Area 3 can be adequately serviced by Council infrastructure following upgrades of existing infrastructure within Adams Lane and Rose Street.	
	Stormwater Retention Ponds are required within Area 3 to limit the discharge to Fulton's Creek, and to limit the discharge to infrastructure within Adams Lane.	The "Accepted Services" plan will provide Retention Pond positions and details.
Loss of rural land and versatile soils	Residential development will lead to a loss of rural land and thus production and a reduction in the potential of versatile soils. The liquefaction prone land to the east of Blenheim cannot be economically developed and accordingly development on versatile soils is inevitable if residential growth is to be accommodated.	A number of lots have already been subdivided to a size that makes them marginal for agricultural production. No mitigation is proposed, and the area is a relatively small proportion of versatile soils in and around Blenheim.
Traffic	The proposed roading for the area shown on the planning maps provides for an integrated and safe network. In particular there is one new connection onto Old Renwick Road, two onto Rene Street, and one each onto Rose Street and Roseneath Lane. Westwood Avenue also provides a further connection. Old Renwick Road will require upgrading.	Implementation of roading layout on the planning maps. Improvements in capacity of Old Renwick Road and improvement in the capacity of SH6/Rose Street intersection (possibly by 2022).
Loss of rural amenity	Residential development will inevitably lead to some effect on rural amenity such as loss of rural outlook and increased noise.	No specific mitigation is proposed although any development is likely to be gradual which may assist in reducing impact. Existing dwellings are integrated

Actual or Potential Adverse Effects	Comment	Mitigation
		into the proposed roading layout.
Land Contamination	Area suitable for development subject to further investigations of limited number of hotspots	Undertake investigation at subdivision/development stage
Natural and Cultural Features	Area does not contain any identified natural feature of significance having regard to the findings of the growth strategy and the WARMP. Area does not contain any feature of cultural or historic significance having regard to the findings of the growth strategy, NZHPT register, Iwi consultation and the WARMP.	Further opportunity to assess effects at subdivision stage.

3.7 Growth Area 4 (Plan Change 67)

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 in large residential lots, grazing and viticulture. The site contains Class 2 Versatile soils. The area is located in reasonable proximity to schools, early child hood facilities and shopping although these facilities are generally located on the opposite side of Old Renwick Road.

The western boundary at Blicks Lane is in response to the necessary capacity to accommodate the projected dwellings and in response to consultation feedback from property owners to the west of Blicks Lane.

The area is comprised in Area 1 of the growth strategy.

The actual and potential adverse effects of residential development and mitigation measures are outlined below:

Table 4

Actual or Potential Adverse Effects	Comment	Mitigation
Reverse Sensitivity Effects-Rural Activities	Residential activities will be located adjacent to rural activities which may result in reverse sensitivity effects relating to such matters as noise and spray drift.	No specific measures proposed. Some tension between rural and residential activities already exists at present in the area. Residential development is likely to be gradual which may assist in reducing impact.

Actual or Potential Adverse Effects	Comment	Mitigation
		Rural activities are also subject to existing WARMP rules in respect of activities such as frost fans and spray drift to limit adverse effects.
Natural Hazards • Liquefaction • Flooding	The liquefaction study commissioned by MDC confirms there is a low risk of liquefaction in a seismic event. There are generally no flooding issues – see Stormwater comment below	To require foundation design for dwellings where required following subsoil investigations.
Services	General	
	Services need to be extended within the existing road reserve to the boundary of the Area 4.	A requirement to connect to Council services will be a condition of Resource Consent.
	Services within Area 4 need to be installed to a standard that is acceptable to Council.	A requirement to design and install services to Council Code of Practice standard will be a condition of Resource Consent.
	Services within Area 4 need to be installed to cater for the greater area they intend to serve.	An "Accepted Services" plan prepared by Council will show proposed infrastructure layout and size. A requirement to install services in accordance with the "Accepted Services" plan will be a condition of Resource Consent.
	Water	
	The development of Area 4 can be adequately serviced by Council infrastructure that exists following upgrades of existing infrastructure within Murphy's Road.	Development Contributions will fund the Murphy Road upgrades.
	Connections with neighbouring areas and existing infrastructure around the periphery of Area 4 will be required as Development progresses.	The "Accepted Services" plan will show proposed infrastructure layout and size.

Actual or Potential Adverse Effects	Comment	Mitigation
	Sewer	
	Area 4 can be adequately serviced from pipelines within Magnolia Drive. Upgrades of existing infrastructure will be required within Adams Lane, following initial stages of Development.	
	Pumping stations are required within Area 4.	The "Accepted Services" plan will provide pumping station positions.
	Stormwater	
	The Development of Area 4 can be adequately serviced by Council infrastructure following upgrades of existing Casey's Creek and Pumping station, and following infrastructure installed within Area 2 and Area 1.	
	Stormwater Retention Ponds are required within Area 4 to limit the discharge to Casey's Creek.	The "Accepted Services" plan will provide Retention Pond positions and details.
Loss of rural land and versatile soils	Residential development will lead to a loss of rural land and thus production and a reduction in the potential of versatile soils. The liquefaction prone land to the east of Blenheim cannot be economically developed and accordingly development on versatile soils is inevitable if residential growth is to be accommodated.	A number of lots have already been subdivided to a size that makes them marginal for agricultural production. No mitigation is proposed, and the area is a relatively small proportion of versatile soils in and around Blenheim.
Traffic	The proposed roading for the area shown the planning maps provides for an integrated and safe network. In particular two new connections are shown onto Old Renwick Road and two onto Blicks Lane. Old Renwick Road will require	Implementation of roading layout on planning maps. Improvements in capacity of Old Renwick Road.

Actual or Potential Adverse Effects	Comment	Mitigation
	upgrading.	
Severance	The area is located to the north of Old Renwick Road which potentially creates a severance effect such as crossing to schools and other facilities on the opposite side of Old Renwick Road	Upgraded pedestrian crossing points on Old Renwick Road.
Loss of rural amenity	Residential development will inevitably lead to some effect on rural amenity such as loss of rural outlook and increased noise.	No specific mitigation is proposed although any development is likely to be gradual which may assist in reducing impact. Existing dwellings are integrated into the proposed roading layout.
Land Contamination	Area suitable for development subject to further investigations of limited number of hotspots	Undertake investigation at subdivision/development stage
Natural and Cultural Features	Area does not contain any identified natural feature of significance having regard to the findings of the growth strategy and the WARMP. Area does not contain any feature of cultural or historic significance having regard to the findings of the growth strategy, NZHPT register, Iwi Consultaion and the WARMP.	Further opportunity to assess effects at subdivision stage.

3.8 Growth Area 5 (Plan Change 68)

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. 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. The area is located in reasonable proximity to schools (eg Springlands), early child hood facilities and shopping (Springlands Shopping Centre) although these facilities are generally located on the opposite side of Old Renwick Road.

The area is “landlocked” in terms of access and will be dependent on Area 1 proceeding or connections made to Old Renwick Road and/or Waipuna Street.

The northern boundary is in response to the necessary capacity to accommodate the dwellings and land ownership.

The area is comprised in Blenheim North of the growth strategy.

The actual and potential adverse effects of residential development mitigation measures are outlined below:

Table 5

Actual or Potential Adverse Effects	Comment	Mitigation
Reverse Sensitivity Effects- Rural Activities	Residential activities will be located adjacent to rural activities which may result in reverse sensitivity effects relating to such matters as noise and spray drift.	No specific measures proposed. Some tension between rural and residential activities already exists at present in the area. Residential development is likely to be gradual which may assist in reducing impact. Rural activities are also subject to existing WARMP rules in respect of activities such as frost fans and spray drift to limit adverse effects.
Natural Hazards • Liquefaction • Flooding	The liquefaction study commissioned by MDC confirms there is a low risk of liquefaction in a seismic event but that foundation designs for buildings maybe required. The report recommended a setback is provided from the existing drain that runs along the northern side of Old Renwick Road because of lateral spread. There are no flooding issues.	To require foundation design for dwellings where required following subsoil investigations. Proposed Urban Residential Zone is set back from the drain that runs along the north side of Old Renwick Road.
Services	General	
	Services need to be extended within the existing road reserve to the boundary of the Area 5.	A requirement to connect to Council services will be a condition of Resource Consent.
	Services within Area 5 need to be installed to a standard that is acceptable to Council.	A requirement to design and install services to Council Code of Practice standard will be a condition of Resource Consent.
	Services within Area 5 need to be installed to cater for the greater area they intend to serve.	An "Accepted Services" plan prepared by Council will show proposed infrastructure layout and size. A requirement to install services in accordance with the "Accepted Services" plan will be a condition of Resource Consent.

Actual or Potential Adverse Effects	Comment	Mitigation
	Water	
	The initial stages of development of Area 5 can be adequately serviced by Council infrastructure that exists following upgrades of existing infrastructure within Old Renwick Road. Upgrades of existing infrastructure will be required within McLauchlan Street or Hutchison Street, following the initial stages of Development of any of the areas north of Old Renwick Road.	Development Contributions will fund the Old Renwick Road and McLauchlan Street upgrades.
	Connections with neighbouring areas and existing infrastructure around the periphery of Area 5 will be required as Development progresses.	The "Accepted Services" plan will show proposed infrastructure layout and size.
	Sewer	
	Area 5 can be adequately serviced by Council infrastructure following upgrades of existing infrastructure within McLauchlan Street.	Development Contributions will fund the McLauchlan Street upgrades.
	Pumping stations are required within Area 5.	The "Accepted Services" plan will provide pumping station positions.
	Stormwater	
	Part of the development of Area 5 can be adequately serviced by Council infrastructure following upgrades of existing Casey's Creek and Pumping station.	
	Part of the development of Area 5 will discharge to the Opawa River.	
	A Pumping station is required	The "Accepted Services" plan will

Actual or Potential Adverse Effects	Comment	Mitigation
	within Area 5.	provide pumping station positions.
Loss of rural land and versatile soils	Residential development will lead to a loss of rural land and thus production and a reduction in the potential of versatile soils. The liquefaction prone land to the east of Blenheim cannot be economically developed and accordingly development on versatile soils is inevitable if residential growth is to be accommodated.	No mitigation is proposed although the area is a relatively small proportion of versatile soils in and around Blenheim.
Traffic	The proposed roading for the area shown on the planning maps provide for an integrated and safe network. In particular a new connection (and an alternative) is shown onto Old Renwick Road and one to Waipuna Street. Old Renwick Road will require upgrading.	Implementation of roading layout on planning maps. Improvements in capacity of Old Renwick Road and improvements in intersections with McLauclan Road and Waipuna Street (although possibly not until 2030).
Severance	The area is located to the north of Old Renwick Road which potentially creates a severance effect such as crossing to schools and other facilities on the opposite side of Old Renwick Road.	Upgraded pedestrian crossing points on Old Renwick Road.
Loss of rural amenity	Residential development will inevitably lead to some effect on rural amenity such as loss of rural outlook and increased noise.	No specific mitigation is proposed although any development is likely to be gradual and which may assist in reducing impact. Existing dwellings are integrated into the proposed roading layout.
Contaminated land	Area suitable for development subject to further investigations of hotspots.	Undertake investigation at subdivision/development stage
Natural and Cultural Features	Area does not contain any identified natural feature of significance having regard to the	Further opportunity to assess effects at subdivision stage.

Actual or Potential Adverse Effects	Comment	Mitigation
	findings of the growth strategy and the provisions of the WARMP. Area does not contain any feature of cultural or historic significance having regard to the findings of the growth strategy, NZHPT register, Iwi consultation and the WARMP.	

3.9 Growth Area 6 (Plan Change 69)

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. The site is zoned Rural 3. The site contains Class 1 and 2 Versatile Soils. The area is located in reasonable proximity to schools, early childhood facilities and shopping.

The area is comprised in Areas 3 and 5 of the growth strategy.

The actual and potential adverse effects of residential development and mitigation measures are outlined below:

Table 6

Actual or Potential Adverse Effects	Comment	Mitigation
Reverse Sensitivity Effects-Industrial/Retail Activities	Residential activities could be located in proximity to the storage/packaging activities and/or retail activities on the adjoining Westwood retail site which may result in reverse sensitivity effects relating to such matters as noise and traffic.	Alternative roading connections are shown in respect of the cool store and packaging facilities on site if these facilities are retained on their sites in the longer term. No other specific measures proposed although it is not uncommon for residential development to be located in proximity to retail development. Residential development in this area is likely to be one of the last.
Reverse Sensitivity Effects-Rural Activities	Residential activities will be located adjacent to rural activities which may result in reverse sensitivity effects	No specific measures proposed. Some tension between rural and residential activities already exists to some degree at present in the

Actual or Potential Adverse Effects	Comment	Mitigation
	relating to such matters as noise and spray drift.	area. Residential development is likely to be gradual which may assist in reducing impacts and development in this area is likely to be one of the last. Rural activities are also subject to existing WARMP rules in respect of activities such as frost fans and spray drift to limit adverse effects.
Natural Hazards • Liquefaction • Flooding	The liquefaction study commissioned by MDC confirms there is a low risk of liquefaction in a seismic event. There are generally no flooding issues–see Stormwater comment below.	To require foundation design for dwellings where required following subsoil investigations.
Services	General	
	Services need to be extended within the existing road reserve to the boundary of the Area 6.	A requirement to connect to Council services will be a condition of Resource Consent.
	Services within Area 6 need to be installed to a standard that is acceptable to Council.	A requirement to design and install services to Council Code of Practice standard will be a condition of Resource Consent.
	Services within Area 6 need to be installed to cater for the greater area they intend to serve.	An "Accepted Services" plan prepared by Council will show proposed infrastructure layout and size. A requirement to install services in accordance with the "Accepted Services" plan will be a condition of Resource Consent.
	Water	
	Area 6 can be adequately serviced from pipelines within Middle Renwick Road	

Actual or Potential Adverse Effects	Comment	Mitigation
	adjacent to Westwood.	
	Connections with neighbouring areas and existing infrastructure around the periphery of Area 6 will be required as Development progresses.	The "Accepted Services" plan will show proposed infrastructure layout and size.
	Sewer	
	Area 6 can be adequately serviced from pipelines within Middle Renwick Road adjacent to Rose Street.	
	Pumping stations are required within Area 6.	The "Accepted Services" plan will provide pumping station positions.
	Stormwater	
	The development of the northern part of Area 6 can be adequately serviced following infrastructure installed by developers within Area 3.	
	The development of the mid section of Area 6 can be adequately serviced from Fultons Creek	
	The development of the southern part of Area 6 can be adequately serviced from pipelines within Middle Renwick Road adjacent to Westwood	
	Stormwater Retention Ponds are required within Area 6 to limit the discharge to Middle Renwick Road and Fulton Creek.	The "Accepted Services" plan will provide Retention Pond positions and details.
Loss of rural land and versatile soils	Residential development will lead to a loss of rural land and thus production and a reduction in the potential of versatile soils. The liquefaction prone land to the east of Blenheim cannot be economically developed and accordingly development on versatile soils is inevitable if residential growth is to be	A number of lots have already been subdivided to a size that makes them marginal for agricultural production. No mitigation is proposed, and the area is a relatively small proportion of versatile soils in and

Actual or Potential Adverse Effects	Comment	Mitigation
	accommodated.	around Blenheim.
Traffic	The proposed roading for the area shown on the planning maps provide for an integrated and safe network. In particular one new connection is shown onto Old Renwick Road and two connections onto Rene Street. A possible connection onto SH6 is shown at the south west corner and a proposed link road onto the Westwood Avenue roundabout (which potentially requires the relocation of some of the carparking associated with the PaknSave supermarket). The newly formed Westwood Road also provides a further connection.	Implementation of roading layout on planning maps. Improvements in capacity of Old Renwick Road.
Loss of rural amenity	Residential development will inevitably lead to some effect on rural amenity such as loss of rural outlook and increased noise.	No specific mitigation is proposed although any development is likely to be gradual which may assit in reducing impact. Existing dwellings are integrated into the proposed roading layout.
Land Contamination	Area suitable for development subject to further investigations of limited number of hotspots.	Undertake investigation at subdivision/development stage.
Natural and Cultural Features	Area does not contain any identified natural feature of significance having regard to the findings of the strategy and the WARMP. Area does not contain any feature of cultural or historic significance having regard to the findings of the Growth Strategy, NZHPT register, Iwi consultation and the WARMP.	Further opportunity to assess effects at subdivision stage.

3.10 Growth Area 7 (Plan Change 70)

This area is located in the vicinity of Battys Road, Severn 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. The site contains Class 2 Versatile soils. The area is located in reasonable proximity to schools, early child hood facilities and shopping.

The western boundary is in response to the necessary capacity to accommodate the projected dwellings and to include properties on the western side of Severn Street.

The area is comprised in Area 6 of the growth strategy.

The actual and potential adverse effects of residential development and potential effects are outlined below:

Table 7

Actual or Potential Adverse Effects	Comment	Mitigation
Reverse Sensitivity Effects-Rural Activities	Residential activities will be located adjacent to rural activities which may result in reverse sensitivity effects relating to such matters as noise and spray drift.	No specific measures proposed. Some tension between rural and residential activities already exists to some degree at present in the area given the amount of "intermixing". Residential development is likely to be gradual which may assist in reducing impacts. Rural activities are also subject to existing WARMP rules in respect of activities such as frost fans and spray drift to limit adverse effects.
Natural Hazards • Liquefaction • Flooding	The liquefaction study commissioned by MDC confirms there is a low risk of liquefaction in a seismic event. There are generally no flooding issues –see Stormwater comment below.	To require foundation design for dwellings where required following subsoil investigations. There are significant setbacks from Murphys Stream and Yelverton Stream to take account of lateral spread. Stormwater management to be addressed by upgrading of Old Fairhall and Cameron's Creeks.
Services	General	

Actual or Potential Adverse Effects	Comment	Mitigation
	Services within Area 7 need to be installed to a standard that is acceptable to Council.	A requirement to design and install services to Council Code of Practice standard will be a condition of Resource Consent.
	Services within Area 7 need to be installed to cater for the greater area they intend to serve.	An "Accepted Services" plan prepared by Council will show proposed infrastructure layout and size. A requirement to install services in accordance with the "Accepted Services" plan will be a condition of Resource Consent.
	Water	
	The initial stages of development of Area 7 can be adequately serviced by Council infrastructure that exists from the existing extents of water mains. Upgrades of existing infrastructure will be required within Battys Road, following the initial stages of development of Area 7.	Development Contributions will fund the upgrades.
	Connections with existing infrastructure around the periphery of Area 7 will be required as development progresses.	The "Accepted Services" plan will show proposed infrastructure layout and size.
	Services need to be extended within the existing road reserve to the boundary of the Area 7.	A requirement to connect to Council services will be a condition of Resource Consent.
	Sewer	
	Area 7 can be adequately serviced from pressure mains installed within the existing roads.	
	Individual pumping stations are required to serve each lot at time of building.	Consent notices will be created as a condition of Resource Consent.

Actual or Potential Adverse Effects	Comment	Mitigation
	Stormwater	
	The development of Area 7 can be adequately serviced by Council infrastructure following upgrades of existing Old Fairhall Creek and Cameron's Creek, and inclusion of a Pump Station at Cameron's Creek.	
	Services need to be extended within the existing road reserve to the boundary of the Area 7.	A requirement to connect to Council services will be a condition of Resource Consent.
Loss or rural land and versatile soils	Residential development will lead to a loss of rural land and thus production and a reduction in the potential of versatile soils. The liquefaction prone land to the east of Blenheim cannot be economically developed and accordingly development on versatile soils is inevitable if residential growth is to be accommodated.	A significant number of lots have already been subdivided to a size that makes them marginal for agricultural production. No mitigation is proposed, and the area is a relatively small proportion of versatile soils in and around Blenheim.
Traffic	The proposed roading for the area shown on the planning maps provides for an integrated and safe network. One connection is shown onto each of Severne and David and Battys Road. David Street will require upgrading including the bridge.	Implementation of roading layout on the planning maps. Upgrading of SH6 intersections with Severne Street and Battys Road. Upgrading of David Street.
Loss of rural amenity	Residential development will inevitably lead to some effect on rural amenity such as loss of rural outlook and increased noise although currently there is some “intermixing” of activities.	No specific mitigation is proposed although any development is likely to be gradual and the area already has some urban development. Existing dwellings are integrated into the proposed roading layout.

Actual or Potential Adverse Effects	Comment	Mitigation
Land Contamination	Area suitable for development subject to further investigations of limited number of hotspots.	Undertake investigation at subdivision/development stage.
Natural and Cultural and Historic Features	Area does not contain any identified natural feature of significance having regard to the findings of the Growth Strategy and the provisions of the WARMP. Area does not contain any feature of cultural or historic significance having regard to the findings of the growth strategy, NZHPT register, Iwi consultation and the WARMP.	Further opportunity to assess effects at subdivision stage.

4 Purpose of Plan Changes

The purpose of the Plan Changes is to:

- Ensure that there is a sufficient supply of residential zoned land to provide for the growth of Blenheim for the next twenty years.
- Ensure that the buildings on liquefaction prone land have suitable foundation design.
- Ensure that the road layouts in new developments are efficient, safe and integrated.

5 Proposed Provisions

The new provisions comprise the following:

5.1 Plan Change 64

Amend Planning Maps 156 and 157 by rezoning an area of land from Rural Three Zone to **Urban Residential Two Zone** and inserting an indicative roading layout over the same area.

5.2 Plan Change 65

Amend Planning Map 156 by rezoning an area of land from Rural Three Zone to **Urban Residential Two Zone** and inserting an indicative roading layout over the same area.

5.3 Plan Change 66

Amend Planning Map 156 by rezoning an area of land from Rural Three Zone to **Urban Residential Two Zone** and inserting an indicative roading layout over the same area.

5.4 Plan Change 67

Amend Planning Maps 147 and 156 by rezoning an area of land from Rural Three Zone to **Urban Residential Two Zone** and inserting an indicative roading layout over the same area.

5.5 Plan Change 68

Amend Planning Map 157 by rezoning an area of land from Rural Three Zone to **Urban Residential Two Zone** and inserting an indicative roading layout over the same area.

5.6 Plan Change 69

Amend Planning Maps 147 and 156 by rezoning an area of land from Rural Three Zone to **Urban Residential Two Zone** and inserting an indicative roading layout over the same area.

5.7 Plan Change 70

Amend Planning Map 160 by rezoning an area of land Lots from Rural Three Zone to **Urban Residential Two Zone** and inserting an indicative roading layout over the same area.

Refer to **Appendix 10** for amended maps showing areas to be rezoned and indicative roading layouts and the legal descriptions of areas.

Accordingly the existing Urban Residential Two Zone provisions will apply to the proposed areas. This zone generally provides for lower density residential development in Blenheim (as opposed to the Urban Residential 1 Zone for higher density development in central Blenheim) and is located on the outer areas of Blenheim. No changes are proposed to the existing Urban Residential Two Zone provisions.

5.8 Plan Change 71

Amend the WARMP by the following:

5.8.1 Subsoil Investigations

Chapter 29 Standard Requirements for Subdivision and Development

Insert new rule under 29.1.4 after Rule 291.4.1 on page 29-4 as follows

29.1.4.2 Subsoil Investigations

All applications for subdivision consent for land identified in Appendix L shall be accompanied by a report from an expert acceptable to Council on the subsoil condition of each proposed allotment. The report shall provide the results of at least four scala penetrometer tests for each allotment. Each sample point is to have a field value recorded, obtained in accordance with NZS4402:1996, and is to be geo-referenced to survey marks. The report shall interpret the field values of the penetrometer test in terms of kilo Pascals (kPa) and state the basis (authority) for the interpretation.

In addition one inspection pit shall be constructed for every 3 proposed allotments to confirm subsoil properties. The inspection pit shall be geo-referenced and the report shall include the logged soil profile.

Unless the recorded field soil strength from the scala penetrometer tests for an allotment is at least 300 kPa at a depth of at least 0.3 metres, then a consent notice will be imposed on the allotment requiring specific foundation design for any dwelling house at the time of building consent.

Note : field values are those obtained before any factoring is applied, for instance - safety factors

Volume 2

Insert a new "Appendix L Areas subject to Sub-Soil Investigation" in Volume 2 of the WARMP (attached in **Appendix 11** to this document)

These provisions reflect the findings of the geotechnical reports that buildings in the new growth areas should if required have appropriate foundation designs to mitigate the effects of liquefaction.

5.8.2 Roading Layout

Chapter 23.0 Subdivision and Development

Insert new policy under 23.5.1 Objectives and Policies after Policy 1.17 on page 23-11 as follows:

Policy 1.18 Where indicative roading layouts are shown on the planning maps the roading network proposed at the time of subdivision and development shall be in general accordance with the layout:

This policy supports the amendments to the planning maps in Plan Changes 64-70 in respect of roading layouts in the new growth areas. The layouts are intended to provide a safe, efficient and integrated network both internally and externally and any subsequent subdivision and developement should be in general accordance with this layout. Details of the roading layout are contained in the Essential Street Connections Report in **Appendix 5**.

The proposed provisions are attached in **Appendix 11**.

6 Statutory Assessment

6.1 Introduction

The following sections of the RMA are of particular relevance to the plan change-Section 32, Section 72, Section 74 and Section 75-and these are discussed below.

6.2 Section 32

Section 32 of the RMA requires consideration of alternatives and the costs and benefits of a proposed change to a resource management plan. Section 32 states, among other matters, that an evaluation of a plan change must examine whether, having regard to efficiency and effectiveness, the policies, rules or other methods are the most appropriate for achieving the objectives.

In particular Sections 32(3)(a)(b) and (4) of the Act stae as follows:

(3) An evaluation must examine—

*(a) the extent to which each objective is the most **appropriate** way to achieve the purpose of this Act; and*

*(b) whether, having regard to their **efficiency and effectiveness**, the policies, rules, or other methods are the most appropriate for achieving the objectives.*

(4) For the purposes of the examinations referred to in subsections (3) and (3A), an evaluation must take into account—

*(a) **the benefits and costs** of policies, rules, or other methods; and*

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

Appropriateness refers to the suitability of any particular provision to its proposed purpose.

Effectiveness refers to how successful a particular option is in achieving the desired outcomes as stated in the objectives.

Efficiency refers to measuring by comparison of the benefits and costs. The most efficient method will achieve the environmental outcome at the least overall cost.

6.2.1 Objectives

The proposed plan changes do not introduce new objectives. The existing objectives are to be achieved by the following:

- Amending the planning maps to provide for new zonings and roading network layout
- A new rule relating to subsoil investigations
- New policy relating to the roading network layout.

These provisions derive from the following existing objectives:

11.0 Residential Environments

11.2 Residential Environments

11.2.2 Objectives and Policies

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

Objective 1 is to maintain and create residential development that meets the existing and future needs of the community. The most relevant accompanying policies are Policies 1.1, 1.4 and 1.5.

Policy 1.1 seeks to accommodate residential and growth and development of Blenheim within the current boundaries of the town. Policy 1.4 seeks to enable lower residential use at the Blenheim urban periphery to provide for a transition environment between expected urban and rural amenities.

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

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

The explanation notes *"the northwestern periphery has been identified as the area most capable of accommodating future residential growth"* and goes onto say *"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. Any expansion of the urban limits needs to be considered in a coordinated manner having special regard to the rural/residential interface."*

In addition Objective 12.2.2 is to maintain the life supporting capacity of versatile soils of the Rural 3 Zone and 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."*

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

Objective 2 is to ensure residential growth occurs in suitable locations. Relevant policies include Policy 2.1 which is to avoid development in areas subject to natural hazards and Policy 2.7 is to ensure urban growth does not adversely impact on the life supporting capacity of soils or on the productive capacity of rural land.

The explanation notes "*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. Where urban growth is to be provided for, it needs to be planned for in a coordinated manner rather than through piecemeal development."*

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."

