Submission on Proposed Waimakariri District Plan

John and Coral Broughton

November 2021

Waimakariri District Council

RESOURCE MANAGEMENT ACT 1991

WAIMAKARIRI DISTRICT COUNCIL

SUBMISSION ON THE PROPOSED WAIMAKARIRI DISTRICT PLAN

Submitter Details

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Trade Competition:

Ability to gain a trade competition advantage through this submission - No

Hearing Options:

We do wish to be heard in support of our submission. If others are making a similar submission, we may consider presenting a joint case with them at the hearing.

Specific Provisions to Which this Submission Relates:

All of the Proposed Waimakariri District Plan (PWDP), including but not limited to:

District Planning Maps

General District Wide Matters – Strategic Directions, UG Urban Growth

Area Specific Matters – New Development Areas – West Rangiora Development Area,

Residential Zones

Decision we wish the Council to make:

Preferred Relief:

1. Amend Proposed Waimakariri District Plan (PWDP) Planning Maps by rezoning the following land from Rural Lifestyle Zone **(RLZ)** to General Residential Zone (**GRZ**) and Medium Density Residential Zone (**MDRZ)** as depicted on the amended West Rangiora Outline Development Plan below; or amend the Residential Zone provisions to provide for Medium Density residential development in the **GRZ**.

Registered Owner	**Address**	**Appellation Title**	**Area (ha)**
John and Coral Broughton	113 Townsend Road	Lot 2 DP 495345	4.0389
John and Coral Broughton	117 Townsend Road	Lot 3 DP 495345	4.4546
			8.4935 ha

2. Amend the PWDP provisions as follows: (additions in bold and underlined, and deletions as strike out).
3. Any consequential, further or alternative amendments to the PWDP to be consistent with and give effect to the intent of this submission and the interests of the Submitter, including any changes necessary to give effect to the Enabling Housing Supply and Other Matters Resource Management Amendment Act (when it comes into force), including rezoning other parts of the WR ODP area to deliver medium density housing.

Part 2 – District Wide Matters

Strategic Directions

SD-02

Urban development and infrastructure that:…

*4. provides a range of housing opportunities, focusing new residential activity within existing towns, and identified development areas in Rangiora and Kaiapoi, in order to **as a minimum** achieve the housing bottom lines in UFD-O1*

UFD-O1

Feasible development capacity for residential activities

***At least s~~S~~ufficient feasible development capacity for residential activity in each township to meet specified housing bottom lines, a wide range of housing types, sizes and densities** and a changing*

demographic profile of the District as follows:… ***{updated housing capacity bottom lines}***

UFD-O2

Feasible development capacity for commercial activities and industrial activities

At least s~~S~~*ufficient feasible development capacity to meet commercial and industrial development demand.*

UFD-P2

Identification/location of new Residential Development Areas

In relation to the identification/location of residential development areas:

1. *residential development in the new Residential Development Areas at Kaiapoi, North East Rangiora, South East Rangiora and West Rangiora is located to implement the urban form identified in the Future Development Strategy;*
2. *for new Residential Development Areas, other than those identified by (1) above, ~~avoid~~ residential development* ***shall generally*** *~~unless located so that they~~:*
    a. *occur in a form that concentrates, or are attached to, an existing urban environment and promotes a coordinated pattern of development;*
    b. *occur in a manner that makes use of existing and planned transport and three waters infrastructure, or where such infrastructure is not available, upgrades, funds and builds infrastructure as required;*
    c. *have good* ***existing or potential*** *accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport* ***to the extent that this is feasible, particularly in the case of the Small Settlement or Large Lot Residential Zones****;*
    d. ***~~concentrate~~ encourage*** *higher density residential housing in locations* ***with good accessibility to*** *~~focusing on~~ activity nodes such as key activity* ***and local*** *centres, schools, public transport routes and open space;*
    e. *take into account the need to provide for intensification of residential development while maintaining appropriate levels of amenity values on surrounding sites and streetscapes;*
    f. *are informed through the development of an ODP;*
    g. *support~~s~~ reductions in greenhouse gas emissions,* ***to the extent that this is feasible, particularly in the case of the Small Settlement or Large Lot Residential Zones*** *; and*
    h. *are resilient to natural hazards and the likely current and future effects of climate change as identified in SD-O6.*