Council recognises that the policy framework of the WARMP contains strong protections for Rural zoned land and, particularly, for Rural 3 zoned land. Those policies discourage residential activity in the Rural 3 Zone, recognising that Rural 3 land is a valuable and versatile resource. The land the subject of these plan changes is land which is within the Rural 3 Zone and, which under the existing policy framework, is unlikely able to be able to be developed for intensive residential use as these Plan Changes propose.

Council has considered very carefully the importance of protecting the Rural 3 resource. The areas the subject of these Plan Changes are considered by Council to be the areas best suited for large scale residential development of the kind that Marlborough needs in order to provide adequate housing for its future generations. Council considers that the need to address the housing needs of future generations requires the rezoning of these areas of Rural 3 land. In an overall sense, the areas the subject of this Plan Change represent approximately 2.18 percent of the existing Rural 3 resource. Council will continue to strictly monitor the application of the existing policy framework as it applies to Rural 3 land to ensure the balance of the land continues to be protected for rural uses as the WARMP contemplates.

23.0 Subdivision and Development

23.2.1. Objectives and Policies

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.

Objective 1 requires subdivision applications be carefully assessed where there are known significant natural hazards and these hazards must be appropriately avoided remedied or mitigated. Relevant policies include Policy 1.1 which is to control subdivision that is subject to natural hazards such as subsidence and Policy 1.2 is to ensure mitigation measures in themselves do not give rise to adverse effects.

It is also noted that in Section 17.6.2 Natural Hazards also contains Objective 1 which is "To avoid, remedy or mitigate the adverse effects of seismic hazard" and Policy 1.1 is to "Recognise that Marlborough is in the highest zone of earthquake risk in New Zealand".

While the proposed plan change areas are not considered to have "significant hazards" Objective 1 is of relevance given its location in the Subdivision and Development Chapter of the WARMP

23.5.1. Objectives and Policies

Objective 1 Ensure that the direct on-site adverse effects of subdivision/ development are avoided, remedied or mitigated through the necessary supporting framework of services and amenities.

Objective 1 is to ensure on–site adverse effects of subdivision and development are avoided, remedied or mitigated through the provision of appropriate services and have a number of accompanying policies relating to the provision of appropriate water, wastewater, stormwater and appropriate transport links.

6.2.2 Assessment

This section assesses the different options considered to achieve the relevant objectives having regard to the requirements of section 32 of the RMA including the proposed option of the proposed plan changes.

6.2.2.1 Plan Changes 64-70

OBJECTIVES

11.2 Residential Environments

11.2.2 Objectives and Policies

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

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

OPTION 1

Status Quo

This option retains the existing zoning of Rural 3 in which residential development can only occur by way of a non complying subdivison.

Benefits / Costs	***Effectiveness / Efficiency***
Benefits • Retention of productive rural land and potential of versatile soils more likely. • Retention of rural amenity more likely • Resource consent process is potentially simpler and quicker than plan change process. **Costs** • Residential development can only be implemented by way of resource consents which given the Rural zoning will be difficult to achieve. • Costs for applicants and Council for applications that may be difficult to grant consent. • Ad hoc development as likely to only relate to a smaller area and not encompass a large number of land owners. • May not result in a compact urban form and result in uneconomic extension of services • Could be in areas not identified as suitable by the growth strategy • Risk of insufficient residential land to meet future growth needs • Potential increase in housing costs	**Effectiveness** • Low effectiveness as provision of residential development will only occur with difficulty and which may be in an ad hoc manner in unsuitable locations. **Efficiency** • Low efficiency as resource consent process likely to be slow and costly with low chance of success with residential development unlikely to occur.

Benefits / Costs	*Effectiveness / Efficiency*
• Growth strategy findings potentially not tested or implemented	

OPTION 2

Incorporate growth areas in Resource Management Plan Review

This option results in the growth areas incorporated in the Resource Management Plan Review when it is notified which is anticipated to be late 2013 or 2014.

Benefits / Costs	*Effectiveness / Efficiency*
Benefits • May enable a wider strategic perspective to be taken. • Potentially less costs as it will be part of a larger process. • Likely to implement the growth strategy. **Costs** • Loss of rural productive land and reduction in potential of versatile soils. • Reverse sensitivity effects could impact on existing rural activities although WARMP recognizes that residential amenities may have to be compromised (page 11/5 and 6 of WARMP). • Potential loss of rural amenity. • Delays in implementing the growth areas as a result of resource management plan processes. • Community costs of review process but potentially less for developers. • Change of zoning will increase the rateable value of the land but Council policy is to only impose increased rates when the land is developed. In the interim land will continue to be rated on rural values.	**Effectiveness** • Medium-high effectiveness as it provides a choice of land but may be subject to significant delays because changes will be part of overall plan process. **Efficiency** • Reasonably efficient as an appropriate process is used but may be subject to significant delays.

OPTION 3

Private Plan Change

This option is an initiated private plan change to accommodate future residential growth.

Benefits / Costs	*Effectiveness / Efficiency*
Benefits • May implement Urban Growth Strategy in part • Provides for a choice of residential growth in the short to medium term.	**Effectiveness** • Low-Medium effectiveness as while it will supply additional land it is only likely to occur where there is a single or small number of landowners.

Benefits / Costs	*Effectiveness / Efficiency*
• Assists in making some land supply available. • Occurs on land with low liquefaction risk **Costs** • Loss of rural productive land and reduction in potential of versatile soils. • Reverse sensitivity effects could impact on existing rural activities although WARMP recognizes that residential amenities may have to be compromised (page 11/5 and 6 of WARMP.) • Potential loss of rural amenity. • May not result in integrated approach • Only likely to be implemented where there is one or a small number of landowners. • Costs for developer in promoting plan change. • Change of zoning will increase the rateable value of the land but Council policy is to only impose increased rates when the land is developed. In the interim land will continue to be rated on rural values. • May not enable efficient use of infrastructure and services in accordance with Council priorities. • Does not result in district wide strategic approach.	**Efficiency** • May be efficient for single landowner but not for a district wide strategic approach.

OPTION 4

Council initiated Plan Changes (as proposed)

This option is Council initiated plan changes to accommodate future residential growth.

Benefits / Costs	*Effectiveness / Efficiency*
Benefits - • Implements growth strategy • Provides for a choice of residential growth in the short to long term. • Ensures sufficient land supply is available to assist in improving housing affordability . • Enables integrated coordinated approach to be taken by Council particularly in growth areas where there are multiple owners • Occurs on land with low liquefaction risk • Enables efficient use of infrastructure and services in accordance with Council priorities • Complements existing objectives and policies relating to urban growth in Blenheim and does not require new objectives and policies **Costs** • Loss of rural productive land and reduction in potential of versatile soils	**Effectiveness** • High effectiveness as it provides a choice of residential land in the short to long term. **Efficiency** • High efficiency as it complements existing provisions in plan relating to urban growth in respect of promoting growth on the urban periphery of Blenheim and in particular the north western periphery. • While the proposed areas will impact on the life supporting capacity and productive capacity of soils (Policy 2.7 of Urban Environments) and versatile soils the explanation to Policy 2.7 acknowledges "*that expansion of urban areas may inevitably need to be accommodated in rural areas, where it immediately adjoins existing towns/townships*". This situation applies here.

Benefits / Costs	*Effectiveness / Efficiency*
• Reverse sensitivity effects could impact on existing rural activities although WARMP recognizes that residential amenities may have to be compromised (page 11/5 and 6 of WARMP) • Potential loss of rural amenity • Change of zoning will increase the rateable value of the land but Council policy is to only impose increased rates when the land is developed. In the interim land will continue to be rated on rural values.	• Similarly while there will an encroachment onto versatile soils this is also inevitable given that these types of soils adjoin Blenheim on all sides (except to the south which has not been deemed suitable for residential development). In this case it is not practicable to discourage urban activities on the versatile soils which is acknowledged in Policy 1.3 of the Rural Environments) • While there will be an effect on existing rural activities the WARMP recognises that residential activities may have to compromise in their expectation of amenity level.

6.2.2.2 Plan Change 71-Subsoil Investigations

OBJECTIVES

23 Subdivision and Development

23.2.1. Objectives and Policies

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.

OPTION 1

Proposed New Rule (as per Plan Change 71)

This option is the introduction of a new rule requiring subsoil investigations in specified areas and a consent notice requiring foundation design if required and the introduction of a plan showing the specified areas.

Chapter 29 Standard Requirements for Subdivision and Development

Insert new rule under 29.1.4

29.1.4.2 Subsoil Investigations

All applications for subdivision consent for land identified in Appendix L shall be accompanied by a report from an expert acceptable to Council on the subsoil condition of each proposed allotment. The report shall provide the results of at least four scala penetrometer tests for each allotment. Each sample point is to have a field value recorded, obtained in accordance with NZS4402:1996, and is to be geo-referenced to survey marks. The report shall interpret the field values of the penetrometer test in terms of kilo Pascals (kPa) and state the basis (authority) for the interpretation.

In addition one inspection pit shall be constructed for every 3 proposed allotments to confirm subsoil properties. The inspection pit shall be geo-referenced and the report shall include the logged soil profile.

Unless the recorded field soil strength from the scala penetrometer tests for an allotment is at least 300 kPa at a depth of at least 0.3 metres, then a consent notice will be imposed on the allotment requiring specific foundation design for any dwelling house at the time of building consent.

Note : field values are those obtained before any factoring is applied, for instance - safety factors

Volume 2

Insert a new Appendix L

Benefits / Costs	***Effectiveness / Efficiency***
Benefits • Protects dwellings from potential damage from liquefaction • No adverse effects on the environment as designs will be site specific. • Potentially affected areas clearly shown on plan • Implements findings of specialist liquefaction studies **Costs** • Costs in undertaking investigations and preparing and implementing foundation design. However it is anticipated there will be a number of standard designs for foundations thereby reducing costs.	**Effectiveness** • High effectiveness as a mitigation measure as it assists to prevent damage to dwellings and will in itself not result in adverse effects. **Efficiency** • High-moderate efficiency as issues identified at early stage and standard designs are likely to be available.

OPTION 2

Status Quo

This option retains the status quo with no new rule or provision proposed.

Benefits / Costs	***Effectiveness / Efficiency***
Benefits • Existing provisions in Chapter 29 do require land stability/building platform information (but lacks specificity of proposed rule). • Lesser costs for applicants and Council **Costs** • Potential damage to dwellings during seismic events.	**Effectiveness** • Low effectiveness as lack of specificity could lead to potential damage to buildings. **Efficiency** • Low efficiency as no guarantee detailed investigations will be carried out.

6.2.2.3 Plan Change 71- Roading Layout

OBJECTIVES

23 Subdivision and Development

23.5.1. Objectives and Policies

Objective 1 Ensure that the direct on-site adverse effects of subdivision/ development are avoided, remedied or mitigated through the necessary supporting framework of services and amenities.

OPTION 1

Proposed New Policy (as per Plan Change 71)

This option proposes a new policy is inserted requiring development to be in general accordance with the roading layout shown on the planning maps of the WARMP.

Policy 1.18 Where indicative roading layouts are shown on the planning maps the roading network proposed at the time of subdivision and development shall be in general accordance with the layout.

Benefits / Costs	***Effectiveness / Efficiency***
Benefits • Complements other policies under Objective. • Provides connectivity with adjoining growth areas. • On site adverse effects can be avoided by implementing integrated developments at subdivision stage. • Provides for an "integrated" connected neighbourhood particularly where there are different land owners. • Assists in providing good urban design by providing for north south orientation and avoiding rear lots. • Enables some flexibility with reference to in "general accordance." • Gives effect to existing objective by providing a mechanism that minimises adverse effects in respect of connectivity, integration, urban design and safety by providing a roading layout. **Costs** • Requires developers to comply with specified layout which may not be most economic for individual developer.	**Effectiveness** • Highly effective as provides method to address potential on-site adverse effects relating to roading and complements existing provisions in the WARMP. **Efficiency** • Highly efficient as benefits outweigh the costs.

OPTION 2

Status Quo

This option retains the status quo with no new policy or provision proposed

Benefits / Costs	*Effectiveness / Efficiency*
Benefits • Existing provisions in Chapter 29 do require road layout but lacks specificity of proposed rule in terms of connectivity and integration particularly in respect of different areas. • Potentially less upfront costs for developers as able to determine own roading pattern. **Costs** • Potentially inconsistent development among different landowners with a lack of connectivity and coordination. • Does not ensure connectivity between growth areas. • May give rise to on-site adverse effects.	**Effectiveness** • Existing provisions provide some limited effectiveness. Avoiding onsite adverse effects will be further enhanced by the type of framework proposed. **Efficiency** • Less efficient as status quo will not be as comprehensive without proposed policy.

6.2.3 Alternative Locations

Section 32 of the Act does not expressly require an analysis of alternative locations. However as it is clear that through the growth strategy process a detailed analysis of various alternative locations was considered. In particular the SMUGS report compared various growth areas measured against various disciplines including soils, transport, infrastructure, ecology and landscape and which was subsequently updated by the Revision Strategy and Growing Marlborough document. Following this process the growth areas subject to these plan changes are considered the most appropriate.

6.2.4 Risk of Uncertainty or Insufficient Information

In this section, the risk of acting or not acting where there is uncertainty or insufficient information about the subject matter of the policies, rules, or other methods is examined (Section 32(4)(b) of RMA). Generally it is considered that there is not uncertain or insufficient information. The growth plan change areas have been subject to a comprehensive growth strategy and a review in light of geotechnical information and also subject to specialist reports in respect of traffic, geotechnical, infrastructure and contaminated land aspects.

Council's infrastructure will need to be developed to service the areas the subject of these Plan Changes. The development of that infrastructure will take place in a sequence which is cost-effective and appropriate and in a sequence which is developed through consultation with the community to Local Government Act processes, including the LTCP and Annual Plan processes. Consistent with Council's existing policies, 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.

There may be some uncertainty as to the amount of land that will come forward for urban development as this is dependent on actions of landowners but the area of the plan changes and consultation with landowners indicates that at least some sites will be available in the short term. The risk of not acting or

reducing the areas available will result in a potential shortage of residential land affecting choice and affordability.

The geotechnical investigations potentially raise some uncertainty in respect of appropriate foundation design but generally these are likely to be standard foundation designs. Not acting by not implementing a policy and rule is to expose land owners to undue risk from a seismic event.

6.2.5 Determination

Overall, the proposed Plan Changes are the most appropriate option for achieving the relevant objectives of the WARMP. The Plan Changes will provide for the existing and future residential development in locations that are appropriate for development. The outcomes of the growth strategy are consistent with the existing approach in the WARMP to provide for residential development in that the proposed residential areas adjoin existing residential urban development; are compact in urban form; maintain the integrity of the road network; enables the efficient provision of infrastructure; and enables an integrated and coordinated approach.

While expansion into rural areas will be a result of the plan changes the WARMP acknowledges this is inevitable where the proposed areas immediately adjoins an existing township (which is the case here). The plan changes will also encroach onto versatile soils but any expansion of Blenheim, except to the south (which was deemed inappropriate by Plan Change 59 decision), is likely to result in the loss of productive potential these soils. Accordingly it is not practicable to avoid some loss of potential production.

While there will be tension at the urban/rural interface in terms of reverse sensitivity and rural amenity these tensions already exist. The WARMP indicates there is some inevitability about these issues and at the interface new residential activities have to accept a compromise in terms of their amenities.

The rule relating to the requirement for subsoil investigations and foundation design will better achieve Objective 1(Chapter 23) by promoting suitable mitigation measures in a potentially hazard prone land without creating adverse effects.

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) is achieved as it relates to avoiding, remedying and mitigating on site development effects.

Based on the assessment undertaken, it is concluded that 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.

6.3 Section 72 of the RMA

Section 72 of the RMA states the purpose of a plan change is to assist authorities to carry out their functions in order to achieve the purpose of the Act. The functions of Council include “the integrated management of the effects, use and development of land and associated natural and physical resources of the district” (Section 31(1) (a)).

Part 2 (Sections 5-8) set out the purpose of the Act. In terms of Section 5 the plan changes will enable people and communities to provide for their social and economic wellbeing by the provision of growth areas. The areas will meet the reasonably foreseeable needs of future generations (until at least 2030) and while the life supporting capacity of soils, and in particular versatile soils, will be diminished for agricultural purposes this is anticipated to some degree by the existing WARMP. Generally adverse effects can be avoided, remedied and mitigated over time.

In terms of Section 6 matters there are no matters of national importance that are of particular relevance.

Some other matters in Section 7 are of relevance. The location of the site adjoining existing residential land and the ability to connect with infrastructure including roading without adverse effect is an efficient use of resources (Section 7(b)). While the amenity values and quality of the environment will change (Sections 7(c) and (f)) this does not necessarily imply an adverse effect.

In terms of Section 8 Iwi have indicated support for the Plan Changes.

It is also noted that the existing objectives of the WARMP will not be altered. The objectives are assumed to meet the purpose of the Act in terms of Section 32(3) (a) given that they that they have been the subject of a Section 32 process as part of the preparation of the WARMP.

6.4 Section 74 of the RMA

Section 74(1) of the RMA 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 although regional functions are not considered particularly relevant). In changing a plan, regard must be had to any strategies prepared under other Acts (section 74(2)(b) of the Act).

The functions of Council, Part 2 and Section 32 are dealt with above. In respect of other strategies the most relevant are the growth strategy documents which were prepared under the Local Government Act 2002 and the final document adopted by Council in March 2013. Regard must be had to this strategy and its findings are clearly utilised in the preparation of the Plan Changes.

The Marlborough Land Transport Strategy has been had regard to in the preparation of the Transportation Effects report.

No other strategies are considered relevant.

6.5 Section 75 of the RMA

Section 75 (3) of the RMA states effect must be given to any national policy statements and the regional policy statement.

The National Policy Statement on Electricity Transmission has been had regard to in respect of the presence of transmission lines in the Plan Change 2 area although a response is awaited from Transpower.

Section 75 of the RMA states that the plan changes shall “give effect” to 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 the following objectives and policies are considered to be relevant to the Plan Changes:

6.5.1 Plan Changes 64-70

6.1.5 OBJECTIVE – SOIL PRODUCTIVITY AND AVOIDANCE OF SOIL EROSION AND DEGRADATION

Practices which exacerbate soil erosion and degradation be avoided; and

The potential and life supporting capacity of all soils be ensured by retaining the productive capability of those soils.

7.1.2 OBJECTIVE – QUALITY OF LIFE

To maintain and enhance the quality of life of the people of Marlborough while ensuring that activities do not adversely affect the environment

7.1.7 POLICY - AMENITY VALUES

Promote the enhancement of the amenity values provided by the unique character of Marlborough settlements and locations

7.1.9 OBJECTIVE – PROVISION FOR ACTIVITIES

To enable present and future generations to provide for their wellbeing by allowing use, development and protection of resources provided any adverse effects of activities are avoided, remedied or mitigated.

7.1.10 POLICY - TYPE, SCALE & LOCATION OF ACTIVITIES

To enable appropriate type, scale and location of activities by:

- *clustering activities with similar effects;*
- *ensuring activities reflect the character and facilities available in the communities in which they are located;*

7.1.14 OBJECTIVE - COMMUNITY INFRASTRUCTURE

Provide for the safe and efficient operation of community infrastructure in a sustainable way.

7.1.21 POLICY - NETWORK UTILITIES AND PUBLIC WORKS

Enable the maintenance, enhancement and operation of utility networks needed by the community to ensure their health, safety and wellbeing.

Given that Plan Changes 64-70 fit with the existing objectives and policies of the WARMP and do not represent a departure from the existing urban expansion strategy it is considered the Plan Changes gives effect to the RPS as clearly the existing WARMP achieves this (although it is acknowledged that prior to the Resource Management Amendment Act 2005, Section 75 referred to being “not inconsistent). . In particular use of rural soils for residential activities is anticipated by the WARMP.

6.5.2 Plan Change 71

7.1.14 OBJECTIVE - COMMUNITY INFRASTRUCTURE

Provide for the safe and efficient operation of community infrastructure in a sustainable way.

7.1.15 POLICIES - LAND TRANSPORT

(a) Enable the safe and efficient operation of the land transport system consistent with the duty to avoid, remedy or mitigate adverse environmental effects.
(b) Recognise a roading hierarchy as the guiding framework for the function of roads in Marlborough.

7.4.2 OBJECTIVE – NATURAL HAZARDS

Avoid or mitigate the actual or potential effects of loss or damage to life or property from natural hazards.

7.4.3 POLICIES - HAZARD MITIGATION

(a) Restrict land use activities in areas of known natural hazard.
(b) Restrict land use activities which would increase the risk of natural hazards to property and life.

7.4.4 METHODS

(a) Provision in resource management plans for controls to regulate activities in areas of known natural hazard.

Plan Change 71 will give effect to the above provisions by:

- Implementing a safe, integrated and efficient road network within the Plan Change areas and;
- Regulating activities in potentially hazard prone areas by requiring sub soil investigations and appropriate foundation design if required.

7 Consultation

The following consultation has taken place which has assisted in informing the plan changes:

7.1 Growth Strategy Consultation

Consultation has included the consultation process associated with the growth strategy as follows:

Date of Consultation	Party Consulted	Who Undertook Consultation	Type of Consultation	Outcome
3/02/2009	Public	MDC/Growth strategy consultants	Public meeting Blenheim	Public feedback
3/08/2009	Public	MDC/Growth strategy consultants	Public meeting Renwick	Public feedback
4/08/2009	Public	MDC/Growth strategy consultants	Public meeting Wairau Valley	Public feedback
5/08/2009	Public	MDC/Growth strategy consultants	Public meeting Rarangi,Spring Creek,Grovetown, and Tuamarina	Public feedback
10/08/2009	Public	MDC/Growth strategy consultants	Public meeting Seddon and Ward	Public feedback
8/02/2010	Public	MDC/Growth strategy consultants	Public meeting Havelock	Public feedback
9/02/2010	Public	MDC/Growth strategy consultants	Public meeting Picton	Public feedback
8/03/2010	Public	MDC/Growth	Public meeting	Public feedback

Date of Consultation	Party Consulted	Who Undertook Consultation	Type of Consultation	Outcome
		consultants	Linkwater	
4/08/2009	Blenheim Developers	MDC/Growth consultants	Focus Group Meeting	Feedback
4/08/2009	Blenheim planners, lawyer, surveyors etc	MDC/Growth consultants	Focus Group Meeting	Feedback
5/09/2009	Community organisati	MDC/Growth consultants	Focus Group Meeting	Feedback
5/08/2009	MDC and officers	Growth consultants	Focus Group Meeting	Feedback
8/02/2010	Business Interests	MDC/Growth consultants	Focus Group Meeting	Feedback
19-21/10/2009	Public and Stakeholders	MDC	Report Back Presentations	Feedback
May/June 2010 (submissions) July/September 2010 (hearings)	Public	MDC	Formal Public Consultation written submission and hearing	Decisions made after submissions
1/09/2009	Technical Officers and Experts (transport, ecology, infrastructure, recreation, town planning) and community representa	MDC/Growth consultants	Inquiry By Design (IBD), Blenheim	Feedback
2-4/07/2012	Technical Officers and Experts (transport, ecology, infrastructure,	MDC/Growth consultants	IBD for revised areas following geotechnical studies	Revised Growth Areas (1-7)

Date of Consultation	Party Consulted	Who Undertook Consultation	Type of Consultation	Outcome
	recreation, town planning)			
August 2009	Landowners and Public in revised growth areas	MDC/Growth consultants	Revised Growth Areas advertised in newspaper and responses invited.	
28-29/08/2012	Selected landowners in Areas 1-7	MDC/Growth consultants	Meetings/telephone	Support and opposition from persons in areas and persons just outside areas desiring to be included.

7.2 Iwi Consultation

MDC generally holds monthly Iwi Working Group (IWG) hui with representatives of Iwi in the Marlborough region. Through this mechanism Iwi were informed of the growth strategy and in a meeting on 11 April 2013 the IWG indicated support for the residential growth areas.

7.3 Other Consultation

Other consultation includes the following:

Party Consulted	Date of Consultation	Who undertook consultation	Type of consultation	Outcome
Transpower	5/04/2013 and 15/05/2013	MDC/Consultant	Emails and telephone conversation	Under consideration by Transpower but no definitive response received as yet.
Ministry for the Environment	10/04/2013	MDC/Consultant	Letter sent	No response received as yet.
NZTA through Marlborough Roads	2009-2012	MDC/Growth Consultants	Growing Marlborough processes	Feedback received

8 Conclusion

Council have proactively addressed the future anticipated demand for residential growth by undertaking a comprehensive growth strategy in the district. This strategy identified the need for future residential growth areas at Blenheim. The findings of the strategy are implemented by Plan Changes 64-71. The plan changes generally reflect the existing urban growth strategy in the WARMP which is the expansion of the existing urban area in a compact form. While there will be encroachment onto rural areas and versatile soils the options for Blenheim are limited because of factors such as the presence of liquefaction prone soils.

Overall it is considered the proposed plan changes better achieve the objectives of the WARMP and Part 2 of the RMA than the retention of the existing provisions or the implementation of other options.

Appendix 1

RESIDENTIAL LAND AVAILABILITY
BLENHEIM & RENWICK
UPDATE REPORT
FOR PERIOD 1ST JULY 2007 TO 30TH JUNE 2010

A Review Of The Development Potential Of The Residential Zoned Land Supply

Updating Research Earlier Reported In 2004, 2005, 2006 & 2007

Prepared for Marlborough District Council
By Environmental Management Services Limited

Final Report January 2011

Table of Contents

1 Executive Summary

This report presents the findings of analysis undertaken to quantify the amount of residential-zoned land in Blenheim and Renwick that is available for development for housing.

Earlier reports in 2004, 2005, 2006 and 2007 provided estimates of vacant land available in these towns. The 2007 report also ventured an estimate of infill potential within Blenheim and Renwick. The time period described in the 2007 report was 1st January 2006 to 30th June 2007. This 2010 report presents data and findings for the period 1st July 2007 to 30th June 2010.

The analysis undertaken to quantify the available residential-zoned land in 2010 adopted the same study area and methodology as the 2007 analysis.

The Blenheim study area is shown in Figure 1. In Figure 1, the light blue shading identifies the primary census area units of Blenheim. The red lines identify the mesh blocks of the 'Greenfield Areas' that were referred to in the earlier studies and which are also included in the 2010 study area. The Renwick study area is shown in Figure 2 as the pink-shaded land zoned *Township Residential*.

The review confirms that the supply of vacant residential-zoned land in Blenheim and Renwick is quickly diminishing. If historically typical patterns and densities of subdivision and development and rates of demand continue, the available vacant land at the periphery of the Blenheim urban area will meet demand for only a short period. That could be as short as 2 to 5 years or, optimistically, could extend to 2017 given recent uptake trends.

Infill development has grown and is expected to continue to meet some demand for new housing. However, as for new subdivision, historically typical densities achieved are relatively low overall, resulting from the pattern and type of re-development that has occurred.

The review finds that, if material increase in densities is to be achieved, some direct investigation may be required into the primary drivers of housing type and the size of subdivided sections. Urgent action is recommended.

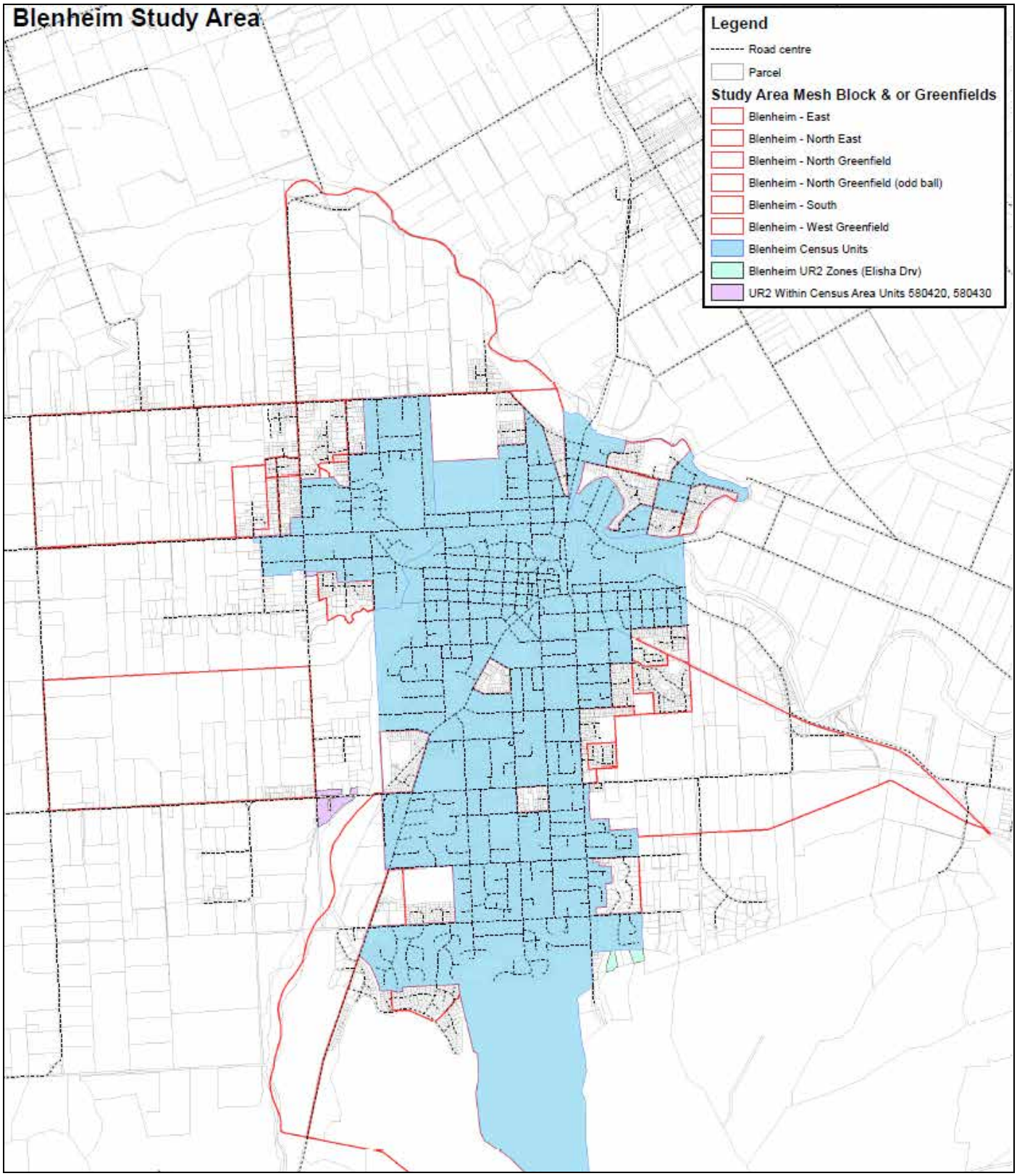


Figure 1 Blenheim Study Area

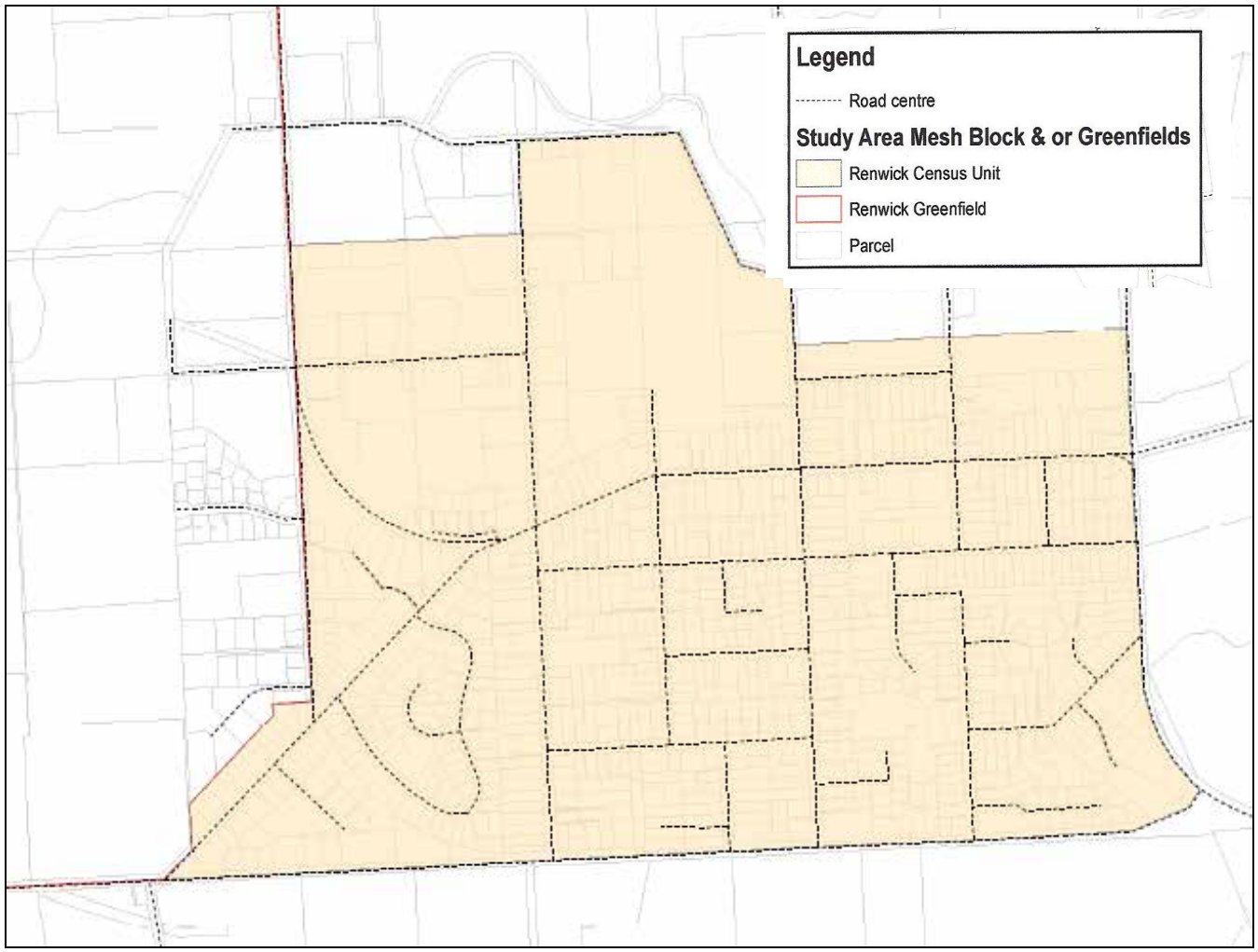


Figure 2 Renwick Study Area

2 Methodology

The previous studies differentiated between “greenfield" and “infill” development. “Infill” development was described as development that involves redevelopment of existing residential areas or intensification by multi-unit development or additional dwellings on already-occupied sites. “Greenfield” areas were identified as the only remaining areas having sizeable areas of vacant land. Five such areas were identified and these are shown on Figure 3:

- Northwest (including Rose Street, Nottinghill subdivision, Waipuna Street and Covent Gardens subdivisions, as well as pockets of vacant land in the northwest of Blenheim and an isolated pocket of then-vacant land close to the centre of town)
- Northeast (including land in the Merlot Place subdivision and Opawa Mews proposed development, as well as pockets of vacant land in the northeast of the town)
- West (Burleigh)
- South (including the Council’s Taylor Pass Road subdivision and other pockets of vacant land in the southern part of the town)
- East (including De Castro subdivision and Nikau Drive subdivisions)

The ‘greenfield’ areas comprise the meshblocks detailed in Table 1 and shown on Figure 1:

Table 1 Greenfield Meshblocks

Greenfield Area:	Comprises Meshblocks:
North	2291101, 2291300, 2291102, 2293201, 2291000, 2290902, 2293600, 2293500, 2290901, 2290701, 2301600, 2293700, 2291400
Northeast	2294200, 2295800, 2295200, 2295700, 2295500
West	2288100, 2302100
South	2305600, 2305500, 2306608, 2304700, 2306604, 2307203
East	2300501, 2300502, 2292204, 2303100, 2292206, 2292205, 2303500, 2304800

The numbers given in the bubbles on Figure 4 are the numbers of residential sections that were estimated in 2004[1] to be achievable from each of the pockets of land in the ‘greenfield’ areas. As this report demonstrates, the amount of land that is genuinely available in those areas is now quite small. The estimates for 2007 and for 2010 are shown in red and blue respectively on Figure 4.

[1] Source: *Blenheim Residential Growth – Assessment of the Adequacy of the Urban Residential Land Bank* (Davie Lovell Smith 2004)

Figure 3 The Five Greenfield Areas Originally Identified In 2004

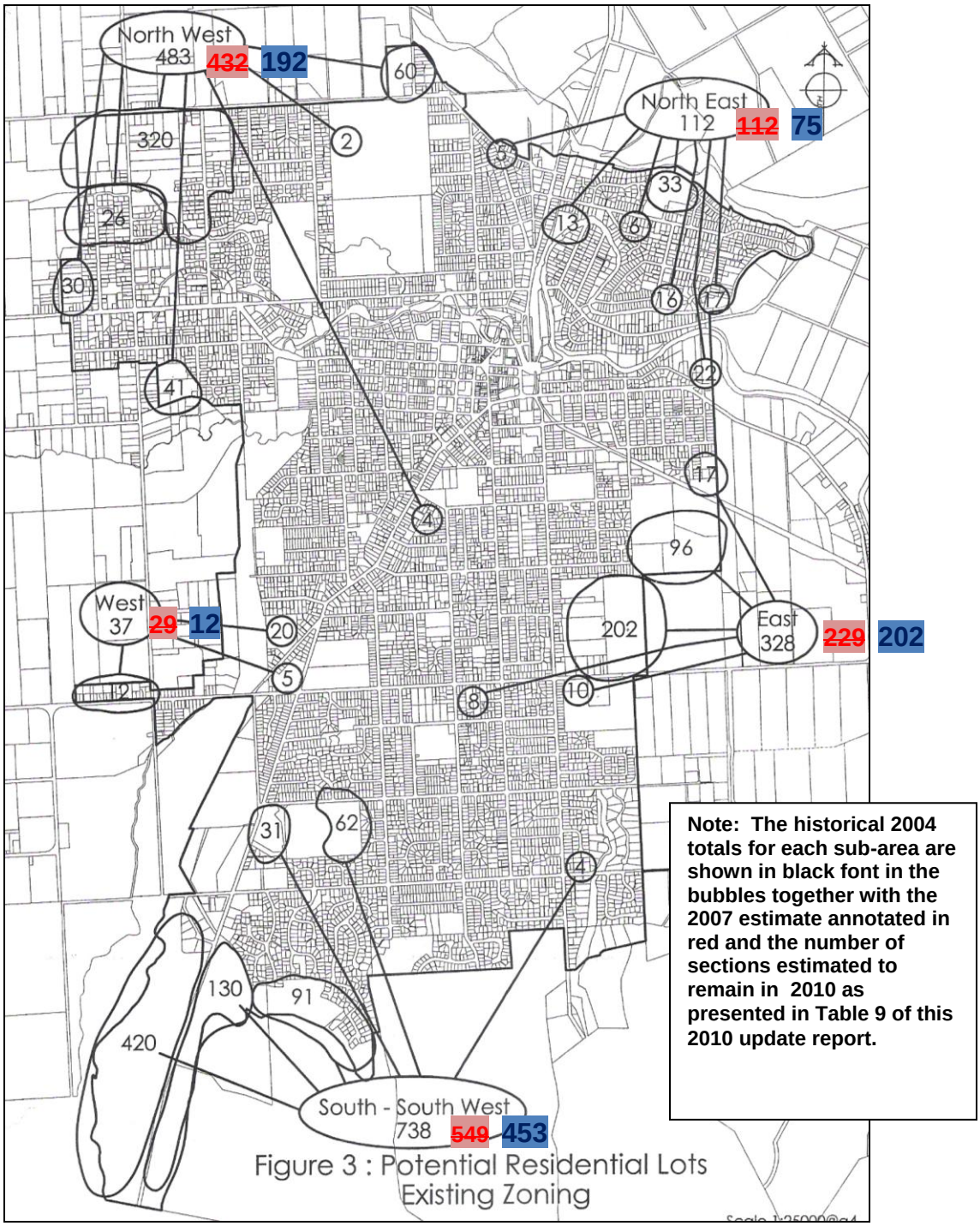


Figure 4 Estimated Sections Available In The Greenfield Areas

For the 'greenfield' areas, the Council's Dekho GIS system was used to analyse records of subdivision and residential building activity. The approach was tailored differently for 'greenfield' areas and for infill:

'Greenfield'

For 'greenfield' areas, the analysis identified the following:

(a) The number of and location of existing "market-ready" residential sections (that is, parcels of land of a size potentially suitable for immediate development for residential purposes for which no building consent had yet been issued);
(b) The genuinely vacant "greenfield" land that remains available;
(c) An estimate of the potential for new residential sections assuming subdivision at the *Residential One* or *Residential Two* rates or development as an integrated residential development (so as to consider a range of densities potentially achievable).

For these purposes, parcels of land that had been identified in 2007 as 'market ready' but which now have building consents issued for them were eliminated. They are no longer market-ready vacant residential sections. It is possible that some of these properties are being marketed as land-and-house packages so may actually be new to the market. The study team did notice a number of instances where the subdivision of the land and issue of a building consent coincided as one might expect for land-and-house packages. However, it is not possible to determine from the GIS record whether this has actually occurred in any individual situation or what proportion of these has occurred overall.

Infill

Consistent with the 2007 methodology, a slightly different approach was taken for infill development in the non-greenfield areas. The 2007 report presented an estimate of the number of additional residential sections or house-building (infill) opportunities that might be available within the non-greenfield areas. That was based on examining a sample of residential neighbourhoods in Blenheim that have differing residential density to identify how many of the existing occupied properties have sufficient space for infill development.

A number of assumptions had to be made in the absence of detailed knowledge of age of the existing dwelling and likelihood of demolition or removal of the dwelling. The number of additional section opportunities was divided by the number of recorded existing houses (from the 2006 census) for those meshblocks. This proportion was used as a ratio to estimate the potential additional sections that other similar density neighbourhoods might yield at different *(Residential One* or *Residential Two*) rates.

The review of subdivision and residential building trends for the period 2007 to 2010 confirms that the assumptions made in 2007 about infill section size were about right. On that basis, the 2010 methodology retained the 2007 level of infill potential as the baseline estimate then reduced that by the actual level of infill subdivision that has occurred since 2007.

3 New Residential Dwellings – Land Uptake Since 2007

Table 2 presents the number of building consents issued for new residential dwellings during the 3-year period since 1st July 2007. The data are for land zoned residential only within the study area.

Only building consents issued are included. Building consent applications that have been lodged but which are pending and not yet issued have been excluded. They will be picked up in analysis of the subsequent 2010-onwards period (if undertaken).

Table 2 also identifies which of those residential dwellings have also been issued with code compliance certificates (they are shown in brackets beneath each entry). This indicates the number of consented dwellings actually completed. There are fewer code compliance certificates for more recent periods, simply because many dwellings would still have been under construction during the study period. Other consented dwellings may have been built during that time but had not necessarily been issued code compliance certificates by the end of the study period.

Table 2 Building Consents Issued For New Residential Buildings (Blenheim and Renwick)

	2006	2007	2008	2009	2010 (6-month period 01.01.10 to 30.06.10)
Blenheim	**202** (166)	**199** (146)	**117** (110)	**118** (89)	**30** (10)
Renwick	**20** (14)	**39** (29)	**24** (22)	**24** (19)	**6** (1)
Total	**222** (180)	**238** (175)	**141** (132)	**142** (108)	**36** (11)

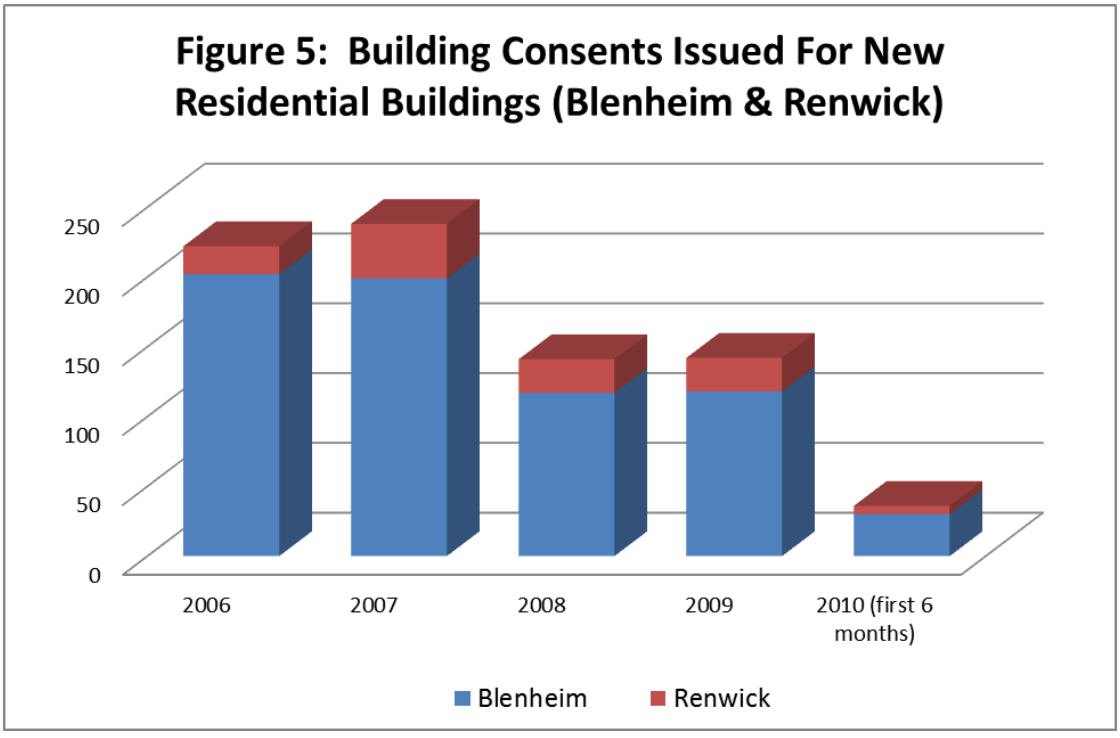


Table 3 presents the numbers of building consents issued for new dwellings over the whole 3-year period since 2007 sorted by whether they are within the 'greenfield' areas or occurred as infill:

Table 3 Building Consents Issued For New Residential Buildings By Location Over The 3-year Period 01.07.07 To 30.06.10

	Number of building consents issued for new residential dwellings	
Greenfield:		
– **Northwest**	83	
– **Northeast**	54	
– **West**	2	
– **South**	12	
– **East**	50	
	201	= 55%
Infill in remaining areas of Blenheim	**168**	= 45%
Total	**369**	

Prior to 2007, the majority of new building in Blenheim occurred as infill until about 2004. In 2003 infill accounted for 78% of all new residential building. In 2004, 34% of all new residential building was infill and in 2005 infill accounted for 43% of new residential building. That proportion steadied in 2006/2007. For the 18-month period between 1st January 2006 and 30th June 2007, 42% of all new residential building was infill and 58% was in the five "greenfield" areas identified in the earlier reports. As illustrated in Table 3, the pattern has remained similar over the past 3 years.

The locations of all building consents issued during the 3-year study period are shown in Figure 6 (Blenheim) and Figure 7 (Renwick) colour-coded by year of issue.

Note: Figure 6 also shows new dwellings on land on the outskirts of Blenheim which is not included in Tables 2 or 3

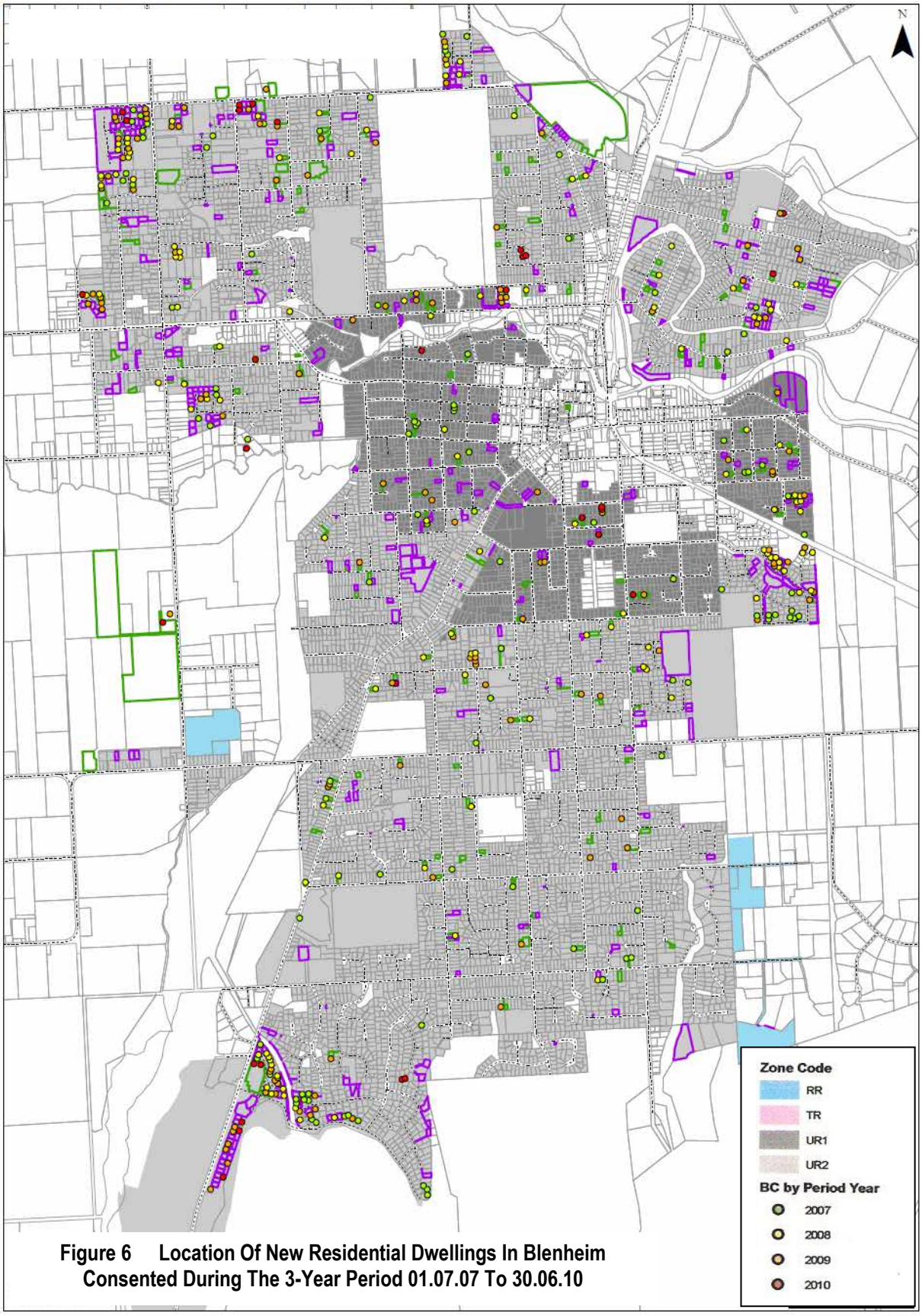


Figure 6 Location Of New Residential Dwellings In Blenheim Consented During The 3-Year Period 01.07.07 To 30.06.10

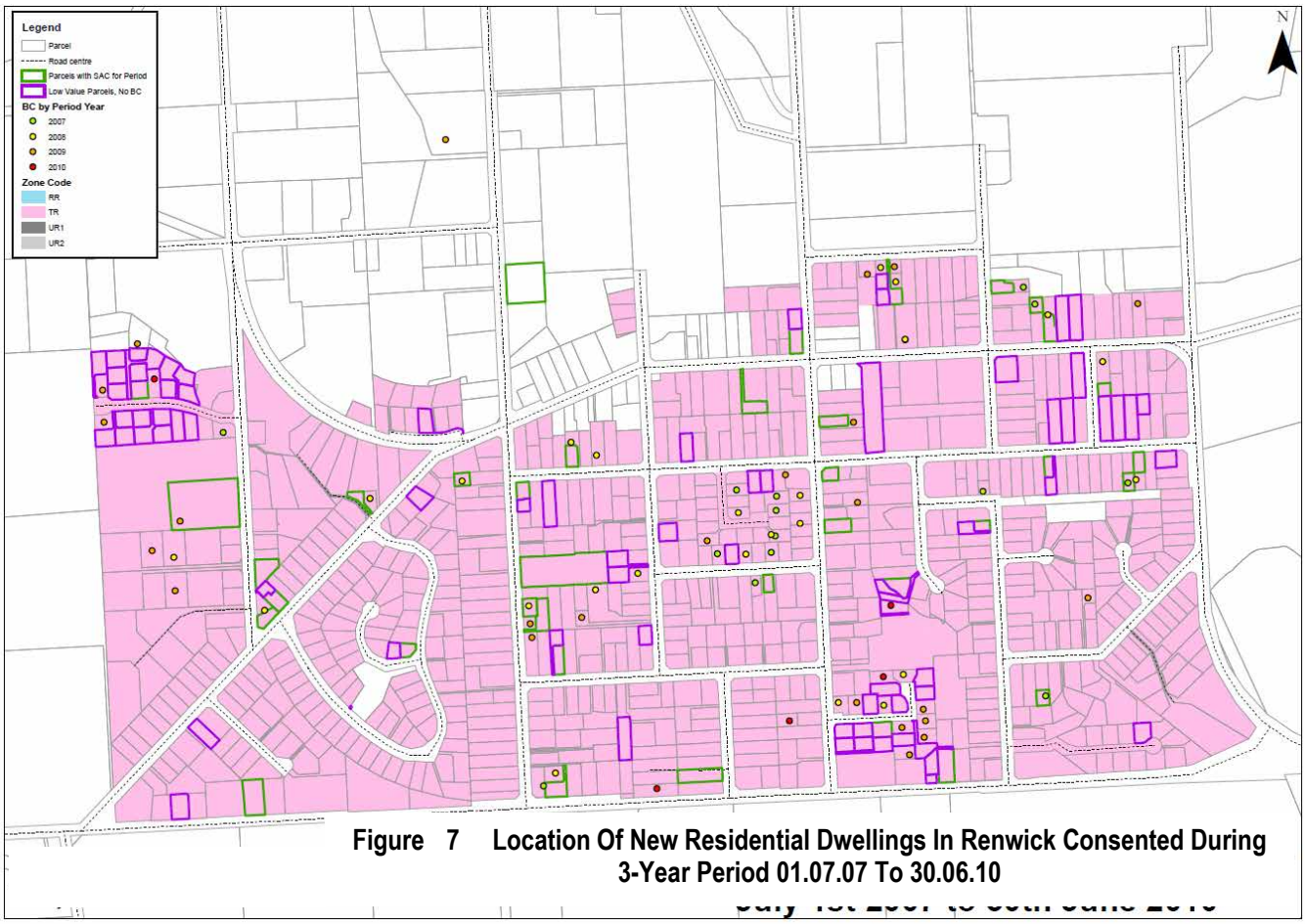


Figure 7 Location Of New Residential Dwellings In Renwick Consented During 3-Year Period 01.07.07 To 30.06.10

Table 4 presents the running total of building consents for new dwellings issued since 1999. The information is sourced from the previous studies updated with the 2007-2010 data.

Table 4 Total New Residential Dwellings Since 1999

Year	New Dwellings Blenheim	New Dwellings Renwick	Total New Dwellings
1999	111	14	125
2000	121	5	126
2001	90	11	101
2002	130	10	140
2003	213	15	228
2004	205	12	217
2005	221	10	231
2006	202	20	222
2007	199	39	238
2008	117	24	141
2009	118	24	142
6 Months 01.01.10 – 30.06.10	30	6	36

The number of building permits was highest in 2007 and the annual numbers seem to have fallen considerably since then – even before the world-wide economic recession experienced during 2009 and 2010.

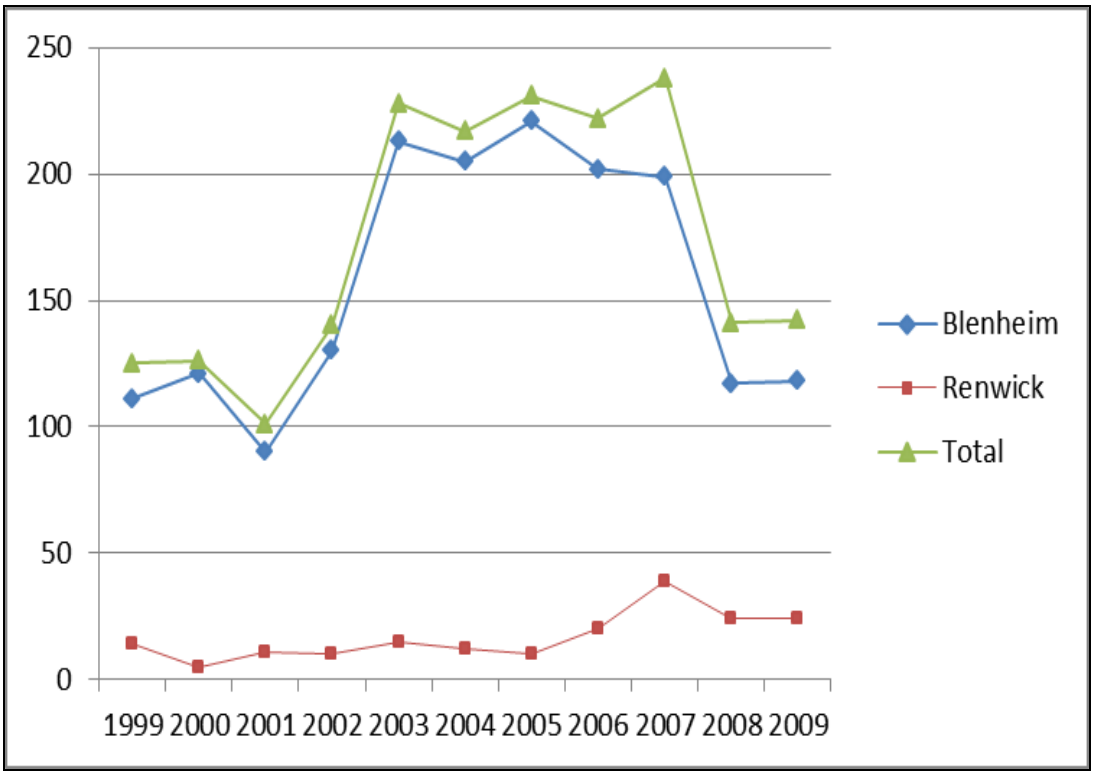


Figure 8 New Residential Dwellings Blenheim + Renwick 1999 to 2009

If a trend line is taken from the high of activity in 2003, the forecast for creation of new residential dwellings beyond 2010 is shown in Figure 9.

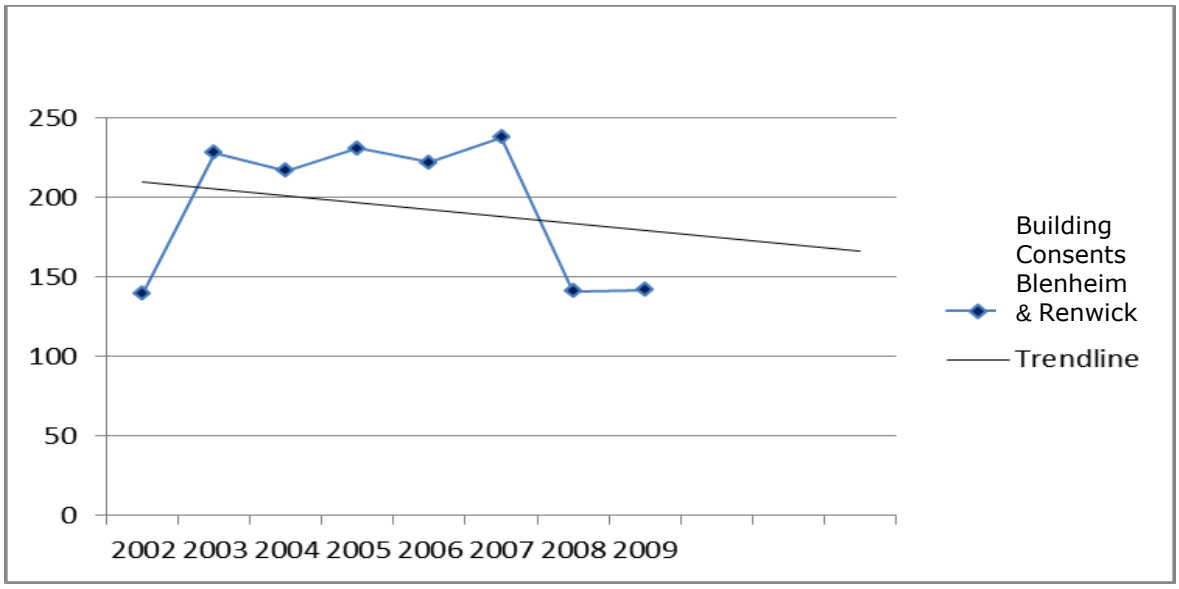


Figure 9 Trendline For New Residential Dwellings Blenheim + Renwick Beyond 2010

4 New Residential Subdivision Since 2007

Data from the Council's Procon consents information system were analysed to identify the number of residential allotments created during the 3-year study period. Only allotments created by deposited plans have been included. Allotments on scheme plans of subdivision that have been granted consent but have not yet deposited are not included. This approach is consistent with the 2007 methodology and ensures that the count captures only those that are genuinely available to the market at the time of the study rather than proposals.

The data have been checked manually against the aerial photograph base of Dekho to eliminate duplicates and plans that supersede earlier deposited plans for the same land.

The total number of new allotments created also excludes allotments containing existing built dwellings. That is because those allotments are already occupied and not genuinely new to the market. The GIS and building consent information system Proclaim were checked to exclude allotments that have building consents issued at the time of the study. In general, this means that these properties are already removed from market availability by being committed to a particular household. The one caveat to that is that it is not possible to determine from the Council's records how many of those sections with building consents are of the land-and-house package type. These will not necessarily be taken up by occupants. They may not yet be occupied and, in this sense, may still be available to the market. It appears from the pattern of subdivision and building shown in Dekho that there has been quite a bit of land-and-house townhouse type development particularly in Blenheim. For that reason, the data summarised in Table 5 separately include new allotments that already have building consents rather than excluding them from the data set altogether.

The summary of new allotments created by subdivision presented in Table 6 differentiates new allotments in "greenfield" locations from those created in infill situations. The "greenfield" locations are the five areas

defined by the earlier Davie Lovell-Smith reports. It is important to note that the table records all allotments created by all subdivisions within the meshblocks that comprise the five areas – not just within the pockets of land identified on Figure 3. Before setting out the comparable totals between years, the final 12-month total for 2007 is set out in Table 5 – recalling that, in the 2007 report, the data were reported only till the end of the study period being the first half of 2007.

Table 5 New Allotments Created By Deposit of Subdivision Plans During The Full 12-Month Period 01.07.07 To 31.12.07

	Blenheim			Renwick		
	Total Allotments Created	**Occupied By Building Or Building Consent**	**Total New Vacant Allotments**	**Total Allotments Created**	**Occupied By Building Or Building Consent**	**Total New Vacant Allotments**
From the 2007 Report:						
First half 2007 months 01.01.07 – 30.06.07						
Greenfield	2	1	1	0	0	0
Infill	89	52	37	18	6	12
Subtotal	**91**	**53**	**38**	**18**	**6**	**12**
New Data;						
2nd half 2007 01.07.07 – 31.12.07						
Greenfield	77	41	36	0	0	0
Infill	29	22	7	13	7	6
Subtotal	**106**	**63**	**43**	**13**	**7**	**6**
Total for 2007:						
Greenfield	**79**	**42**	**37**	**0**	**0**	**0**
Infill	**118**	**74**	**44**	**31**	**13**	**18**
Total Allotments	**197**	**116**	**81**	**31**	**13**	**18**

In Blenheim, the proportion of new vacant allotments created by infill had been 35% in 2006. By 2009, infill subdivision created half of all new vacant allotments.

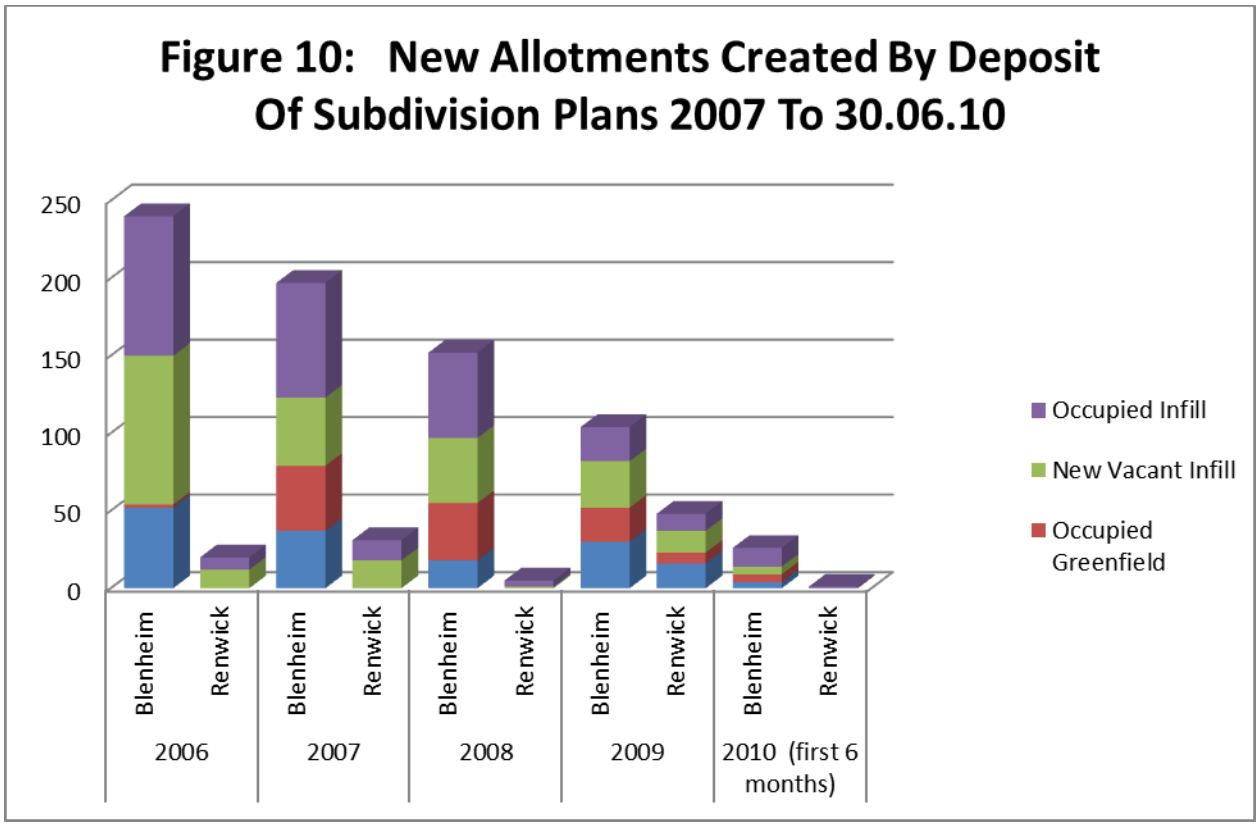
In the 2007-2010 period, there were more subdivisions involving the division of an existing allotment to create, not a vacant allotment, but an allotment with recent building consent. It is suggested this is indicative of the land-and-house development discussed earlier however further detailed case-by-case research would be required to verify that trend.

In Renwick, there has been only a limited area of 'greenfield' land at the edge of the township (Boyce Street) where new allotments have been subdivided. The subdivision of that land, deposited in 2009, has made all of that land available to the market, although only 7 of the 23 sections there are occupied or committed by building consents. The proportion of infill subdivision is rising because the available 'greenfield' land is diminishing.

Table 6 New Allotments Created By Deposit of Subdivision Plans During The 3-Year Period 01.07.07 To 30.06.10

	Blenheim			Renwick		
	Total Allotments Created	Occupied By Building Or Building Consent	Total New Vacant Allotments	Total Allotments Created	Occupied By Building Or Building Consent	Total New Vacant Allotments
Historical:						
2006: 01.01.06 – 31.12.06						
Greenfield	54	2	52	0	0	0
Infill	186	90	96	20	8	12
Total	**240**	**92**	**148**	**20**	**8**	**12**
2007: 01.01.07 – 31.12.07						
Greenfield	79	42	37	0	0	0
Infill	118	74	44	31	13	18
Total Allotments	**197**	**116**	**81**	**31**	**13**	**18**
2008: 01.01.08 – 31.12.08						
Greenfield	55	37	18	0	0	0
Infill	97	55	42	5	4	1
Total Allotments	**152**	**92**	**60**	**5**	**4**	**1**
2009: 01.01.09 – 31.12.09						
Greenfield	52	22	30	23	7	16
Infill	52	22	30	25	11	14
Total Allotments	**104**	**44**	**60**	**48**	**18**	**30**
First Half 2010: 01.01.10 – 30.06.10						
Greenfield	9	5	4	0	0	0
Infill	17	12	5	1	1	0
Total Allotments	**26**	**17**	**9**	**1**	**1**	**0**

The trend shown in Table 6 for the period between 2006 and June 2010 is illustrated in Figure 10 below

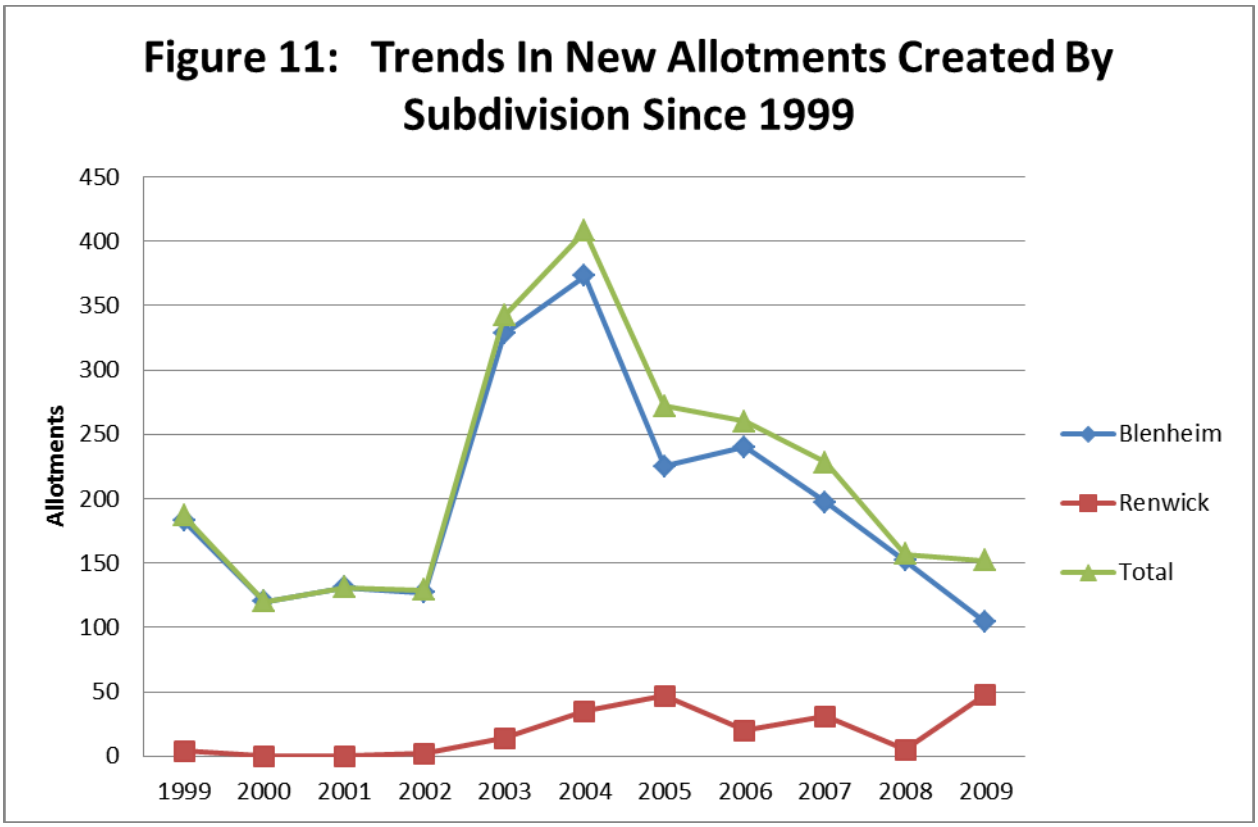


The trend in new allotments created by subdivision since 1999, consolidating the information presented in the previous reports and the 2007-2010 data, is given in Table 7 below and illustrated in Figure 11.

Table 7 New Residential Allotments Created By Subdivision 1999-2010[2]

Year	New Residential Allotments Blenheim	New Residential Allotments Renwick	Total New Residential Allotments
1999	183	4	187
2000	120	0	120
2001	131	0	131
2002	127	2	129
2003	328	14	342
2004	373	35	408
2005	225	47	272
2006	240	20	260
2007	197	31	228
2008	152	5	157
2009	104	48	152
2010 (first half only to 30.06.10)	26	1	27

[2] Table 8 is sourced from the 2007 report and updated with the 2007 to 2010 data



As noted in the 2007 report, the total number of new residential allotments created after 2004 appears to be substantially below the annual average created in the immediately preceding years. It should be noted that some differences were observed in 2007 in the way allotments were counted prior to 2006. Validation of previous years' subdivision records suggests the figures used may reflect total allotments proposed on subdivision consent including 'parent' allotments occupied by existing dwellings. From 2006 onwards, only net additional allotments have been counted. That is, new allotments that are occupied by existing houses are not counted as net additional allotments. For example, a 2-lot subdivision of an existing section occupied by a house counts as a net +1 vacant section.

A trendline of subdivision activity since the highs of 2003 and 2004 indicates forecast trends for levels of subdivision in Blenheim and Renwick illustrated in Figure 12:

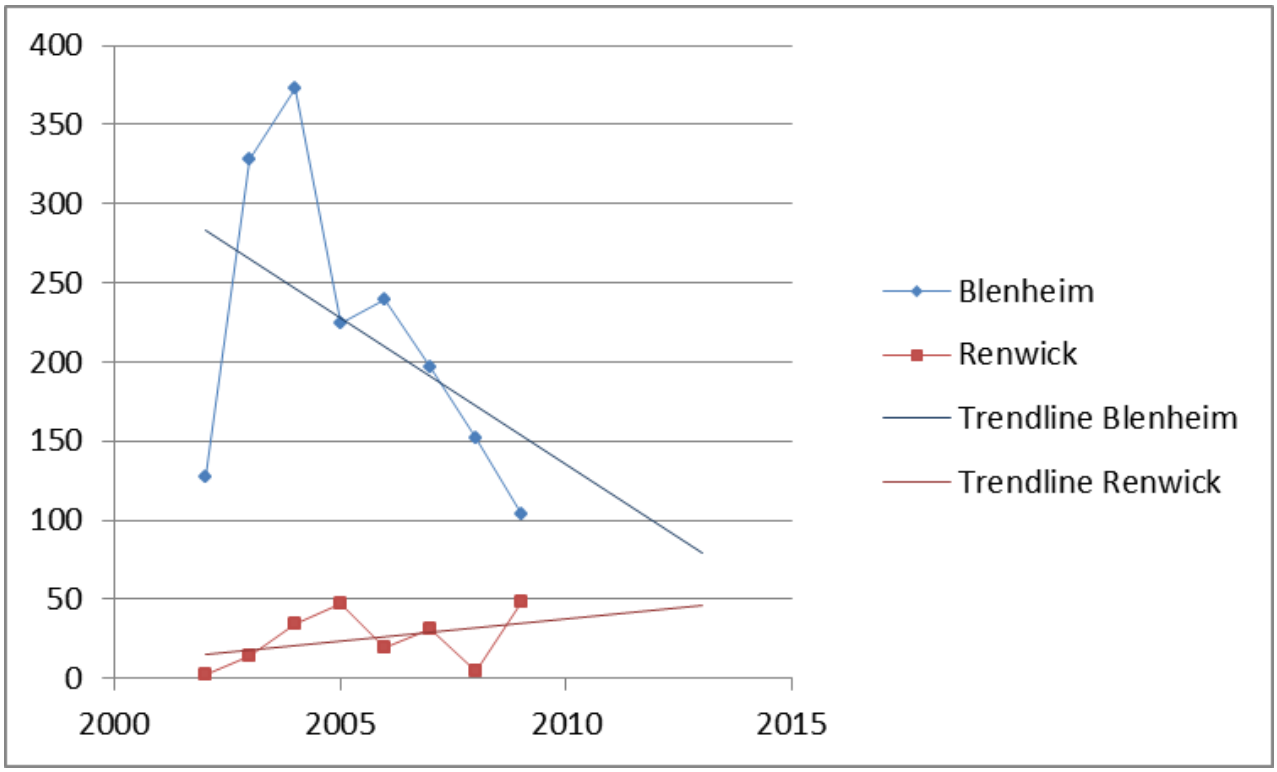


Figure 12 Trendlines For Residential Subdivision Beyond 2010

Note: The trendline for Renwick should be used with caution as it is derived from a small number of subdivisions

5 Land Availability – What's Left Of The 'Greenfield' Areas?

5.1 Comments On 2010 Methodology

Consistent with the 2007 analysis methodology, the analysis excluded any land parcels that have current building consents on the basis that these are already taken up and are no longer available to the market as vacant land. For the remaining areas of vacant land, an assessment was made of the number of allotments likely to be achievable minus areas required for roads and neighbourhood reserves. An estimate was made for three different scenarios:

1. A typical Residential Two Zone subdivision of individual allotments with average allotment size 600m² to 650m² in a configuration similar to that recently as typified by the De Castro and Covent Gardens subdivisions; and

2. A more dense allotment pattern using the Residential One Zone minimum area of 290m² for example in the Hale Street and Glover Crescent area; and

3. A third estimate based on the whole site being developed as an integrated residential development (single storey) with densities similar to those in the Cashmere Grove development.

The estimates were made by applying a simple template to the land shown on an aerial photograph rather than by mathematical formula.

5.2 Development Densities – Recent Historical Patterns

Many of the parcels of land that were identified as vacant in 2007 have been subdivided since then. It is interesting to note that the actual pattern of subdivision achieved from some parcels of land that were vacant in 2007 matches closely with the yield that was estimated, in the 2007 report, for those parcels of land. The actual yield per hectare, incorporating roads and reserves, has remained very similar over the period.

In Renwick, where connection to the reticulated sewerage system has enabled higher density subdivision than formerly possible, the patterns and yields are similar to those achieved in the *Residential Two* zoned parts of Blenheim.

The *Marlborough Growth & Development* Report, prepared for the Council in 2010 (the *Urbanism Plus Report*) discusses the areas of land that will be required to accommodate required number of dwellings for the projected future urban population of Blenheim. At page 116 the report estimates that 2,625 new households will be required in Blenheim by 2031. The report suggests that, with household occupancy at an average rate of 2.4 persons per household, this will require either:

- 263 hectares with a density of 10 residential units per hectare (= 2,630 households); or
- 175 hectares with a density of 15 units per hectare (= 2,625 households).

Reviewing the actual densities achieved from recent subdivision indicates that the current pattern of subdivision and house-building remains at about or slightly more than 10 residential units per hectare with some examples of more intensive development. Examples of actual density, including roads and recreation reserve provision, from recent subdivisions are given below:

(a) Nottinghill subdivision = approximately 10.5 units per hectare;
(b) Magnolia Drive = approximately 11 units per hectare;
(c) Covent Gardens = approximately10 units per hectare;
(d) De Castro subdivision = approximately 10 units per hectare;
(e) Nikau Drive, Puketea/Pelorus/Hitaua Place = approximately 10 units per hectare;
(f) Rowan Place, Silk Close = approximately 10.35 units per hectare;
(g) Cashmere Grove = approximately 14 units per hectare (but with no dedicated reserve area within the development);
(h) Willis Place (Renwick) = approximately 12.5 units per hectare;
(i) River Terrace (off Boyce Street, Renwick) = approximately 9.3 units per hectare.

5.3 Future Development Densities

In order to achieve household densities of the order 15 units per hectare mooted in the *Urbanism Plus Report*, a completely different approach to land development will be required. The approximate 10 unit per hectare yield that is currently common for new subdivision may typify what developers currently perceive to be market demand. It also reflects what is generally achievable from typical two-lot subdivisions from single parent title infill subdivisions.

Higher densities are achievable through comprehensive development of amalgamated parcels. However, that doesn't appear to be the 'practice' or 'habit' of development to date in Blenheim or Renwick. A cultural shift will be required, in both the development and home-buying realms, to achieve the higher density of 15 units per hectare consistently across all future land subdivision.

Continuation of the current practice of low to medium density subdivision and development will exhaust the land supply sooner and require more re-zoned land in order to accommodate the forecast population. It may be that a tightening land availability market may stimulate some higher density comprehensive developments. However, a tightened land market has other implications in terms of home affordability.

5.4 Potential Section Yield Within The Greenfield Areas

The potential number of sections that could be subdivided from vacant land[3] within the greenfield areas is summarised in Table 8:

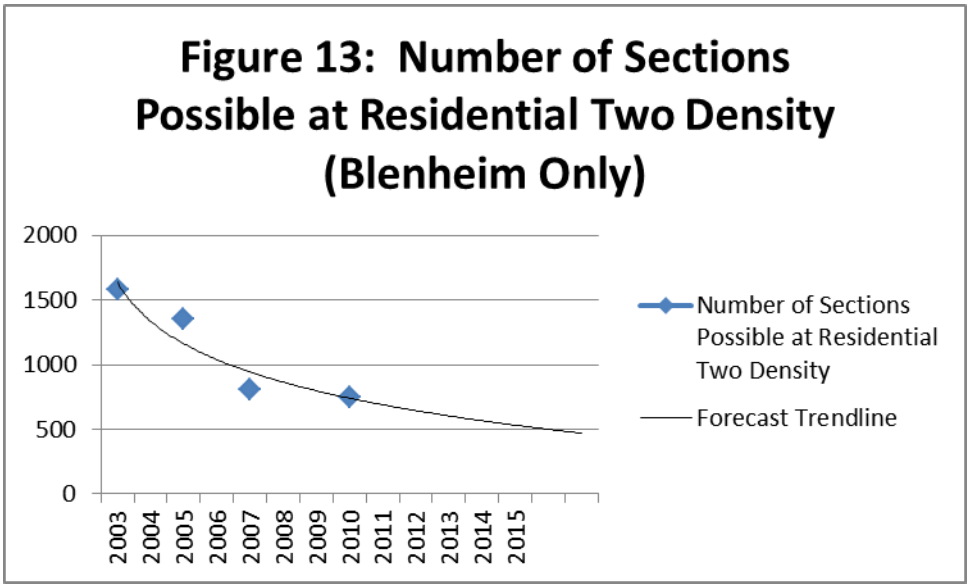
Table 8 Potential Section Yield From The Vacant Land In Blenheim's Five "Greenfield Areas"

Development Type	North West	West	North East	East	South	Total Potential Section Yield
Estimated Yield 2003	**483**	**37**	**112**	**328**	**618**	**1578**
Estimated Yield 2005	**432**	**29**	**112**	**229**	**549**	**1351**
Estimated Yield 2007	**81**	**4**	**35**	**198**	**489**	**807**
Number of market-ready individual residential sections available as at mid-2010:	82	4	30	21	28	165
Additional sections that could be created from the vacant market-ready if it were re-subdivided @ Res. Two rate:	7	0	31	159	385	582
Total potential sections at the Residential Two rate:	**89**	**4**	**61**	**180**	**413**	**747**
Total potential number of sections if all vacant land were subdivided @ Res. One rate:	**102**	**6**	**89**	**282**	**667**	**1146**
Total number of dwellings that could be developed on vacant land as integrated residential developments:	**105**	**6**	**98**	**286**	**670**	**1165**

[3] This is an important point: Table 8 examines the potential for subdivision of only the **vacant** land in the greenfield areas – land that is partly occupied (perhaps one dwelling on a large parcel of land - is examined in Table 9 later in the report.

5.5 Key Conclusions About The Remnant 'Greenfield Areas'

The stark comparison from Table 8 is the reduction in the estimated potential yield of sections from 1578 in 2003 to 747 in 2010 – although the rate of reduction has declined in recent years. This estimate assumes subdivision of land at a typical *Residential Two* rate. The potential has been halved. That reduction represents the rapid rate at which residential-zoned land is being taken up by standard single-lot low density subdivision in Blenheim (depicted in Figure 13).



As noted earlier, the highest density discussed in the *Urbanism Plus Report* (15 residential units per hectare), is materially higher than the recent historical actual subdivision densities of around 10 units per hectare.

This review also considered the number of sections or house units that might be achieved from the remaining available land if the higher densities were achieved. The estimate was made by simply calculating the proportionate difference between the current actual subdivision density and the higher level. A typical *Residential Two* type subdivision yields approximately 10 units per hectare. Only the Cashmere Grove development, which some consider to be medium density development, represents a yield of approximately 14 units per hectare but provides no recreation reserve within the development. If recreation reserve were included, as is generally required for new residential subdivision and development, the yield achieved would be less than 14 units per hectare. The higher mooted density of 15 units per hectare is 1.5 times more intensive than the typical 10 units per hectare commonly achieved historically.

Applying this ratio to the figure of 747 from Table 8 suggests the higher development density might achieve 15 units per hectare: 747 x 1.5 = 1,120 units (ie 379 more).

This is not dissimilar from the figures of 1,146 and 1,165 additional units suggested in Table 8 as being achievable assuming development at denser Residential One densities or with integrated residential developments. As noted earlier, it must be said that given current development practices this might be difficult to achieve over all or even a substantial portion of the remaining vacant developable land. Even the upper figure of 1,165 units, is only approximately 44% of the additional dwellings required over the planning period to accommodate the projected Blenheim population[4].

[4] The 2,625 households referred to in the Urbanism Plus Report (page 116)

6 Blenheim Infill Potential

The 2007 report examined the infill potential in both the 'greenfield' areas and in the remaining built-up areas of Blenheim. The report was careful to highlight the numerous variables that affect the actual creation of infill developments such as:

- Ownership of the land and motivation to develop;
- Age, condition and therefore value of the existing dwellings on the site(s);
- Whether land comes available as single parcels or is able to be amalgamated (which creates opportunities for greater unit yield).

Those variables apply equally in 2010.

The review of actual infill development since 2007 confirms that, as expected, some of the sites identified in 2007 as infill candidates have been developed. In addition, other sites that weren't obvious candidates in 2007 (because of the location of the existing dwelling in the middle of the site for example) have been subdivided and developed to create net additional units. It is apparent that dwellings have been removed from some sites to facilitate development. Other instances were observed of adjacent single sections being re-developed to yield three additional dwellings instead of the two that might have been achieved from individual re-development of each section. These appear to be few in number.

Consistent with the 2007 study, the methodology for estimating infill potential in the 'greenfield' and built-up areas was slightly different as explained below:

6.1 Infill In The 'Greenfield Areas'

The 'greenfield' areas comprise parts only of meshblocks. To enable consistent comparison between years, the study has used meshblocks. In each 'greenfield' mesh block there are areas identified as 'greenfield' land as well as already-developed land. The 2007 study therefore examined the potential for infill in the already-developed parts of the 'greenfield' areas.

The analysis examined the Council's Dekho GIS data base to identify typical patterns of recent infill development to understand what density of development would work for landholdings of different size and occupancy.

The minimum site area standards of the Residential One and Two Zones were adopted as the thresholds for permitted infill development in Blenheim. For the Residential One Zone, the threshold was set at 700m² which is considered generally sufficient to accommodate a front and rear site plus access driveway by way of controlled activity subdivision. For the Residential Two Zone, the threshold was set at 900m².

The GIS mapping system was used to identify land parcels that met these thresholds and Dekho was used to identify which of those candidate land parcels might be capable of re-development. The analysis considered the potential for re-subdivision as well as for the construction of additional dwelling(s) which could be occupied as cross-lease type or individually-owned integrated residential units or as rental tenancies.

The analysis examined only the possibilities that looked achievable without moving dwellings although it was assumed that, in some cases, it would be practicable to shift garages and sheds on properties.

The analysis also considered the potential allotment yield if the minimum site areas were reduced to the lesser Residential One Zone minimum area.

Table 9 Potential Infill Yield From Blenheim's Five "Greenfield Areas"

Development Type	North West	West	North East	East	South	Total Potential Infill Yield
Assuming Residential Two Density:						
Additional sections that could be created by infill subdivision of existing **large occupied sites** @ Res. Two rate:	103	0	7	22	0	132
Additional sections that could be created by infill subdivision of existing **small occupied sites** @ Res. Two rate:	29	8	7	0	40	84
Total potential sections at the Residential Two rate:	**132**	**8**	**14**	**22**	**40**	**216**
Assuming Residential One Density:						
Additional sections that could be created by infill subdivision of existing **large occupied sites** @ Res. One rate:	152	0	10	30	0	192
Additional sections that could be created by infill subdivision of existing **small occupied sites** @ Res. One rate:	71	15	66	30	71	253
Total potential sections at the Residential One rate:	223	15	76	60	71	445
Assuming Integrated Residential Developments:						
Additional dwellings that could be developed on existing **large occupied sites** as integrated residential developments:	160	0	11	38	0	209
Additional dwellings that could be developed on existing **small occupied sites** as integrated residential developments:	73	15	68	30	71	257
Total potential dwellings if all land developed as integrated residential developments	**233**	**15**	**79**	**68**	**71**	**466**

Table 9 presents a range of infill possibilities:

- Re-subdividing existing sections at the typical *Residential Two* rate (perhaps as many as 216 infill sections);
- Re-subdividing existing sections at the typical *Residential One* rate (perhaps as many as 445 infill sections);
- Re-developing existing sections as integrated residential developments similar to other current single-storey such developments (perhaps as many as 466 infill sections).

As earlier discussed, the higher figures that might theoretically be possible with multi-unit housing are not considered to be achievable in much of the newly-developed greenfield areas. Multi-unit housing occurs there but is not prevalent and is still of relatively low to medium density compared to the 15 units per hectare discussed earlier.

6.2 Infill In The Remaining Built-up Parts Of Blenheim

The 2007 study estimated the potential for infill in the remaining built-up area by analysing a selection of meshblocks reflecting the different existing built densities:

- 15 meshblocks zoned 100% Residential One Zone
- 7 meshblocks with a mix of Residential One and Residential Two zoned land
- 26 meshblocks zoned 100% Residential Two Zone

For each meshblock, the Study Team examined Dekho and the GIS-based building consent information to identify:

- The number of vacant "market-ready" sections
- For the Residential Two zoned land, the total number of sections that could be created by subdivision at the typical Residential Two rate
- For both Residential One and Residential Two zoned land, the total number of sections that could be created by subdivision at the typical Residential One rate
- The total number of dwellings that might be accommodated if the infill occurred as multi-unit housing or integrated residential developments.

The estimated yield was then expressed as a percentage of the number of occupied dwellings recorded from the 2006 census for each meshblock. The findings suggested a range of possible infill yields:

- A low yield (3% or less of the 2006 occupied dwellings): being typical of the yield that might be achieved from re-development of Residential Two zoned land applying a typical medium density rate with allotments between 600-650m²;
- A moderate yield (more than 3% but no more than 10% of the 2006 occupied dwellings); being typical of the yield that could be achieved by applying typical Residential One zone densities; and
- A high yield (of approximately 30% of the 2006 occupied dwellings): being a density likely to be achieved in only a few Residential One zoned areas where multi-unit housing is prevalent and not likely to be achieved for the Residential Two zoned resource unless existing sections are particularly large and are developed in a relatively dense pattern.

The 2010 estimate of infill potential in both the greenfield areas and in the balance of Blenheim is brought together in Table 10. For the purposes of Tables 9 and 10, 'infill' potential means the development potential of land that is already occupied by dwellings and excludes the development potential of vacant land (which is identified separately in Table 8).

Table 10 Potential Infill - Blenheim [5]

Potential Available In The Following Locations:	At Typical Residential Two Subdivision Density & Low Yield	At Residential One Subdivision Density & Moderate Yield	Potential @ Multi-Unit Residential Density & High Yield
2007 Existing market-ready sections in non-greenfield areas	64	87	93
2007 Estimated potential infill in analysed meshblocks	81	311	339
2007 Estimated potential in remaining built-up meshblocks (estimated by calculation rather than individual analysis)	149	413	1242
2007 Total Infill Potential For The Balance Of Blenheim (ie the non-greenfield areas):	**294**	**811**	**1674**
Minus actual subdivision of individual market-ready vacant sections since 2007 (= 217 vacant sections)	**-217**	**-217**	**-217**
Minus actual subdivision of individual market-ready sections already built on (recent building consents) or committed by building consents (= 253 built-on sections)	**-253**	**-253**	**-253**
Net infill opportunities 2010	**0[6]**	**341**	**1204**
PlusPotential Infill in Greenfield Areas 2010 (from Table 9)	**216**	**445**	**466**
Total 2010 Estimate of Infill Potential in Blenheim	**216**	**786**	**1670**

Table 10 suggests that opportunities for typical two-lot infill type re-development still remain within Blenheim. The figures given there do not suggest that is the likely quantum or the likely maximum. They simply confirm that there remain some 'obvious' candidates for infill re-development.

[5] Based on Table 20 of the 2007 Report

[6] What this entry demonstrates is that more opportunities for infill were identified and implemented that originally identified in 2007 or that the infill that has occurred has not all been at the typical *Residential Two* subdivision rate but has been at a higher density

7 Blenheim Overall Future Potential – Greenfield + Infill

Table 8 suggests that the potential for creation of individual sections within the 'greenfield' areas is something between 747 and 1165 sections. If this is added to the potential infill (Table 10 above), it suggests that the potential for creation of individual sections for residential house-building of a similar pattern to historical densities is something between (747 + 216 =) 963 and (1165 + 1670 =) 2,835 sections.

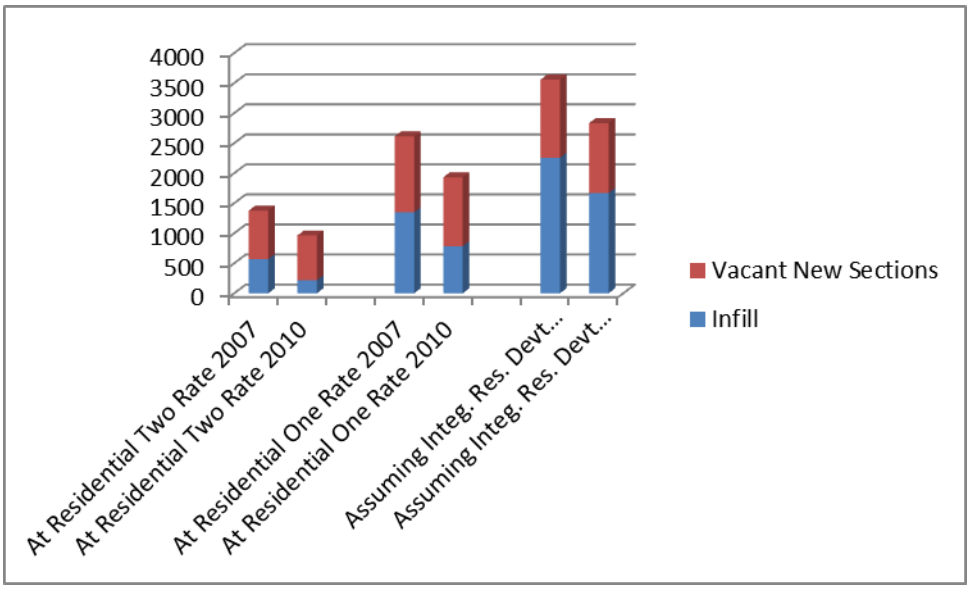


Figure 14 The Range of Potential Blenheim Section Yield Assuming Different Development Densities (Comparing 2007 Estimates With 2010)

Recall that the number of new house-building opportunities expected to be required over the planning period to 2031 is 2,625 to accommodate the projected population.

At the low end of section creation (involving low densities and low rates of infill), the potential yield (in the order of something less than 1,000) is well short of the required number. At the high end (involving high densities and high rates of infill), the potential yield would match the anticipated demand for new household formation. As was noted in the 2007 report, this high rate of density is only expected to be achievable with radical changes to historic development patterns and is not expected to be universally achievable. It must therefore be considered, on current trends, to be highly unlikely to be achieved.

The answer, for Blenheim, lies in how the densities of subdivision and infill development can be influenced and how much additional land can be re-zoned for residential purposes. The key influences affecting future densities may not be solely regulatory controls. Other incentives or inspiration may be required - for example encouraging multiple densities within one house to increase household densities as recommended in the Urbanism Plus report.

Comparing the 2007 findings with the 2010 findings, the overriding message is similar: That, as time wears on, the opportunities to optimise the available greenfield and infill opportunities will continue to diminish and that it takes time to alter historic land development practices to increase density.

8 Renwick – Remaining Potential In Residential-Zoned Land

Adopting the same methodology as for the 2007 study, the Dekho GIS information was analysed to determine what extent of new subdivision and building had occurred since 2007 and what land remains available for development.

In 2007, the only substantive 'greenfield' land in Renwick was identified as a block in Boyce Street which has since been partially developed. The 2007 estimates also assumed that the block to the immediate west of that land would be available for residential development. That land is not yet zoned for residential (although it is noted that this land and adjoining land are identified in the *Urbanism Plus Report* as potential growth areas). Table 11 includes this un-zoned land and presents estimates of the potential for that land to be developed at densities higher than traditional for the *Township Residential Zone*.

Table 11 Residential Development Potential - Renwick

	As at 30.06.07	As at 30.06.10
Number of market-ready individual residential sections available:	48	87
Potential total number of sections that could be created from vacant and spare occupied land if it were re-subdivided @ Township Residential rate:	376	276
Total number of sections that could be created from vacant and spare occupied land if it were re-subdivided @ Res. Two rate:	376-plus	343
Potential total number of sections if all vacant land were subdivided @ Res. One rate or as integrated residential developments:	400	352

The pattern of infill development observed during the 2007-2010 period is of two-lot subdivisions from single parent allotments similar to the pattern in Blenheim. The higher density suggested for integrated residential development in Table 11 is not expected to be achievable if current patterns of development and density continue. Even the lower (276 section) figure assumes that all existing occupied sections with spare land would be re-developed which seems optimistic.

9 Overall Land Availability - Key Conclusions

This review presents few surprises. It confirms that the supply of vacant residential-zoned land is fast dwindling. In Blenheim's 'greenfield' areas, the potential section yield assuming a continuation of current typical densities is something in the order of, or less than 1,000 sections.

There has been a growing incidence of infill development in both Blenheim and Renwick. This follows a typical low-density pattern of approximately 10 residential units per hectare with some more intensive examples but not generally approaching the higher density of 15 units per hectare mooted by the *Urbanism Plus Report.*

Even if there is continued growth in infill development within the built-up area, that combined with new subdivision in existing zoned 'greenfield' areas will not be sufficient to meet projected future demand for new housing if historical densities continue. Recall that the estimated number of dwellings required to accommodate new households in Blenheim to 2031 is 2,625. The densities achieved with historically typical patterns of subdivision and infill home ownership are lower than would be required if that need were to be met from within the zoned residential land supply. Table 12 presents estimates assuming a traditional low-to-medium density and a higher density approaching 15 units per hectare for all zoned residential land in Blenheim and Renwick. It includes estimates for the large block on the outskirts of Renwick which is not yet zoned residential but which is identified in the *Urbansim Plus* Report. Table 12 suggests that, only with higher densities, will the available land be able to meet anticipated demand for new dwellings.

Table 12 Total Residential Section Potential Blenheim + Renwick

	Assuming Residential Two Density		**Assuming Higher Integrated Resid. Devt Density**	
	2007	2010	2007	2010
In Blenheim's Greenfield Areas:				
Potential Vacant Greenfield Sections (including market-ready sections already available)	807	747	1301	1165
Potential Infill Sections From Occupied Land	277	216	583	466
For The Balance Of Blenheim:				
Potential Infill Sections	294	0*	1674	1204
For Renwick:				
Market-Ready Sections Already Available	48	87	48	87
Potential Infill Sections	376	343	340	352
Potential Total Sections	1802	1393	3946	3274

Note *: The figure of 0 for potential infill sections in Blenheim in 2010 is drawn from Table 10 where it is noted that this simply indicates that infill has occurred over the 2007-2010 period more rapidly than was predicted to occur assuming Residential Two density – and, instead, densities were higher and it is expected they will continue to be higher for infill development in Blenheim.

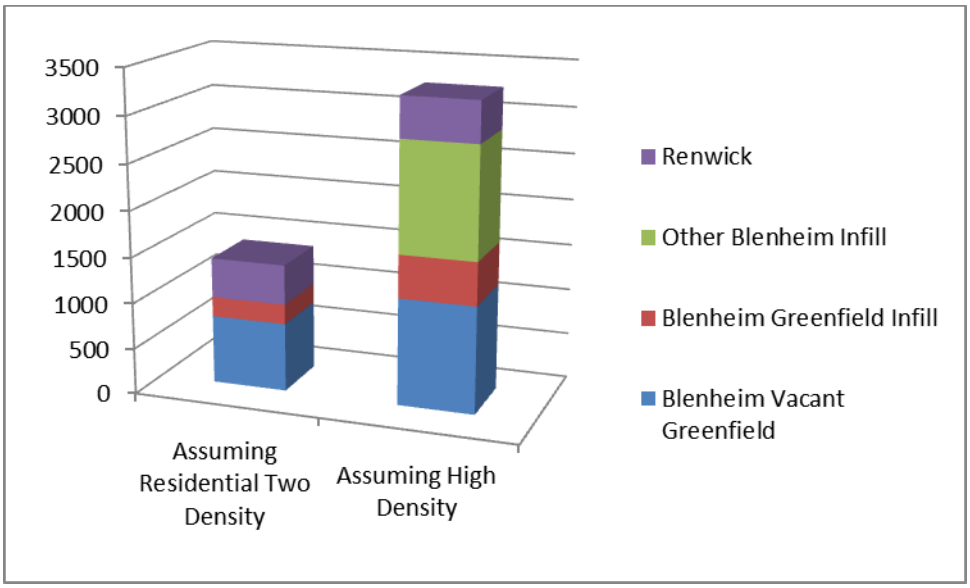


Figure 15 Estimate Of Potential Vacant Sections Achievable Assuming Low-to-Medium and High Densities (Blenheim + Renwick)

Building and subdivision demand has been significantly less since 2009 – probably associated with the world-wide recession. Annual demand for new residential dwellings and new residential sections, in years prior to the recession, has varied between 150 to 250 dwellings and sections per year. Since the building high of 2003/2004, the rate of demand has slowed dramatically since 2008 and the trendline suggests demand for new dwellings in the order of 100 to 150 per annum for the foreseeable future. As a result, the rate of reduction in available greenfield land in Blenheim has not been linear, but has slowed over time as illustrated in Figure 13.

The rates of new residential building, and therefore the rate of uptake of vacant land and development of infill housing, will always be affected by or associated with economic prosperity. As demonstrated by the post-2008 slowing of new building, change can be relatively sudden and profound and is difficult to predict. Other factors that will influence rates of new building in Marlborough District include the prospects for the wine industry in the global market and the cost of construction related to the price of oil-based products.

Even accepting the apparent slowing rate of reduced availability and assuming that subdivision densities tighten and the remaining vacant greenfield land yields approximately 1,000 sections, land supply might meet demand for 3 to 7 years. If subdivision patterns remain at current low densities, the vacant greenfield land supply will yield substantially less (perhaps as few as 750 sections) which might meet demand only for the next 2 to 5 years even if rates of demand for new dwellings continue at the lower rates of recent years. Of course, if land supply becomes short, land price will affect uptake and possibly increase density meaning the available land resource may yield more sections and meet demand for slightly longer.

Infill development can be expected to continue to meet some of the future demand and may grow as vacant land supply shortens. However, even infill development will extend the available land resource in only a limited way unless higher development densities can be achieved.

Figure 16 illustrates the period for which the apparently-available land supply in Blenheim and Renwick could sustain household growth assuming low and high densities of subdivision and assuming uptake of 150 or 200 new dwellings per year (based on the trendline for recent residential building consents from Figure 9).

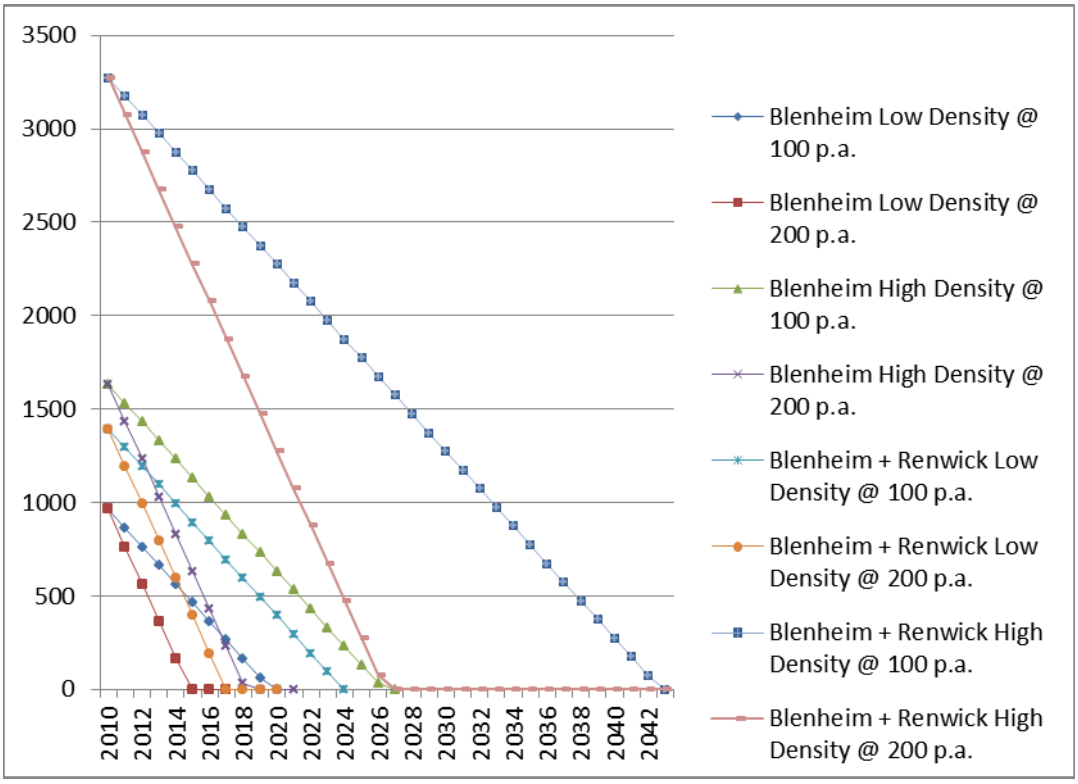


Figure 16 Estimate Of Rate Of Decline Of Available Land (Blenheim and Renwick) Assuming Low And High Subdivision Density And Recent Rates Of New Building Uptake

The traditional response to such a shortening of supply is to address the supply of zoned land and to review District Plan rules relating to density. However one views the information on land availability, the lead time in which to either identify and make available land or create successful incentives for increased density is short. If prompt and material change is sought in the overall density of development within the urban areas of Blenheim and Renwick, the Council needs to urgently investigate methods for achieving this. Recognising that the issue involves a relatively small land area and small land developing community, it may be useful to explore the following questions before resorting to traditional District Plan methods:

- What is the ownership of vacant land in key locations?
- How are decisions made about density?
- How is residential land development funded (and by whom)?
- What are the drivers of section size and dwelling style?
- Is the market amenable to multi-storey and detached dwelling development?

- Who are the land developers who could achieve such higher density residential development in the future housing market?

- Where are the opportunities for amalgamating landholdings to achieve higher density development?

The 2007 report highlighted some of the implications of shortening land supply as well as the urban design challenges associated with higher density residential development. There is no need to repeat those in this update report. They remain as valid as and arguably more urgent than they were in 2007 so they are reproduced below for completeness:

9.1 Deliberate Interventions Are Required:

The resource of residential-zoned land could be "stretched" further by allowing higher density developments. Deliberate interventions are expected to be required in order to change behaviour away from the traditional patterns and densities of residential development however. The Study Team suggests the following could be included for consideration:

- Incorporating well-designed higher density development within the Council's own residential subdivision initiatives
- Dialogue with the small pool of owners of larger blocks of vacant land with a view to influencing development densities
- Creating incentives to achieve good quality high density layouts or multi-unit housing within future medium-density subdivisions
- Rewarding innovative subdivision design and integrated residential developments
- Design guides and direct dialogue with the land development agents most likely to influence design outcomes (surveyors, planners)

9.2 Issues And Challenges Of Higher Density Residential Development:

The assessment of infill potential has been purely desk-top and represents a hypothetical range of sections and housing that might be achieved without shifting or demolishing existing dwellings. As has been observed since 2007, infill can occur in places not readily apparent from a desk-top study and other sites that appear to be ideal remain low density for the owner's own reasons.

Achieving the hypothetical estimates of infill at even the "moderate" level assessed would mean that every spare bit of land on existing built-up sections would be developed for housing. There are implications in terms of design and construction and the overall quality of residential environment created. Poorly-designed infill units built of poor construction materials however have the potential to create poor quality environments for their residents.

Issues or challenges commonly experienced in other towns and cities include the design and provision of:

- open space and particularly green space
- visual and acoustic privacy
- provision of suitable areas for storage, outdoor washing lines and rubbish
- passive solar heating
- off-road parking and garaging

These matters can be addressed through District Plan standards, or criteria, guidelines or incentives. If greater reliance is to be placed on infill development, and as the opportunities available for that become fewer or harder, the tension between good design and affordability can be expected to intensify.

Increased densities within the built-up area must be expected to affect the area available for or retained as gardens and the area of mature or character-defining trees. There are potential implications for the open space and green character of the built-up area. Once lost, these characteristics are difficult to restore or replace. Again, these are matters that can be addressed by design guides, incentives or District Plan rules. The opportunity to address them is now - before the pace of infill renders any initiatives ineffective.

9.3 Key Message:

The overriding message remains: In 2007, vacant land supply was diminishing and time was short. In 2010, vacant land supply is short and time is shorter.

Appendix 2

BLENHEIM URBAN GROWTH STUDY
GEOTECHNICAL EVALUATION

INTERPRETIVE REPORT
MAY 2012

Blenheim Urban Growth Study
Geotechnical Evaluation

Interpretive Report

Prepared by

P Brabhaharan
Technical Principal, Geotechnical Engineering & Risk

Doug Mason
Engineering Geologist

Gemma Hayes
Graduate Engineer

Reviewed by

Robert Davey
Technical Principal, Earthquake Engineering

Opus International Consultants Ltd
Wellington Office
Level 9, Majestic Centre, 100 Willis Street
PO Box 12 003, Wellington, 6144
New Zealand
www.opus.co.nz

Telephone: +64 4 471 7000
Facsimile: +64 4 471 1397

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Summary

Marlborough District Council is developing a strategy for the urban growth and development of Marlborough. The Council has identified a number of potential urban growth areas for Blenheim that lie on the northern and eastern periphery of the town. An evaluation of the geotechnical hazards of relevance to the proposed urban growth areas has been carried out, the results of which are presented in this report.

The Blenheim area is underlain by Holocene age marine / estuarine silts and sands of the Dillons Point Formation and alluvial gravels and sands of the Rapaura Formation. Both formations have layers of loose material which are susceptible to liquefaction. The Dillons Point Formation soils are highly vulnerable to liquefaction, which investigations show to be thicker than 15 m to the southeast of Blenheim.

Liquefaction could lead to significant ground damage including large subsidence of hundreds of millimetres and severe lateral spreading in areas close to water courses. Lateral spreading is anticipated to be a significant issue in Areas E1 and E2 should liquefaction occur as these sites straddle the Opawa River and tributary streams and are underlain by significant thicknesses of liquefiable material. The risk of lateral spreading is lower in areas Na:Nb and SE, however there is still potential for lateral spreading towards the drainage channels that cross these sites.

Given the loose nature of the soils and the seismicity of the Marlborough area, liquefaction will occur in modest earthquake events, giving earthquake ground shaking with a return period of less than 500 years. Larger events with greater ground shaking will only lead to limited additional liquefaction. Therefore the length of the strategic planning horizon is not important for liquefaction hazards in the area under consideration.

Land susceptible to liquefaction, and particularly lateral spreading is prone to significant risks in earthquake events. In the development areas under consideration in Blenheim, liquefaction of the Dillons Point Formation soils can occur in modest earthquake events which are used for design of normal buildings.

Ground improvement and robust deep foundations to mitigate the risk of liquefaction and lateral spreading are very costly. These measures are generally adopted for important and high value facilities. In our experience these very costly methods are likely to lead to prohibitively high development costs. In this regard we also note the government's decision not to allow redevelopment of (red zone) residential areas in Christchurch that were subject to liquefaction and lateral spreading, rather than carry out very costly ground improvement to mitigate against future liquefaction.

From a sustainability perspective, it would not be prudent to encourage development on land which will require considerable cost and consume substantially more resources compared to development in land which is more stable in earthquake and other hazards. This is on the basis that it would be more sustainable to develop areas subject to a lower level of hazard, such as the alluvial gravel plains to the west of Blenheim.

The Council should consider the hazard and sustainability issues in zoning the proposed urban growth areas for more intensive development. With a long term view, it may be

prudent for the Council to carefully consider whether to zone these eastern areas prone to liquefaction and lateral spreading for future intensive development, or encourage more development further to the west, where the geology indicates more alluvial gravel soils with a much lower liquefaction hazard. This would be an important consideration for the long term planning of the Blenheim township.

Should the Council decide to zone these areas for development, it would be prudent to ensure that the developments proposed mitigate the effects of liquefaction. The geotechnical assessment needs to be reviewed by a Chartered Professional Engineer, specialising in geotechnical engineering, and with experience in the assessment of earthquake geotechnical hazards. Also the resource consents processes need to ensure that subdivisions developed mitigate risks of liquefaction and associated ground damage hazards. Building consent processes for individual developments need to ensure that the structure and the geotechnical hazards are considered in an integral manner, to ensure that the building can survive without damage in serviceability level earthquake events, and with limited damage which is repairable in ultimate limit state events.

The guidance provided by DBH and the Engineering Advisory Group for reconstruction in Christchurch provides guidance on acceptable solutions. These are expected to be developed further over the next year or so, and based on the Royal Commission report due later this year. It would be prudent to review the acceptance framework as it develops.

1 Introduction

Marlborough District Council is developing a strategy for the urban growth and development of Marlborough. The Council has identified a number of potential urban growth areas for Blenheim that lie on the northern and eastern periphery of the town. The objective is to define a strategic planning horizon and assess geotechnical hazards of relevance to Blenheim, followed by development of parameters that would help the Council to assess the acceptability of geotechnical hazards and conclusions presented in support of any development.

Opus International Consultants Ltd (Opus) has been commissioned by the Council to carry out a geotechnical evaluation of the proposed growth areas. This study has been carried out in three parts, as follows:

(1) *Desk Study (Opus, 2011)*: Preliminary geotechnical appraisal of the ground conditions and geo-hazards, based on a desk study of available information and site reconnaissance inspections.

(2) *Geotechnical Investigations (Opus, 2012)*: Site investigations were carried out in the proposed growth areas in January to February 2012 to provide information to better characterise the ground conditions and assess the geotechnical issues.

(3) *Assessment (this report)*: This report has been prepared as the final part of this study. Here we characterise the ground conditions and geotechnical hazards in the proposed urban growth areas.

2 Site Description

The proposed urban growth areas are located on the outskirts of Blenheim's urban area, to the north (area Na:Nb) and to the east (areas E1, E2 and SE). The following sections describe the location, topography and land use of each area.

2.1 Area Na:Nb

Development area Na:Nb lies on the northern outskirts of Blenheim township. The NZMS 260 Map Grid Reference for the site is P28 885 675.

This site is rectangular in area, approximately 1.5 km long by 0.5 km wide, with the southern and western boundaries formed by Old Renwick Road and Thomsons Ford Road, respectively. The northern boundary lies parallel to Old Renwick Road. The eastern boundary is formed by the recent subdivision at Waipuna Street and Clearwater Place. The Opawa River lies approximately 100 m from the eastern edge of the site and a tributary stream is within 50 m of the northeast corner of the site.

The topography of the site is generally flat. Two open drainage channels run east-west across the land in the southwestern part of the site, and the southern boundary (along Old Renwick Road) lies adjacent to an unnamed tributary stream of Opawa River.

Presently the site consists of open pasture and vineyards, with some residential development. Blenheim substation lies outside the southwestern corner of the site, at the intersection of Old Renwick and Thomsons Ford roads.

2.2 Area E1

Development area E1 lies on Dillons Point Road, on the eastern outskirts of Blenheim. The NZMS 260 Map Grid reference for the site is P28 915 659.

The site is approximately 550 m by 750 m in area, and is bound to the north, west and south by Opawa River. The northeastern boundary is formed by Rowberrys Road. This site is generally flat, apart from alongside Opawa River where the land drops away to the river channel. The land consists predominantly of vineyards, with an open grassed verge alongside Opawa River.

2.3 Area E2

Area E2 lies south of Area E1, to the east and south of Blenheim Township. The NZMS 260 Map grid reference for the site is P28 915 648.

This site is bound by Opawa River to the north, State Highway 1 and Alabama Road to the east and south respectively, and the eastern suburbs of Blenheim to the west. This site consists of six parcels of land, with a combined area of approximately 1.5 km by 0.7 km. State Highway 1 and the South Island Main Trunk railway line both cross the site.

The topography of the land is flat to gently undulating, particularly in the northeast where the land drops to Opawa River. A series of open drainage channels run north-south and east-west across the site; these have been cut approximately 2 to 3 m below the surrounding ground surface.

The site presently consists of open pasture and vineyards, as well as limited commercial and residential development.

2.4 Area SE

Area SE lies on the southeastern outskirts of Blenheim. The NZMS 260 Map grid reference for the site is P28 910 642.

This site is rectangular in area, approximately 450 m by 550 m. The southern boundary of the site is formed by Alabama Road, and the northern boundary formed by Tavera Street. The eastern boundary is formed by the western boundary of Area E2, and the western edge of Area SE is formed by a parcel boundary in rural land.

The topography of the land is generally flat, with open drainage channels running west-east along the northern and southern boundaries. The site consists of open horticultural land.

3 Geological Setting

3.1 Geology

The geology of the Marlborough Area has been mapped at 1:25,000 scale by the New Zealand Geological Survey (NZGS, 1981) and at 1:250,000 scale by the Institute of Geological and Nuclear Sciences (IGNS, 2000).

The mapping shows the Blenheim area to be underlain by Holocene age marine/estuarine silts and sands of the Dillons Point Formation and alluvial gravels and sands of the Rapaura Formation. These strata are underlain by older, clay-bound alluvial gravels of the Speargrass Formation (NZGS, 1981; Landcare Research, 1995; MCRWB, 1987; Davidson and Wilson, 2011).

The characteristics of the Dillons Point Formation and shallow Rapaura Formation strata are described in Section 5.

3.2 Active Faults

The plate boundary between the Pacific and Australian plates passes through Marlborough, and consequently this region is an area of high seismicity. Relative motion between the tectonic plates is accommodated across a zone of active strike-slip faults (the Marlborough fault system), which links the Alpine fault transform plate boundary to the south with the westward-directed Hikurangi subduction margin to the north. The Marlborough fault system comprises four principal strike-slip faults and a number of smaller faults. Those within 15 km of the study area are summarised in Table 1 and are discussed below.

Table 1 Active fault summary table

Fault	Characteristic Event Magnitude	Recurrence Interval (years)	Distance from site (km)	Direction
Wairau Fault	7.1 – 7.6	1,150 – 1,400	1.6	Northwest
Vernon Fault	?	2,000 – 3,500	8	Southeast
Awatere Fault	7.5	820 – 950	14	Southeast

Source: Benson et al. (2001); Geotech Consulting Ltd (2003a, 2003b, 2005); Mason et al. (2006a, 2006b); Zachariasen et al. (2006)

These faults as well as other earthquake sources in the larger region can give rise to earthquakes that could affect the Blenheim area including the identified sites.

The Wairau Fault is the closest active fault to the site, lying approximately 1.6 km to the northwest of area Na:Nb and approximately 4.7 km to the northwest of areas E1, E2 and SE. This fault is capable of rupturing in earthquakes of characteristic magnitude 7.1 to 7.6, and horizontal surface displacements of 5 to 7 m with an average return period of 1150 to 1400 years (Geotech Consulting, 2003a, 2003b, 2005; Zachariasen et al., 2006).

The Awatere Fault is located approximately 14 km southeast of Blenheim. This fault ruptures in earthquakes of characteristic magnitude 7.5 at an average recurrence interval of

820 to 950 years, with surface displacements of between 4 and 7 m. This fault last ruptured in the M_w 7.5 Marlborough earthquake of 1848 (Benson *et al*., 2001; Mason *et al*., 2006a, 2006b).

The Vernon Fault is a secondary fault that splays north off the Awatere Fault at Dumgree, southeast of Blenheim. Little paleoseismic information is available for this fault and its potential surface rupture hazard is therefore not well defined. The slip rate of the fault is estimated to be low (less than 2 mm/year; Benson *et al*., 2001), and it consequently has been assigned a longer return period than the Awatere Fault (GNS Active Faults Database).

4 Site Investigations

Geotechnical site investigations have been carried out across the study area to provide information to better characterise the ground conditions and assess the geotechnical issues, particularly relating to the hazard posed by liquefaction. The investigations were carried out in January and February 2012, and comprised the following:

- Three boreholes, to depths of 12.45 m to 18.45 m, with in situ Standard Penetration Tests carried out at 1 m intervals.
- Twelve static Piezo-Cone Penetration Tests (CPTs), to depths of between 2.72 m and 19.65 m.
- Laboratory testing of samples recovered from the boreholes.

The results of the investigations are provided in the site investigation report (Opus, 2012).

5 Ground Conditions

5.1 Ground Conditions

The area under investigation is located on flat to gently undulating terrace surfaces, which are underlain by young (Holocene and late Pleistocene age) interbedded alluvial and estuarine/swamp deposits. Information on the ground conditions in the Blenheim area is provided by the 2012 site investigations and factual information available from previous investigations in the wider Blenheim area (Geotech Consulting, 2004; Nelson Consulting Engineers, 2007; CH2M Beca, 2008; MDC borehole database).

These investigations show the surficial soil layers in the local area to consist of interbedded silts, clays and sands of the Dillons Point Formation, which interfinger with and are underlain by sands and gravels of the Rapaura Formation. The estuarine deposits of the Dillons Point Formation are observed to vary significantly in their composition and degree of consolidation, both laterally and with depth, from loose sands and soft silts to very dense sands and very stiff clayey silts. The Rapaura Formation deposits consist of loose sands and soft silts to dense to very dense alluvial gravels, with a sandy matrix and some interbedded sand layers.

A summary of the soils encountered in each area is provided below.

Area Na:Nb

0 – 4 m	Very loose to medium dense sand, silty sand and silt, and firm to hard sandy clay
1 – 5 m	Medium dense to very dense silty sand and sandy gravel
5 m +	Medium dense to very dense sandy gravel

Areas E1, E2 and SE

0 – 3 m	Very soft to firm silty clay and clayey silt
0 – 7 m	Firm sandy silt and very loose silty sand
7 m +	Dense to very dense sandy gravel, silty gravel, and firm sandy silt

5.2 Groundwater Conditions

The groundwater levels recorded during the site investigations ranged from 1.3 m to 2.1 m depth below ground level in Area Na:Nb, and 1 m to 4 m depth in Areas E1, E2 and SE. This is consistent with longer term static groundwater levels recorded in the wider Blenheim area, which show that the groundwater table lies approximately 2 m below ground level in the development areas (Davidson and Wilson, 2011).

6 Geotechnical Hazards

The study area is exposed to a number of geotechnical hazards, which are discussed in the following sections.

6.1 Consolidation Settlement

Compressible soft clays and silts can consolidate over time if subjected to loads such as that from a building. Consolidation of founding soils can lead to damage to the structure. Investigations showed the upper 2 to 4 m of soil in all areas contained clay, and some well logs from MDC (e.g. P28w/2168) showed over 20 m of clay.

In particular, Areas E1 and E2 have significant thicknesses (>5m) of potentially compressible soils which could pose a hazard to future development, as special measures may be required such as preloading of the site or deep foundations.

6.2 Slope Failure

The slope failure hazard at the site is very low due to the flat, low-lying topography of the land. Areas in close proximity to river banks will be susceptible to slumping or erosion in flood events or lateral spreading of the banks as a possible consequence of earthquake-

induced liquefaction. The issues related to liquefaction hazard at the site are described in Section 6.5.

6.3 Fault Rupture

The closest active fault to the study areas is the Wairau Fault. This fault has a distinct trace over much of its length, except for the lower Wairau Valley where the trace is intermittent and subdued. The fault is inferred from available geological evidence to lie approximately 1.6 km from area Na:Nb and approximately 5 km from the eastern growth areas at its closest point (Geotech Consulting, 2003a). Rupture of this fault is expected to result in 3.4 m to 7 m of lateral displacement of the ground surface at the fault trace (Geotech Consulting Ltd, 2003b, 2005; Zachariasen *et al*., 2006). The distance of the fault from the study areas suggests that the risk from permanent ground damage associated with fault rupture is low.

6.4 Ground Shaking

Blenheim's principal earthquake hazard derives from the close proximity of the active Wairau Fault and Awatere Fault. Geotech Consulting (2003a, 2003b) conclude there is a moderate to high likelihood of a surface rupturing earthquake on the Wairau Fault in the next 50 - 100 years. The average return period of the Wairau and Awatere Faults is between 350 and 950 years (Robertson and Smith, 2004). Other principal active faults in the region include the Clarence, Kekerengu, Elliot, Jordon and Hope faults. All of these faults are capable of producing large magnitude earthquakes, > M7 (Stirling *et al*., 2002), and Robertson and Smith (2004) state that collectively an earthquake on any one of these faults has an average recurrence interval of less than 50 years. Ground shaking is therefore a significant hazard to the Blenheim area.

6.5 Liquefaction

6.5.1 Liquefaction Definition

Liquefaction will occur when saturated loose to medium dense fine grained granular materials and silt are subjected to ground shaking. Liquefaction can cause sand boils, subsidence, lateral spreading and flow slides. Damage from such deformation can include floatation of buried structures, fissuring of the ground, subsidence of large areas, differential subsidence, and foundation failure caused by loss of support as the liquefied soil substantially loses its shear strength.

6.5.2 Geological Context

Mapping of historic river and drainage features in the lower Wairau valley shows the area to the east and southeast of Blenheim (partially covering development areas E1, E2 and SE) consisted of swamps prior to development of the town (MCRWB, 1987), see Figure 1. Soft ground conditions in this area may result in liquefaction and ground damage due to earthquake events.

6.5.3 Liquefaction Assessment

Analysis Methodology

The liquefaction potential of soils was determined using LiquefyPro, version 5.8h (CivilTech Software, 2010). This software uses cyclic liquefaction evaluation methods to determine whether liquefaction is likely in a particular earthquake event and estimate the resulting ground subsidence. The modified Robertson method (Robertson & Wride, 1997) and modified Stark and Olsen methods (Stark & Olsen, 1995) were used to assess liquefaction with CPT and SPT results respectively. The method proposed by Ishihara and Yoshimine (1992) was used to estimate the resulting ground subsidence.

The following return periods and associated peak ground accelerations (PGA) have been considered:

- 1/500 return period event, with a PGA of 0.37g
- 1/1000 return period event, with a PGA of 0.48g
- 1/2500 return period event, with a PGA of 0.67g

The characteristic magnitude used in the liquefaction assessment was assumed to be $M_W = 7.5$ for all return period events considered, consistent with the characteristic magnitude of earthquake sources in the area.

Results

The Dillons Point Formation was assessed to be susceptible to liquefaction in all three return period events. The Rapaura Formation also contains some layers of loose material which exhibit liquefaction potential, principally near the ground surface in Area Na:Nb.

The approximate thicknesses of soil layers assessed to liquefy at each area are depicted in Figure 3 and Figure 4 which show cross sections of area Na:Nb and areas E1, E2 and SE respectively, Figure 2 shows the cross section locations. These results are tabulated in Table 2. It should be noted that the thicknesses of soil layers that are likely to liquefy vary across each area, and the depths in the table are indicative only. Typically there was only a slight difference in the thicknesses of layers assessed to liquefy in 1/500, 1/1000 and 1/2500 year return period events. This is because most soil layers susceptible to liquefaction have a low density such that they are likely to liquefy in earthquakes with a PGA less than that from a 1/500 year return period level.

Area Na:Nb

Analysis showed the shallow silty sand layer above the gravels as liquefiable for all return period events considered. Site investigations show this layer to be typically 2 m to 4 m thick, and the groundwater to be between 1.3 m to 2.1 m depth. The potential for liquefaction induced ground damage in this area will be strongly influenced by the groundwater table depth. As described above in Section 5.2, the regional groundwater table in the Blenheim area lies approximately 2 m below ground level. If the groundwater

table is lower, the thickness of liquefiable material beneath the water table is reduced and the potential ground damage effects will be smaller.

Areas E1, E2 and SE

BH 2, in area E1, identified a sandy gravel layer between 10 m and 13 m depth. This gravel layer was not encountered in the CPTs carried out in this area and is not as susceptible to liquefaction as the soils encountered by the CPTs.

In the southern part of Area E2 (represented by CPT 10 and CPT 12) the groundwater level recorded during investigations was lower, as a result the upper 3.5 m of soil is less susceptible to liquefaction than that in the northern part of Area E2.

Table 2 Indicative depth of soil layers likely to experience liquefaction

Return period event	Soil layers susceptible to liquefaction (m depth)			
	Area Na:Nb	Area E1	*Area E2	Area SE
1/500	2 - 4	3.5 - 5.8 7.7 - 10.0 10.3 - 12.2 12.6 - 14.0 14.4 - 16.7	1.5 – 6.0 6.1 - 11.0 11.0 - 14.0 15.2 - 16.8	1.9 - 5.3 9.6 - 13.2 15.1 - 15.8
1/1000	2 - 4	3.5 - 5.8 7.7 - 16.7	1.5 - 11.0 11.0 - 14.0 15.2 - 16.8	1.9 - 5.3 7.0 - 7.5 9.6 - 13.2 15.1 - 15.8
1/2500	2 - 4	3.5 - 6.1 7.7 - 16.7	1.5 - 11.0 11.0 - 14.0 15.2 - 17.0 17.4 - 18.0	1.6 - 6.2 6.6 - 7.8 8.0 - 8.6 9.6 - 13.2 15.1 - 15.8

**CPT 07 identified a soil layer likely to experience liquefaction from 7.0 m to 16.0 m in Area E2 for a 1/2500 return period event.*

6.5.4 Liquefaction Induced Ground Damage

Liquefaction induced ground damage causes most damage to the built environment including lifelines, and needs to be considered in the assessment of liquefaction hazards (Brabhaharan, 1994 and 2010). Therefore the potential for ground damage form liquefaction has been considered for the urban growth areas under consideration.

Ground Subsidence

Subsidence is the vertical downward displacement of the ground, which happens without any vertical load being applied to the ground. Liquefaction leads to subsidence as a result of the liquefied soil settling to a slightly denser state and ejection of sand with water to the surface.

Widespread ground subsidence can cause areas to become more prone to flooding. Localised differential subsidence can lead to cracking and damage to structures, and affect the functionality of services, particularly gravity sewers and storm water systems.

The magnitude of expected liquefaction induced ground subsidence in each area, excluding the areas that are prone to lateral spreading, is tabulated in Table 3.

Table 3 Estimated ground subsidence due to liquefaction

Return period event	Predicted Subsidence (mm)			
	Area Na:Nb	Area E1	Area E2	Area SE
1/500	25 - 75	150 - 225	100 - 175	100 - 125
1/1000	25 - 75	175 - 250	125 - 200	100 - 150
1/2500	25 - 75	200 - 250	150 - 200	100 - 150

Lateral Spreading

Lateral spreading occurs predominantly in the vicinity of free surfaces such as water courses where the liquefied soil can laterally displace towards the water course, but can also occur when there is slope along which the liquefied ground can displace. This can lead to large displacements of the ground from hundreds of millimetres to a few metres.

Lateral spreading can extend to 200 m or more from water courses but is typically more severe nearer the river. In some situations it has extended 300 m to 500 m due to block sliding. This may be mainly in areas where the land can spread in more than one direction due to bends or loops in the water course. Experience from the 2010 Darfield and 2011 Christchurch earthquakes shows the ground damage due to lateral spreading reduces at a distance greater than 130 m from a river or stream. Figure 5 shows the study areas and the proximity to nearby rivers and streams. The extent of lateral spreading is a function of both the depth of the stream or channel and the depth of the liquefiable soils.

The estimates of ground subsidence given in Table 3 do not take into account the subsidence effects of lateral spreading.

Area Na:Nb

Liquefaction in this area may lead to lateral spreading of the land towards nearby streams and drains although the effects are likely to be limited given the relatively thin deposits of liquefiable material, except close to the southeast boundary with thicker deposits and northeast boundary, close to the river.

Areas E1, E2 and SE

Lateral spreading is anticipated to be a significant issue in Areas E1 and E2 should liquefaction occur as these sites straddle the Opawa River and tributary streams and are underlain by significant thicknesses of liquefiable material.

Due to the lack of streams in Area SE the risk of lateral spreading is less than that for Areas E1 and E2. However there is still potential for lateral spreading towards the drainage channels that cross the site.

7 Discussion

7.1 Strategic Planning Timeframe

The timeframe used for planning and design depends on two factors:

(1) The importance level of the development

(2) The life of the development.

A life of 50 years is traditionally assumed for normal buildings, and 100 years for infrastructure. For normal buildings of Importance Level 2 (NZS 1170.0), a 500 year return period earthquake hazard is used for ultimate state design, which gives about 10% probability of the event occurring over the 50 year life assumed for typical buildings. For higher value infrastructure, a life of 100 years is often assumed, with a 1,000 or 2,500 year return period earthquake is used for ultimate state design, depending on its importance, giving probabilities of 10% and 4% respectively, see Table 4.

Table 4 Probability of event for planning and design

Return period event	Probability of event in the life			
	Buildings Life 50 years	Infrastructure Life 100 years	Urban Growth Life 200 years	Urban Growth Life 500 years
1 / 500	10%	-	-	-
1 / 1000	-	10%	-	-
1 / 2500	-	4%	-	-
1 / 2,000	-	-	10%	-
1 / 5,000	-	-	4%	10%

Areas of urban expansion will have a mix of normal buildings and higher value and importance level infrastructure. Although individual buildings or infrastructure may be renewed from time to time, the areas once developed will remain in use for a long time. An area developed could potentially be in use in perpetuity, unless and until there is some major environmental or social change that leads to abandonment of the area. Therefore, a longer “life” is appropriate for zoning areas for urban growth, a “life” of at least 200 years or 500 years or more may be appropriate.

For considering urban growth, retaining a similar probability of 10%, consideration of events with a return period of 5,000 years may be appropriate for land use planning for hazard events which can have a destructive effect on the built environment. This would limit the probability of such destructive events over a 500 year “life” to 10%.

Such an approach may be appropriate for example when zoning for buildings in an active fault zone. This may also be prudent for land prone to very high landslide hazards or extensive lateral spreading from liquefaction. This is on the basis that these hazards can have a destructive effect on the built environment exposed to the hazard.

For the areas investigated for urban growth in Blenheim, the ground shaking associated with earthquakes with a return periods of less than 500 years is assessed to be sufficient to cause extensive liquefaction (and lateral spreading in vulnerable areas) of the liquefaction susceptible loose soils present. There is only limited additional liquefaction in larger earthquake events with a longer return period. Therefore, in this instance, the length of the strategic planning period for the liquefaction hazards is not significant or important.

7.2 Land Use Zoning

Land susceptible to liquefaction, and particularly lateral spreading is prone to significant risks in earthquake events. In the development areas under consideration in Blenheim, liquefaction of the Dillons Point Formation soils can occur in modest earthquake events which are used for design of normal buildings.

Geotechnical engineering design approaches are available to mitigate the risk of liquefaction and lateral spreading through ground improvement and robust deep foundations. Such costly methods are only generally adopted for important and high value facilities. In our experience these very costly methods are likely to lead to prohibitively high development costs. It should be noted that the government made a decision not to allow redevelopment of residential areas in Christchurch that were subject to liquefaction and lateral spreading (identified as red zone areas) in the Canterbury earthquakes of 2010-2011, rather than carry out very costly mitigation against future liquefaction using ground improvement.

From a sustainability perspective, it would not be prudent to encourage development on land which will require considerable cost and consume substantially more resources compared to development in land which is more stable in earthquake and other hazards. This is on the basis that it would be more sustainable to develop areas subject to a lower level of hazard.

Therefore, it would be prudent to not zone for intensive development, the areas subject to severe lateral spreading, such as in substantial areas of Area E1 and E2 and smaller areas in Na:Nb. These areas subject to liquefaction and lateral spreading can be used for less intensive land uses such as parks and gardens or agriculture. This could be achieved by appropriate zoning of the land through district planning measures.

Area SE has a liquefaction hazard, but a lesser lateral spreading hazard because it is away from main water courses. Localised lateral spreading may occur close to the deep drains, although the overall damage from liquefaction would not be as severe as the areas prone to lateral spreading towards major water courses. However, development in these areas will be more costly because of the high groundwater levels and presence of liquefaction prone soils at shallow depth and the need to mitigate the effects of liquefaction and safeguard against subsidence and foundation failure. Also the Council needs to consider the effect on its services such as stormwater and sewers to service these areas, in deciding whether to zone this area for more intensive development.

Area Na:Nb lies away from the major water courses and appears to have a lesser liquefaction hazard based on the investigations carried out. The thickness of Dillions Point

Formation soils may be thinner in these areas, although localised areas may have thicker deposits, particularly in the southeast part of the area.

The Council should consider the hazard and sustainability issues in zoning these areas for more intensive development. Other parts of the Blenheim township will also be prone to liquefaction and in some cases lateral spreading hazard. With a long term view, it may be prudent for the Council to carefully consider whether to zone these eastern areas prone to liquefaction and lateral spreading for future intensive development, or encourage more development further to the west, where the geology indicates more alluvial gravel soils which are likely to be less at risk from liquefaction. This would be an important consideration for the long term planning of the Blenheim township.

7.3 Experience from Christchurch

In Christchurch, there were areas prone to liquefaction and lateral spreading that experienced severe damage. Some of these areas had been developed early when there was little knowledge or awareness of liquefaction. However, there were also areas that had been developed recently, even when the liquefaction hazard has been known. There was extensive damage to the built environment in these areas, including residential and commercial properties and lifeline services. A number of areas have been now included in the red zone, where re-construction has been precluded at the present time.

There was also extensive damage to services, particularly sewers and stormwater systems, which were damaged by liquefaction induced subsidence and change in levels restricting gravity flow, lateral spreading and damage to pipelines, floatation and damage to pump stations and manholes, and intrusion of liquefied sand and silt into pipelines.

7.4 Acceptability of Geotechnical Assessments for Development

The Dillons Point Formation soils are highly vulnerable to liquefaction and large subsidence of hundreds of millimetres, and also prone to severe lateral spreading in areas close to water courses.

Should the Council decide to zone some of these areas for development, it would be prudent to ensure that the developments proposed mitigate the effects of liquefaction. The geotechnical assessment needs to be reviewed by a Chartered Professional Engineer, specialising in geotechnical engineering, and with experience in the assessment of earthquake geotechnical hazards. Also the building consents need to be considered to ensure that the development has considered the structures and the geotechnical hazards in an integral manner, to ensure that the building can survive without damage in serviceability level earthquake events, and with limited damage which is repairable in ultimate limit state events.

The guidance provided by DBH and the Engineering Advisory Group for reconstruction in Christchurch provides guidance on acceptable solutions. These are expected to be developed further over the next year or so, and based on the Royal Commission report due later this year. It would be prudent to review the acceptance framework as it develops.

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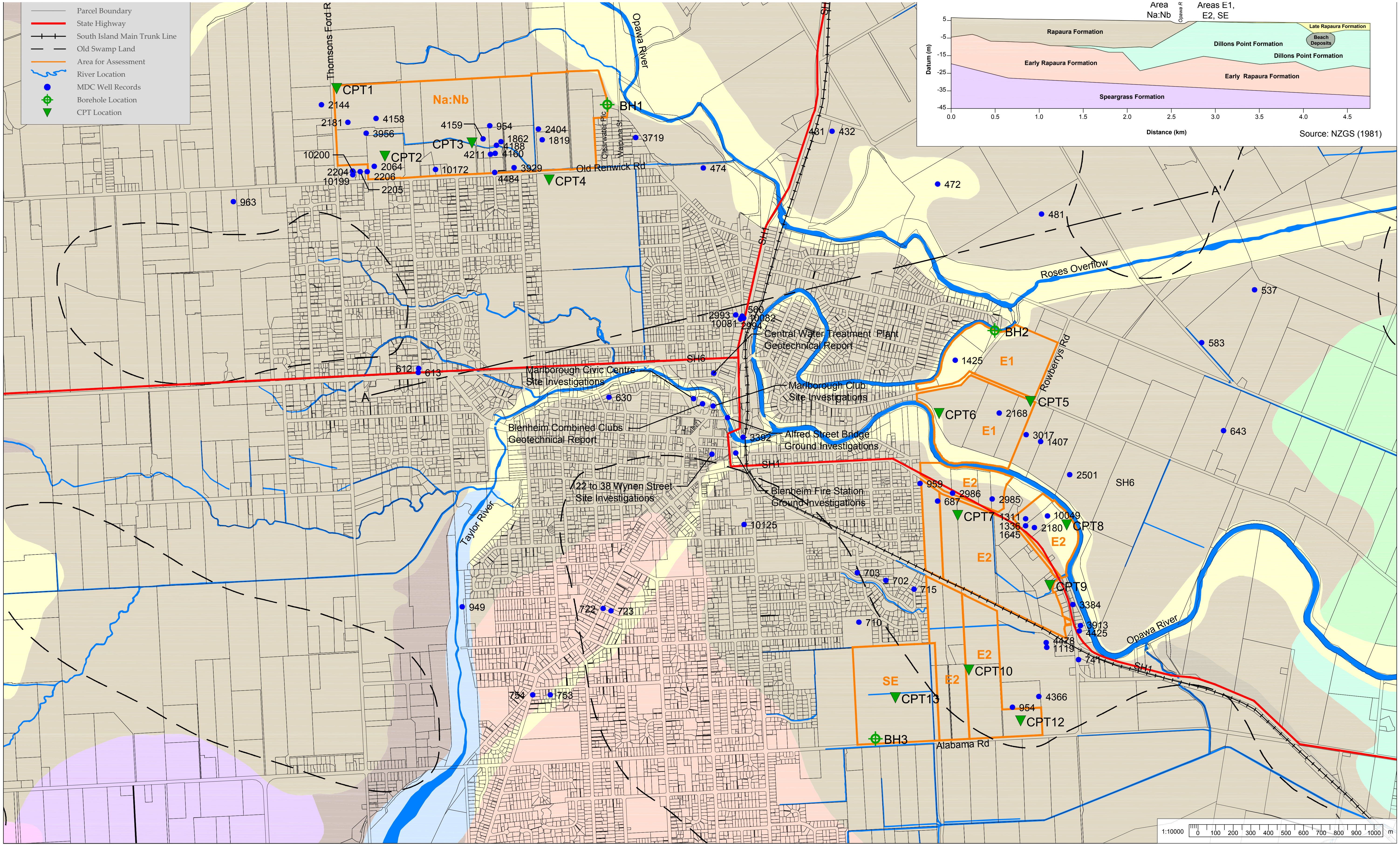
FIGURES



Prepared for:

MARLBOROUGH DISTRICT COUNCIL

Prepared by:

OPUS

Surficial Geology (after NZGS, 1981)

Rapaura Formation
- fa - Unstabilised river silt, sand, and gravel in present river beds.
- rg - Gravel, sand, and silt in river flood channels occupied during historic flooding, or in modern time prior to river flood protection constructions.
- ra_2 - Alluvial silt adjacent to present or historic river flood or man made diversion channels and reclaimed or drained swamps.
- ra_1 - Alluvial gravel, sand, and silt.
- ra - Alluvial gravel, sand, and silt at higher level and well drained

Dillons Point Formation
- dl_1 - Sand, silt, and mud lagoon deposits
- dl - Sand, silt, and mud lagoon deposits better drained and less saline.
- dd - Sand dunes

Speargrass Formation
- sp - Fluvial (glacial outwash) brown and blue gravel, sand, and silt.

Tophouse Formation
- to - Glacial outwash of weathered to slightyweathered brown gravel, sand, andsilt; covered by a layer of loess up to i m thick

N

Title: Regional Geology

Project: Blenheim Urban Growth Study

Scale:	*Date:*	*Project No:*	*Figure:*
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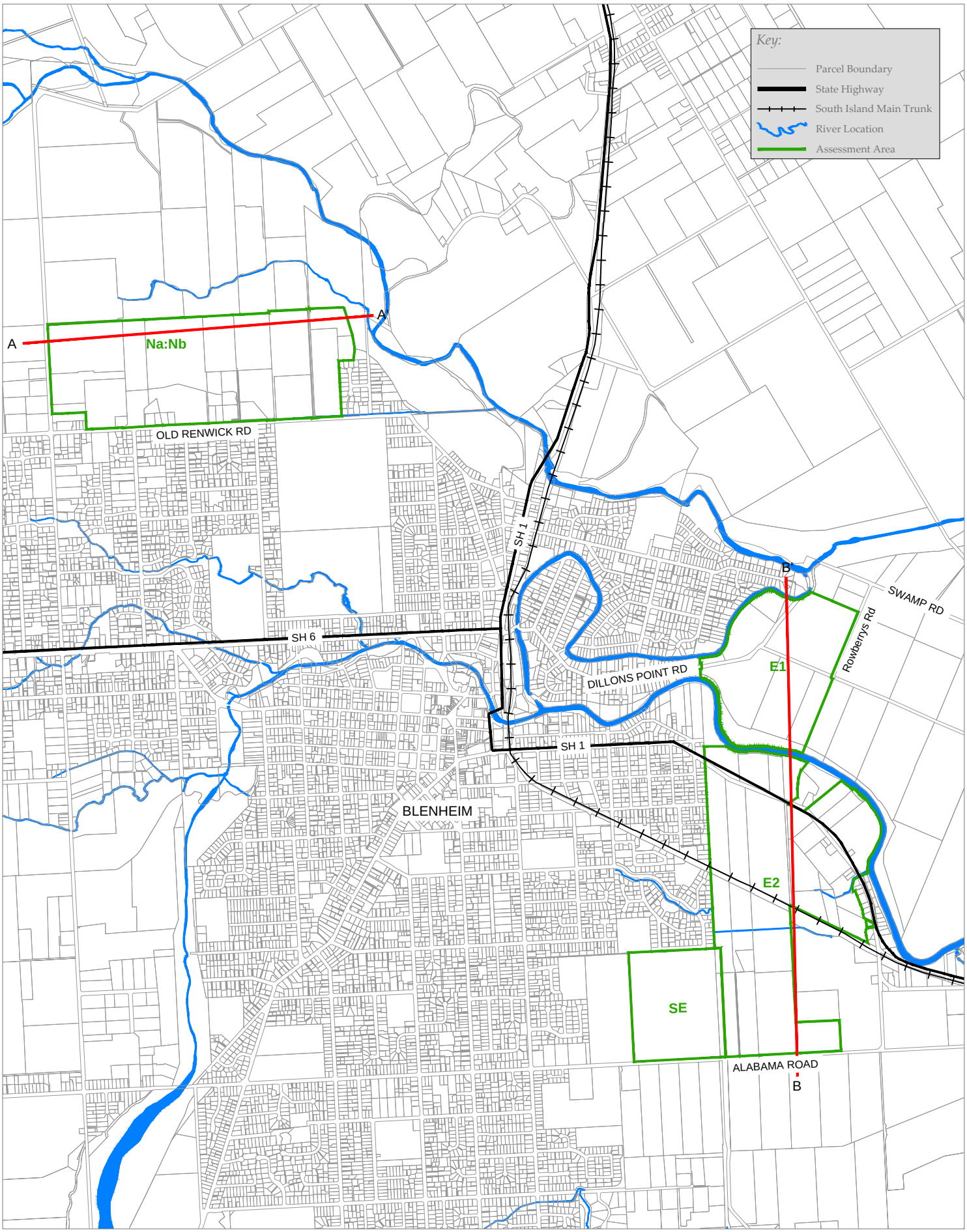

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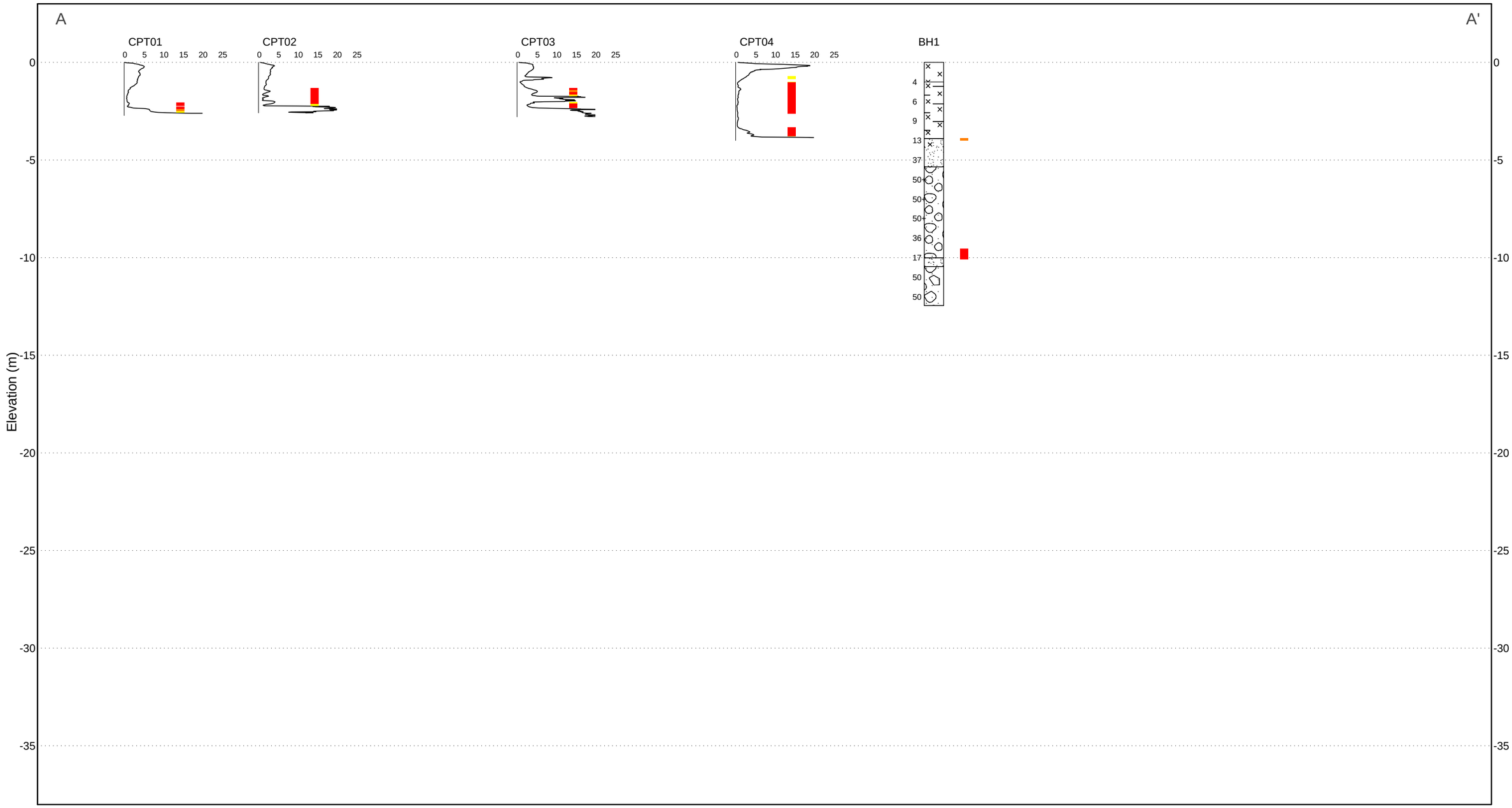
			Project: Blenheim Urban Growth Study
			Scale: 1:25,000 (A4) · *Date:* May 2012 · *Project No:* 5C2128.00 · *Figure:* 2



Prepared for: MARLBOROUGH DISTRICT COUNCIL

Prepared by: OPUS INTERNATIONAL CONSULTANTS

Legend:

Return Period Event

- 1/500
- 1/1000
- 1/2500

Lithological Graphics

- SILT
- Clayey SILT
- Silty SAND
- Sandy GRAVEL
- SAND
- Sandy GRAVEL

Title: **Cross Section of Area Na:Nb**

Project: **Blenheim Urban Growth Study**

Vertical Scale:	*Date:*	*Project No:*	*Figure:*
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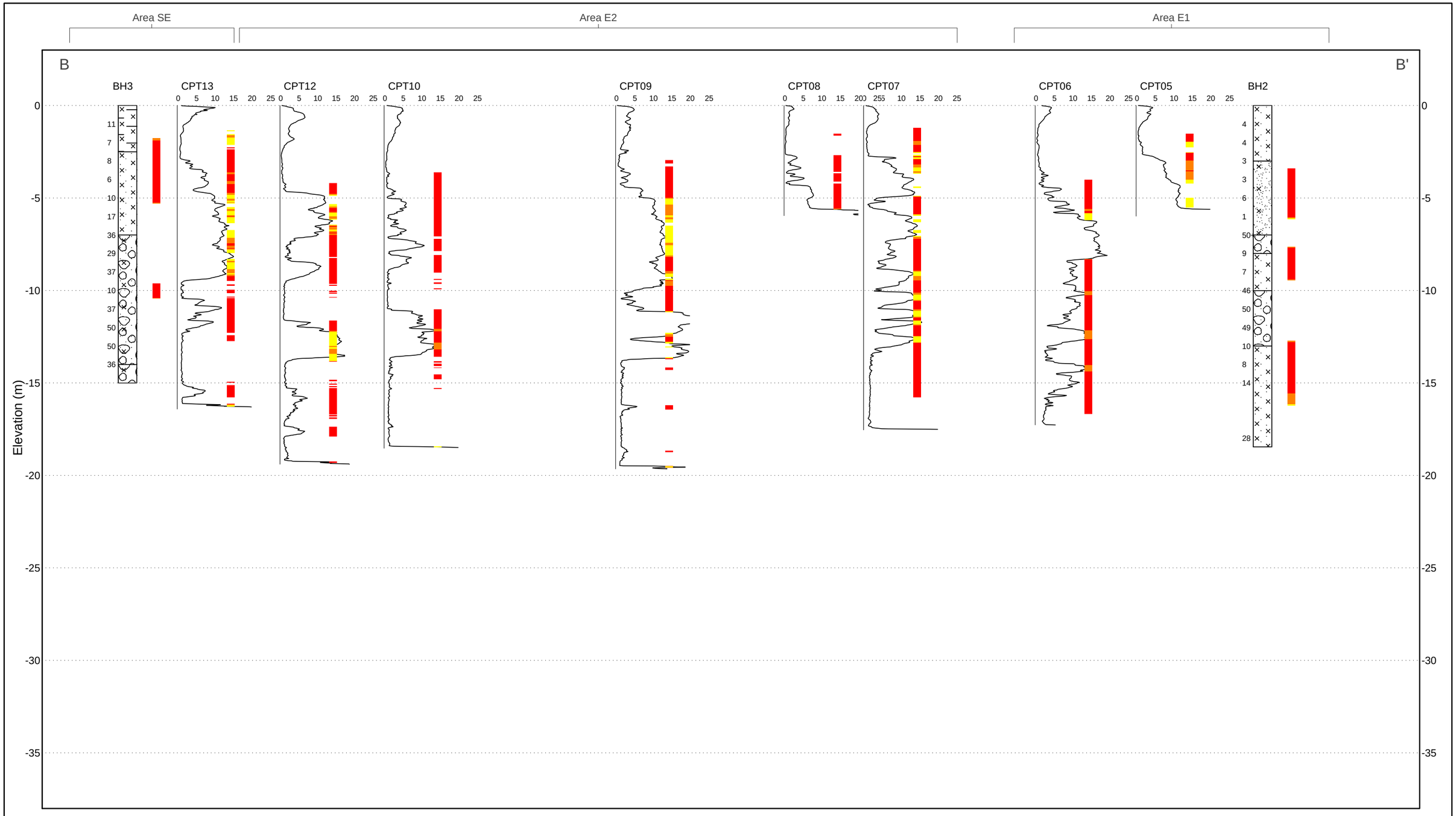

Prepared for: MARLBOROUGH DISTRICT COUNCIL

Prepared by: OPUS INTERNATIONAL CONSULTANTS

Legend:

Return Period Event

- 1/500
- 1/1000
- 1/2500

Lithological Graphics

- Sandy SILT
- Silty SAND
- Sandy GRAVEL
- Clayey SILT
- Sandy Silty GRAVEL
- Silty GRAVEL

Title: **Cross Section of Areas E1, E2 and SE**

Project: **Blenheim Urban Growth Strategy**

Vertical Scale:	*Date:*	*Project:No:*	*Figure:*
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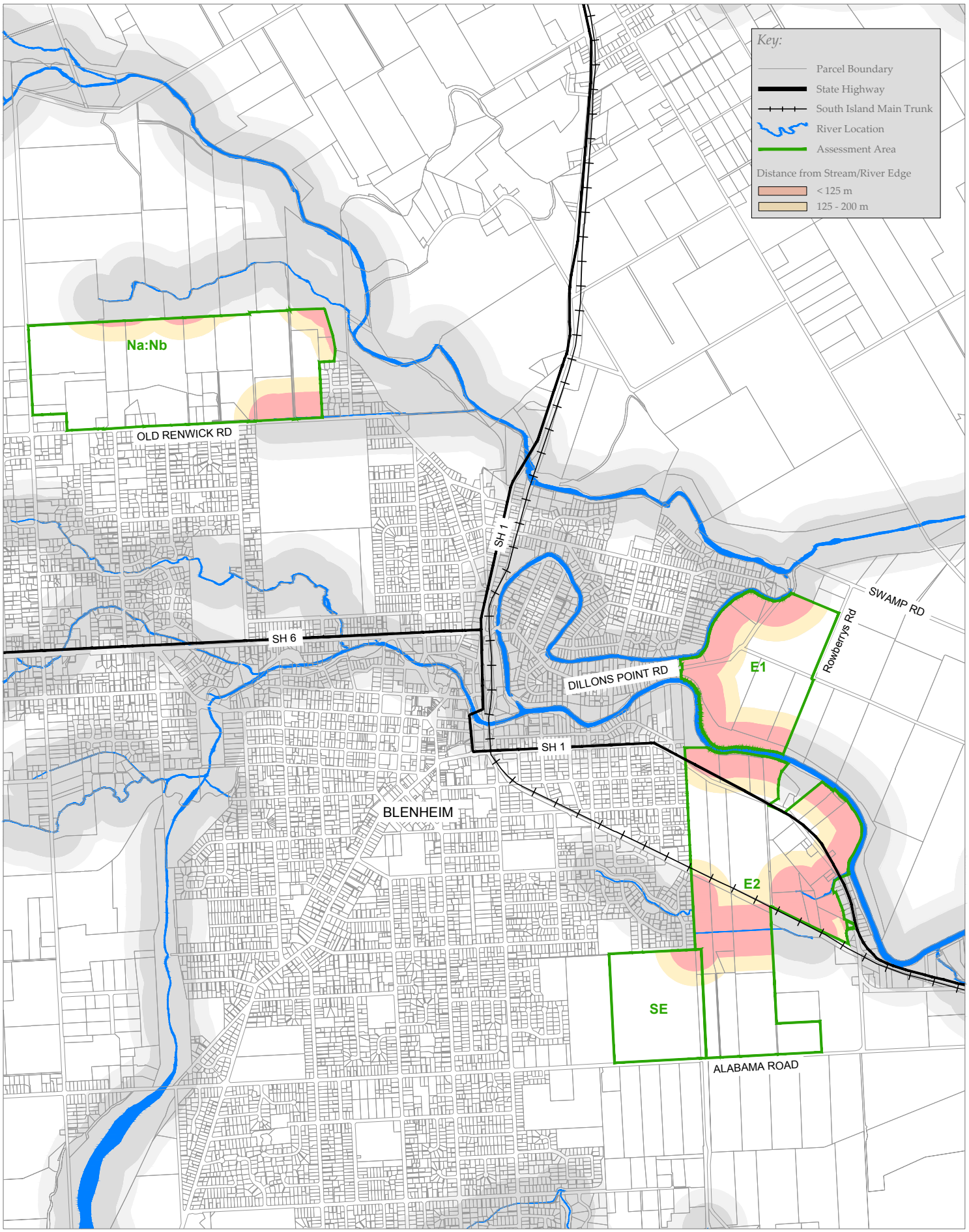

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MARLBOROUGH DISTRICT COUNCIL	OPUS	N	Proximity to Edge of Waterways			
			Project: Blenheim Urban Growth Study			
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Appendix 3

MARLBOROUGH DISTRICT COUNCIL

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REVISION OF THE STRATEGY FOR

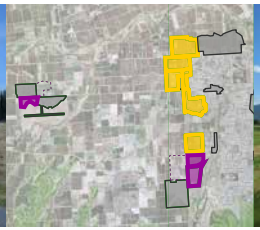
BLENHEIM'S URBAN GROWTH

PREPARED FOR MARLBOROUGH DISTRICT COUNCIL

NOVEMBER 2012

PREPARED BY

URBANISMPLUS LTD




delivering sustainable communities

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REVISED STRATEGY FOR

BLENHEIM'S URBAN GROWTH

PREPARED FOR MARLBOROUGH DISTRICT COUNCIL

This report is a supplement to the Southern Marlborough Urban Growth Strategy and describes the outcomes of comprehensive urban design investigations for the urban growth of Blenheim up to 2031. The strategy is based on high-level technical base information supplied by the Marlborough District Council. Furthermore, it is conditional upon the outcome of detailed geotechnical investigations currently being carried out.

Urbanismplus Ltd has been the main consultant for this project and its role has been to assist the Council by providing design leadership, facilitating workshops, managing participants, and documenting findings. The work contained in this document is developed by Urbanismplus and Marlborough District Council officers.

J0406

URBANISMPLUS LTD

Level 1 Premier Building, 2 Durham Street East, Auckland City, tel: +64 9 302 2488, fax: +64 9 302 2489

EXECUTIVE SUMMARY

The findings of an urban design-led strategy for Blenheim's urban growth up to 2031 are summarised in this report.

Background
Following completion of the South Marlborough Urban Growth and Development Strategy and the earthquakes across the Canterbury region in 2010 and 2011, the Marlborough District Council commissioned extensive geotechnical testing of the areas proposed to accommodate Blenheim's urban growth over the next decades.

The May 2012 report on the testing has identified that the proposed growth areas to the east of the town are prone to liquefaction in the event of an earthquake. Results for the proposed growth area to the north of Blenheim required further testing. The Council has therefore decided not to proceed with rezoning of the areas to the east (areas E1, E2 and SE) and to commission further testing of the area to the north (Na-Nb).

The brief
Urbanismplus, the lead consultant for the original growth strategy, was commissioned in May 2012 to produce a revision to the strategy that proposed areas suitable for urban development to replace the areas to the east. The brief for this strategy revision project included retention of the following aspects contained in the original strategy:

- → A 'strategy horizon' of 2031.
- → The assumptions for Blenheim's infill and intensification potential.
- → The population growth projections.
- → Greenfields development density and household size.
- → The urban growth principles underpinning the strategy.

During the course of this project an application for a private plan change for Colonial Vineyard / growth area W2 (referred to as PPC59) was declined. This was followed by an appeal to the Environment Court by the applicants. This issue has not been resolved at the time of production of this report. Also during the course of this project the Council agreed to further exploration of non-residential land use opportunities on residentially zoned land within the Taylor Pass area.

The brief for this strategy revision was subsequently extended to include the replacement of these areas. For the purposes of this study (and acknowledging that the decision of the Court has the potential to influence the future use of part or all of the site) it is assumed that no residential development would take place on Colonial Vineyard. Non-residential activities were to be considered.

Technical process
A scoping workshop with Council staff representing all relevant technical disciplines was held in June 2012 identifying a provisional list of areas likely to be suitable to accommodate residential growth (replacing Areas E1, SE, W2 and the land in the Taylor Pass area) and to accommodate employment activities (replacing Area E2). Due to the technical constraints on the land surrounding Blenheim, these areas were all located to the west of the town and included areas at Woodbourne Airport and in Renwick.

During a three-day technical workshop, again involving Council staff representing all relevant technical disciplines, all areas were assessed individually as well as collectively, i.e. assessing urban growth in north-westerly or south-westerly direction. The workshop identified that Blenheim's growth needs should be accommodated within and around Blenheim and that they need to be considered independently from Renwick's.

Residential land
Several areas located to the northwest and west of Blenheim were identified as most preferred for residential growth. These areas include the following:

- → North of Old Renwick Road, between Thomsons Ford Road and Blicks Lane.
- → Between Old and Middle Renwick Roads, from Rose Street up to approximately 400m west of Westwood.
- → David and Severne Street areas, southeast of Sheps Park.

Burleigh Estate and the Marris property northwest of the intersection between New Renwick and Battys Roads were added to this list of preferred areas, in order to replace Colonial Vineyard, once the process for PPC 59 led to the assumption that residential activities could not take place on Colonial Vineyard.

The total useable area of these lands amounts to 164.9ha.

Indicative layouts were produced for those areas in order to identify a possible yield for the purposes of this project. This was done in the light of existing dwellings already located on the lands and responding to fragmented ownerships. These drawings also illustrate how key urban design principles could realistically be applied.

The estimated combined dwelling yield of 1,515 dwellings exceeds the target of 1,434 by 5.6%. Due to inefficiencies and the need for larger lots as buffers between residential and rural land, an average density of 14 dwellings per hectare (as assumed and recommended in the original strategy) is not assumed. Instead, design tests indicate that a combined average of 9.2 dwellings per hectare should be assumed for the purposes of this exercise. Landowners may develop at a higher density than assumed realistic in this report. Using the land more efficiently would delay the need for more residentially zoned land beyond the horizon of this strategy.

Employment land
Assessment identified a preference for employment land development near Omaka Aerodrome and Woodbourne Airport.

The combined capacity of the proposed areas is 68.1ha, which is slightly lower than the target of 85ha. However, the proposed areas may be developed more efficiently than the originally proposed Area E2, where a large component of land was set aside for storm water measures. In addition, it would be realistic to assume that a portion of E2 will be pursued privately.

Consultation
The technical workshop was concluded with a presentation of the preliminary results to the Council. The key findings were endorsed by the Council and permission to proceed with informal consultation with the owners of the subject land and others directly affected by the proposal was granted.

Consultation took place during August 2012. Feedback received from owners of the land proposed to be included for urban expansion was generally positive. Other feedback included the suggestions by owners of land immediately adjacent to the proposed areas for this land to be included too. Others indicated concern over possible negative impacts from urban expansion on existing commercial activities.

Following consultation some adjustments to the overall strategy were made by the team and this report was produced.

This report
This report presents and explains the findings of the project. More specifically it contains:

- → A description of the reasons behind this project, along with the project scope and deliverables.
- → A detailed description of the process followed.
- → The feedback received during the informal landowner consultation.
- → The sustainable urban growth principles that underpin this strategy.
- → Urban design principles that have informed the strategy process so far and that should guide the development of the recommended areas.
- → The recommended overall strategy, including a description of the growth needs that this strategy responds to, the options considered, the composite picture of residential and employment growth areas, and a recommended staging for expansion along with a prioritisation of key planning actions.
- → A description of each of the proposed growth areas, including opportunities, challenges and key performance criteria for each area.
- → Illustrative concepts for the residential growth areas.
- → Headline considerations for each of the relevant technical disciplines involved in the assessment of growth directions and growth areas.

The strategy recommended in this report is conditional upon the results of further liquefaction tests currently undertaken.

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CONTENTS

1. INTRODUCTION

1.1 The reasons behind this project

WHAT HAPPENED BEFORE

In June 2011 the Marlborough District Council (MDC) made decisions regarding Blenheim's urban growth, based on the Southern Marlborough part of the *Growing Marlborough* programme. Before the next step involving rezoning of the subject land was taken, a geotechnical evaluation was undertaken. This investigation by OPUS International Consultants (*Blenheim Urban Growth Study Geotechnical Evaluation interpretive report May 2012*) identified that several proposed growth areas on the eastern and northern sides of the town are prone to liquefaction risk in the event of an earthquake. In response to these findings the Council decided not to go forward with the rezoning of growth areas *E1*, *E2* and *SE*, and that further investigation is required for growth areas *Na* and *Nb*.

During the course of this growth strategy revision project an application for private plan change for Colonial Vineyard / growth area *W2* (referred to as PPC59) was declined. This was followed by an appeal to the Environment Court by the applicants. This issue has not been resolved at the time of production of this report.

Also during the course of this project the Council agreed to further exploration of non-residential land use opportunities on residentially zoned land within the Taylor Pass area. This may lead to a significant reduction (possibly up to 12ha) of zoned residential land within Blenheim.

AIMS OF THIS PROJECT

This Blenheim Urban Growth Revision project has involved updating and reviewing the Southern-Marlborough Urban Growth and Development section of *Growing Marlborough*, in the light of the recent Geotechnical Evaluation, the decline of PPC59 (for the purpose of this project it is assumed that no residential activities can be developed on Colonial Vineyard), and the reduction of existing residentially zoned land within Blenheim by approximately 12 hectares. Its main aim has been to identify, investigate and prioritise alternative areas that may be most suitable to accommodate Blenheim's urban growth.

As directed by MDC, this project has not reformulated the principles behind the District's approach to urban growth and development.

LIQUEFACTION TESTING

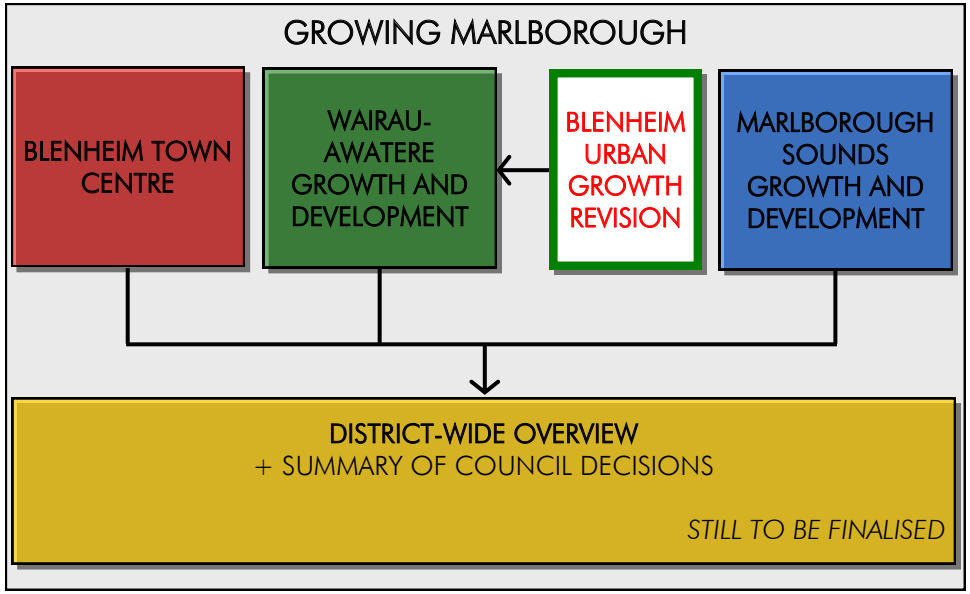
It should be emphasised that the results from this project are based on high-level geotechnical information held by MDC. The Council has commissioned detailed liquefaction testing and analysis, which was commenced in October 2012, with results due in February 2013. **The strategy recommended in this report is therefore conditional upon the results of further liquefaction tests currently undertaken.**

RELATIONSHIP WITH GROWING MARLBOROUGH

Growing Marlborough consists of three strategies, the Blenheim Town Centre Strategy, the Wairau-Awatere (or Southern Marlborough) Growth and Development Strategy, and the Marlborough Sounds (or Northern Marlborough) Growth and Development Strategy (refer to **Figure 1-1**). These have been completed in recent years.

This Blenheim Urban Growth Revision Strategy, although functioning as a stand-alone document, builds upon the earlier reports and does not replace these. It includes the revision of several of the sections pertaining to the urban growth needs projected for Blenheim contained in the Wairau-Awatere Growth and Development Strategy, in the light of detailed technical investigations carried out after completion (but before implementation) of the strategy.

A District-Wide Overview summarises the three original strategies and documents the Council's decisions in response to the proposals contained in the strategies. The District-wide overview is yet to be completed, which will occur after the completion of this Blenheim Urban Growth Revision Strategy.



ABOVE FIG. 1-1: Structure of the Growing Marlborough Strategy and how this report fits in with it.

1.2 Report structure

This report summarises the revised strategy for the accommodation of Blenheim's urban growth and documents the rationale behind it.

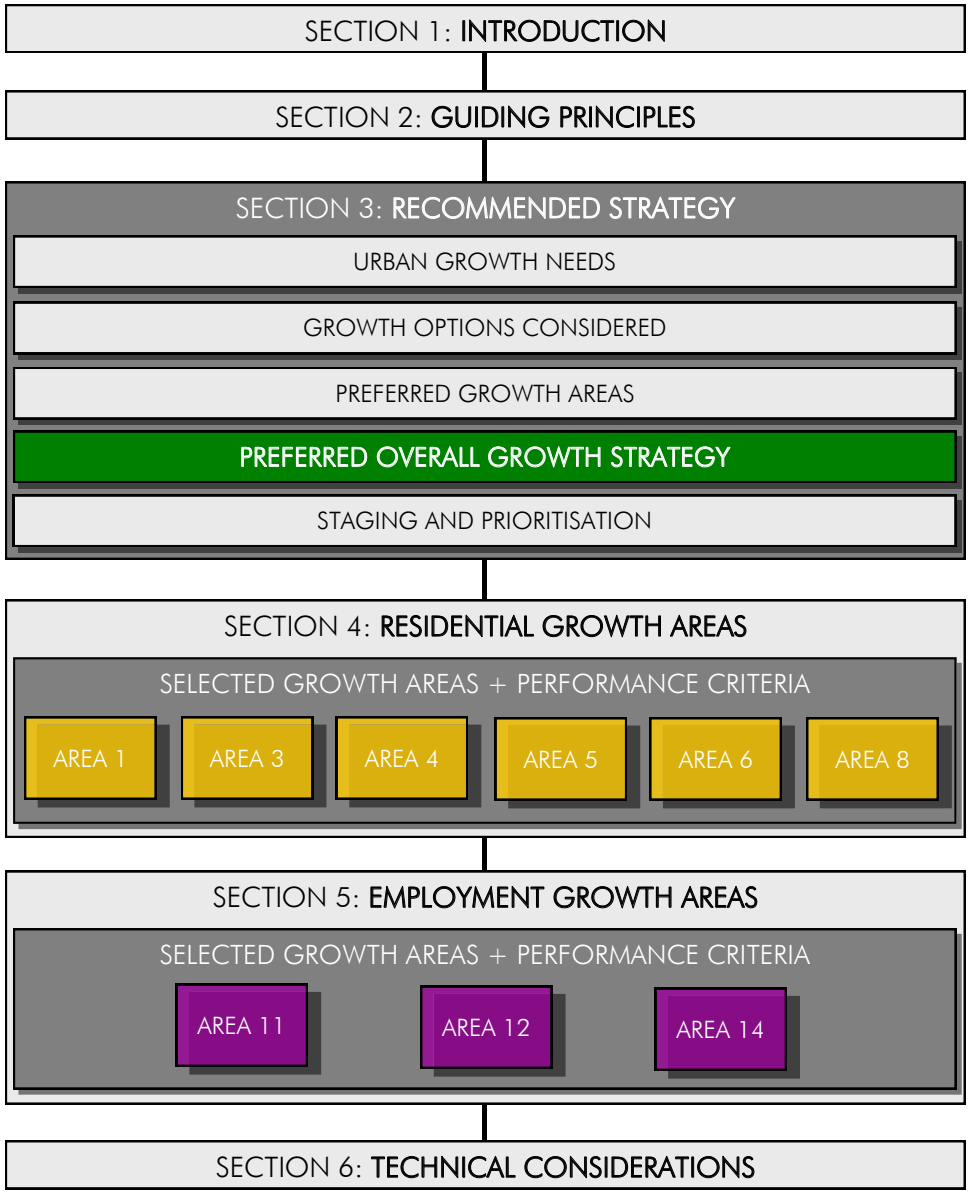
This introductory **Section 1** explains the background of the project, its reasons, the previous strategy it builds upon, its aims and scope, and the process that led to the strategy. A summary of high-level feedback provided by the respective land owners during the informal consultation stage follows after this.

Section 2 'Principles and policies' contains the high-level urban growth principles that guide this Strategy. This section also provides the principles that should guide the design of the proposed growth areas.

The recommended Strategy is presented in **Section 3**. This section begins with an overview of the overall growth needs that the Strategy responds to and an explanation of the considerations leading to the proposals. The composite 'picture' in **Section 3.4** illustrates the proposed Revised Growth Strategy. This is followed by the recommended 'ideal' staging of Blenheim's urban expansion and the recommended prioritisation of key actions that would lead to the implementation of the Strategy according to the recommended sequence of development.

Sections 4 and 5 contain detailed descriptions of the individual preferred growth areas, along with performance criteria for each of these. The proposed residential growth areas are illustrated in Section 4 by means of a development concept, which also formed the basis for capacity calculations for each of the areas.

The high-level technical rationale behind the strategy follows in **Section 6**. This includes considerations pertaining to each of the technical disciplines represented by Council staff during the working sessions and the production of the Strategy.



ABOVE FIG. 1-2: Structure of the report

1.3 Project scope and deliverables

SCOPE OF THIS STRATEGY

The project that has led to the strategy has received input and is supported by technical Council staff representing the following technical disciplines:

- → Community facilities planning
- → Recreation and open space planning
- → Traffic and transportation planning and engineering
- → Hydrology, soils and geotechnical engineering
- → Infrastructure and services planning and engineering
- → Rivers and storm water engineering

This project has primarily focussed on Blenheim's options for the accommodation of projected residential growth, although Blenheim's growth options cannot be considered in isolation from the wider Wairau-Awatere area. In addition, viable options for one or more future employment areas have also been identified through this project.

ISSUES THIS STRATEGY RESPONDS TO

This strategy primarily identifies the preferred options to accommodate urban growth in and around Blenheim. In doing so, it responds to the following issues:

- → Social / community infrastructure.
- → Current and future areas with retail and commercial activities.
- → Natural hazards.
- → The technical feasibility and costs of infrastructure extensions and / or upgrades in order to cater for urban growth.
- → The impact of urban expansion on the highly productive soils that surround Blenheim.
- → Ground water protection.
- → Housing affordability.
- → Ecological restoration and enhancement of natural values, particularly in streamside reserves.
- → The existing and possible future distribution of public open spaces and other recreational assets.
- → The provision for safe cycling routes especially for children travelling between residential areas and schools.
- → The integrity of the strategic transportation corridors (SH1, SH6, rail).
- → Reverse sensitivity relating to rural activities, Woodbourne Airport, Omaka Aerodrome and the Flight Timbers Sawmill.
- → Appropriate development densities.

WHAT THIS STRATEGY GIVES US

MDC is developing policies which are informed by the outcomes of this project, to efficiently and flexibly manage growth and development of Blenheim.

Specific project objectives include:

- → To achieve integrated urban design outcomes, where initiatives preferably fulfil more than just one objective.
- → To align funding priorities and infrastructure upgrades with planning policy.
- → To take planning steps that will positively impact on the development of Blenheim over the 20-year period to 2031.

Deliverables of the project include:

- → Solid proposals to guide decision making.
- → Proposals for actions and interventions that are practical and affordable.
- → Guidance for plan changes, including direction for the period beyond the project horizon, in the form of 'Future Urban Residential' zones.

More specifically, it contains:

- → Options considered for the accommodation of projected residential and employment growth needs within and around Blenheim.
- → Description of and rationale behind the preferred option.
- → Description of proposed sequencing for the development of growth areas included in the preferred option.
- → Description of possible fall-back option(s).
- → Roading, infrastructural and possible other issues relevant to the preferred growth option.
- → High-level concepts for the preferred growth areas identified .

1.4 Project process

The project has been structured according to the following key steps.

1. PREPARATION (LATE MAY 2012)

During this stage the technical background material including the Growing Marlborough Strategy has been analysed by Council staff and the consultant team in preparation for the Scoping Session.

2. SCOPING SESSION (6 JUNE 2012)

The focus of this project step has been on the completeness of the base information, the preliminary identification of technical constraints and opportunities, and development of provisional options and scenarios.

During a one-day technical working session in Blenheim, attended by technical Council staff and representatives from the consultant team, the following tasks have been undertaken:

- → Analysis of the consequences that have arisen from the geotechnical evaluation.
- → Reaching agreement on the approximate quantum of land required.
- → Determination of constraints and opportunities.
- → Identification of a list of provisional options for future residential and employment land.
- → Provisional assessment of the list of options from single technical discipline perspective.
- → Identification of next steps and detailed analysis required.

3. ANALYSIS (JUNE 2012)

Relevant Council staff members have undertaken an analysis of the provisional options for residential and employment growth, from the perspective of their technical discipline. This has included a provisional screening for liquefaction risks, based on Council-owned data. Also, possible outstanding information identified in the scoping session has been sourced during this step.

4. INTERNAL WORKSHOP (2-4 JULY 2012)

The key aim of this step has been to narrow down the provisional options identified in the scoping session to one preferred option in the light of the technical constraints and opportunities.

During a three-day technical workshop in Blenheim, attended by technical Council staff and the consultant team, the following task have been undertaken:

- → Discussion of technical constraints and issues.
- → Identification of preferred growth areas, combinations of growth areas and their staging.
- → Site visits.
- → Growth area capacity tests.
- → Agreement on final preliminary preferred strategy between Council staff and consultant team.
- → Presentation of workshop findings to the Council.

5. CONSULTATION WITH SELECTED LANDOWNERS (28-29 AUGUST 2012)

After the workshop the consultant team have undertaken one-on-one discussions with the respective landowners.

The aims of this step have been twofold:

- → To supply information to those most directly impacted by the (provisional) recommendations of the project.
- → To gain an early understanding of the feasibility of the proposed options. This included getting a feel for the landowners' aspirations as well as for the relevant technical issues that the landowners were aware of.

6. STRATEGY ADJUSTMENT (SEPTEMBER 2012)

Small adjustments to the provisional strategy identified during the technical workshop have been made after the landowner meetings.

7. REPORTING (NOVEMBER 2012)

The project outcomes have been documented in this report, which has been produced by the consultant team with input from the MDC technical officers team.

LIQUEFACTION TESTING (CURRENTLY TAKING PLACE)

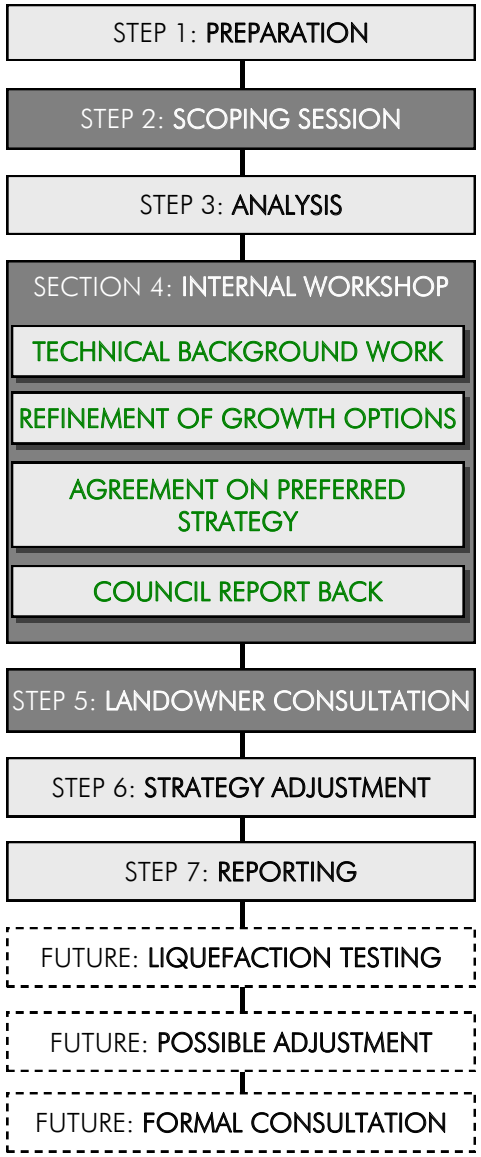
MDC is undertaking liquefaction testing of most of the identified growth areas.

POSSIBLE STRATEGY ADJUSTMENT (FUTURE)

The strategy will have to be adjusted in the event that the liquefaction testing identifies unacceptable risks for one or more of the growth areas.

FORMAL CONSULTATION (FUTURE)

MDC will undertake formal consultation after completion and adoption of the strategy.



ABOVE FIG. 1-3: Project process

1.5 Informal landowner consultation

Provisional growth areas were identified during the internal technical workshop in Blenheim in early July 2012. In late August 2012 the team met with various landowners, after the shortlist of provisional growth areas was advertised in the local newspaper and landowners directly affected by the provisional proposals were personally invited to respond. In addition to consultation meetings, telephone conversations with various landowners were held by Council officers in order to supply information and receive feedback.

FEEDBACK RECEIVED

The consulted parties and their feedback could roughly be divided into three categories:

- → Representatives of those properties located within the provisional growth pockets and supporting rezoning for urban growth.
- → Representatives of those properties located within the provisional growth pockets and not supporting rezoning for urban growth.
- → Representatives of those properties located outside (but often in close proximity to) the provisional growth pockets and desiring to be included for rezoning for urban growth.

Properties within the proposed areas; in support
The conversations with representatives from this category generally focussed on:

- → Providing information on the timeline of the possible rezoning process.
- → Consequences for property value and Council rates.
- → The provision of water and wastewater services.
- → Concerns over the current hydrological state of the land.
- → The nature of development envisaged within the possible new zone.

It was noted that representatives of the majority of properties within the provisional growth areas responded positively to the proposed rezoning.

Properties within the proposed areas; not in support
The conversations with representatives from this category also generally focussed on the same topics above, although attendees also voiced concern over the possible consequences of conventional residential development adjacent to their businesses. An example of this was a professional beekeeper currently situated in a more or less rural location with only a limited number of neighbours. A concern was that possible complaints from residential neighbours with 'urban expectations' over unavoidable nuisances caused by the activities would damage the company eventually lead to forced relocation or closure of it.

Others were concerned over the loss of character of the areas and / or the loss of rural outlook from their properties.

Properties just outside the proposed areas; desiring to be included
The conversations with representatives from this category generally indicated that their properties should be included in the rezoning for residential activities. Often a less intense form of residential development was implied. A common rationale for this was that (rural-)residential development was de-facto already taking place and that rezoning would formalise this. Other arguments included:

- → The land would be suitable for development and would perhaps be even more suitable than the land indicated in the provisional growth areas.
- → Partnerships with neighbours have already been formed in order to undertake a joint development.
- → There is a need for a less intense form of residential buffering between new urban and existing rural activities. The subject land could accommodate this 'buffer activity'.

FULL DOCUMENTATION

All parties that responded and the essential messages of these conversations have been fully documented by MDC.

FUTURE FORMAL CONSULTATION

It is suggested that formal consultation on the outputs of this Growth Strategy Revision project will be undertaken by MDC on the basis of the final version of this report. The process would need to seek input from at least the following stakeholders:

- → All landowners, property owners and others whose properties may be affected.
- → Community organisations and interest groups.
- → The general public.

2. GUIDING PRINCIPLES

2.1 Sustainable urban growth principles

This Growth Strategy Revision is based on the same principles as the main *Growing Marlborough* strategies. A summary of the key principles and how these have informed this exercise are outlined below. For a full description refer to the Wairau-Awatere Growth and Development Strategy, also referred to as the Southern Marlborough Urban Growth Strategy (SMUGS).

THEME	PRINCIPLE	APPLIED DURING THIS EXERCISE
AFFORDABLE GROWTH	Responding to the projected increase in population and activity in a way that is affordable in the long term.	→ Avoiding development in areas that are liquefaction-prone → Locating development in locations where lowest infrastructure investment is required → Keeping Blenheim as compact as possible
EFFICIENT ACCESS	Making sure that access to goods and services is provided in an affordable and more environmentally friendly way.	→ Locating development in locations where local connections enable non-vehicular movement → Locating development as closely to commercial and community facilities and other amenities as possible
VALUABLE SOILS	Conserving valuable and productive soils for future generations.	→ Aiming for an ambitious, yet realistic infill and intensification programme and locating the balance of the growth needs in a way that is as compact as possible → Buffering residential development in order to avoid reverse sensitivity between living and rural production on the soils → Preferring urban expansion onto Class 2 soils over expansion onto Class 1 soils
HEALTHY ECOSYSTEMS	Restoring, growing and connecting valuable ecosystems.	→ Encouraging built outcomes that accommodate natural features, ecosystems, water quality issues, reduced energy usage and waste production → Using new development opportunities to retain or restore valuable ecosystems
QUALITY OPEN SPACE	Providing good quality and sufficient public open space for people to recreate and children to play in.	→ Locating development in locations with good connectivity to existing public open spaces → Promoting good public open space design in the layouts for the growth areas
UNIQUE TOWNS	Retaining and reinforcing the unique character and role of the different urban settlements.	→ Accommodating Blenheim's urban growth needs in and around Blenheim to reinforce the town's role in the hierarchy in Marlborough → Promoting a typical Blenheim feel and look in the design of the public realm in the growth areas
THRIVING TOURISM	Complementing Marlborough's natural area and viticulture-based tourist attractions with more urban visitor attractions and facilities.	→ Encouraging development that has a positive impact on Blenheim's image as the centre of a tourism-friendly province
GROWING EMPLOYMENT	Providing and protecting settings that respond to economic needs and stimulate economic growth.	→ Promoting built outcomes that stimulate local employment and strengthen economic vitality for the community → Coordinating residential and employment growth aimed at minimising reverse effects whilst stimulating exchange → Providing choice between and within proposed employment areas

2.2 Guiding design principles for the growth areas

This report recommends further investigation of several areas for urban expansion. It is additionally recommended that a Structure Plan for each growth area will be designed prior to subdivision. The main reason for this is to achieve coherent urban form, despite the fact that many proposed areas consist of multiple individual properties owned by landowners with differing aspirations.

The table below outlines high-level principles that should guide the overall design of the proposed growth areas, distinguishing between residential and employment land. The principles are taken from the Ministry for the Environment's 'People+Places+Spaces, Design Guideline for Urban New Zealand'.

PRINCIPLE	RESIDENTIAL GROWTH AREA	EMPLOYMENT GROWTH AREA
CONSOLIDATION & DISPERSAL	→ Provide for higher densities around public open spaces and in close proximity to commercial and community facilities → Buffer residential development in order to avoid reverse sensitivity between living and rural production (e.g. by locating larger lots with building setbacks)	→ Cluster employment uses in such a way that synergies are achieved → Minimise reverse sensitivities between activities within employment areas and between employment uses and surrounding uses
INTEGRATION & CONNECTIVITY	→ Minimise direct property access off existing State Highways and arterial roads, whilst avoiding lots backing onto existing roads → Provide connected networks for all traffic modes, and minimise dead-end roads → Maximise urban blocks in a north-south direction and lots in an east-west direction to provide for sunny backyards → Minimise rear lots and locate backs towards backs, and fronts towards fronts across a street or a public open space	→ Minimise direct property access off existing State Highways and arterial roads, whilst avoiding lots backing onto existing roads → Provide connected networks for all traffic modes, and minimise dead-end roads → Minimise rear lots and locate backs towards backs, and fronts towards fronts across a street or a public open space → Design the movement network in conjunction with the distribution of uses within the area
DIVERSITY & ADAPTABILITY	→ Provide a mix of lot sizes and enable a wide range of housing options	→ Provide choice between and within proposed employment areas
LEGIBILITY & IDENTITY	→ Design a layout that is easy to understand when walking, riding or driving through it → Minimise rear lots and locate backs towards backs, and fronts towards fronts across a street or a public open space → Promote a typical Blenheim feel and look in the design of the public realm	*As per residential growth area*
ENVIRONMENTAL RESPONSIVENESS	→ Integrate and if possible restore natural features and ecosystems in the design → Design layouts in such a way that the quality of groundwater, streams or rivers is improved → Apply an Environmentally Sensitive Design approach	*As per residential growth area*