UFD-P6

Mechanism to release Residential Development Areas

*The release of land within the identified new development areas of Kaiapoi, **West Rangiora,** North East Rangiora and South East Rangiora occurs in an efficient and timely manner ~~via a certification process~~ to enable residential activity to meet **or exceed** short to medium-term feasible development capacity and achievement of housing bottom lines.*

UFD-P10

Managing reverse sensitivity effects from new development

Within Residential Zones and new development areas in Rangiora and Kaiapoi:

1. *avoid residential activity that has the potential to limit the efficient and effective operation and upgrade of critical infrastructure, strategic infrastructure, and regionally significant infrastructure, including avoiding noise sensitive activities within the Christchurch Airport Noise Contour, unless within an existing Residential Zone;*
2. *minimise reverse sensitivity effects on primary production from activities within new development areas through setbacks and screening **or other methods**, without compromising the efficient delivery of new development areas.*

Subdivision

SUB-O1

Subdivision design

Subdivision design achieves an integrated pattern of land use, development, and urban form, that:

1. *provides for anticipated land use and density that achieve the identified future character, form or function of zones;*
2. *~~consolidates urban development and maintains rural character except where required for, and identified by, the District Council for urban development;~~*
3. *supports protection of cultural and heritage values, conservation values; and*
4. *supports community resilience to climate change and risk from natural hazards.*

SUB-P6

Criteria for Outline Development Plans

Ensure that new Residential Development Areas, new Large Lot Residential Zones, new Commercial and Mixed Use Zones and new Industrial Zones shall not be subdivided until an ODP for that area has been included in the District Plan and each ODP shall:…..

1. *be prepared as a single plan; and*
2. *be prepared in accordance with the following:*
    c. *for new Residential Development Areas demonstrate how each ODP area will achieve a minimum net density of at least 15 lots or households per ha, unless there are demonstrated constraints then ~~no less than 12 households per ha~~ **a reduced density standard or density exemption***

shall apply*;*

SUB-P7

Requirements of Outline Development Plans

~~*Ensure that subdivision is in accordance with the fixed or flexible elements of any relevant ODP.*~~ ***Manage subdivision to ensure that the outcomes intended by the Outline Development Plan are met.***

SUB-S3 Residential yield

Residential subdivision of any area subject to an ODP, except in the Large Lot Residential Zone, shall provide for a minimum net density of 15 households per ha, ***or the minimum density specified in the applicable Outline Development Plan, whichever is the lesser, or if*** *there are demonstrated constraints then* ***a density exemption shall apply.*** ~~*no less than 12 households per ha*~~*.*

Activity status when compliance not achieved: NC

SUB-S3 Residential Yield

Residential subdivision of any area subject to an ODP, except in the Large Lot Residential Zone, shall provide for a minimum net density of 15 households per ha, unless there are demonstrated constraints then ~~*no less than 12 households per ha*~~ ***then a density exemption shall apply.***

SUB-S4 Areas subject to an ODP – retain as notified

Any subdivision shall comply with the relevant ODP and rules for the ODP, as set out in the Development Areas Chapter of the District Plan.

Activity status when compliance not achieved: DIS

General Objectives and Policies for all Residential Zones

RESZ-O5

Housing choice

A wide range of housing types, sizes and densities are available in each township to meet housing needs. ~~the needs of the community through~~

1. ~~a range of residential unit types; and~~
2. ~~a variety of residential unit densities~~

RESZ-P14

Development density

Development densities for new Development Areas and Large Lot Residential Zone Overlays shall be as follows:

1. in new Development Areas, achieve a minimum net density of 15 households per ha averaged

across the whole of the residential Development Area within the relevant ODP, unless there are demonstrated constraints then **a density exemption shall apply. Constraints may include but not be limited to landscape and ground conditions, servicing requirements, and existing subdivision and housing patterns.**~~less than 12 households per ha.~~

2. in new Large Lot Residential Zone Overlays, achieve a net density of 1 to 2 households per ha **unless otherwise specified in the Plan subdivision standards.**

GRZ – General Residential Zone

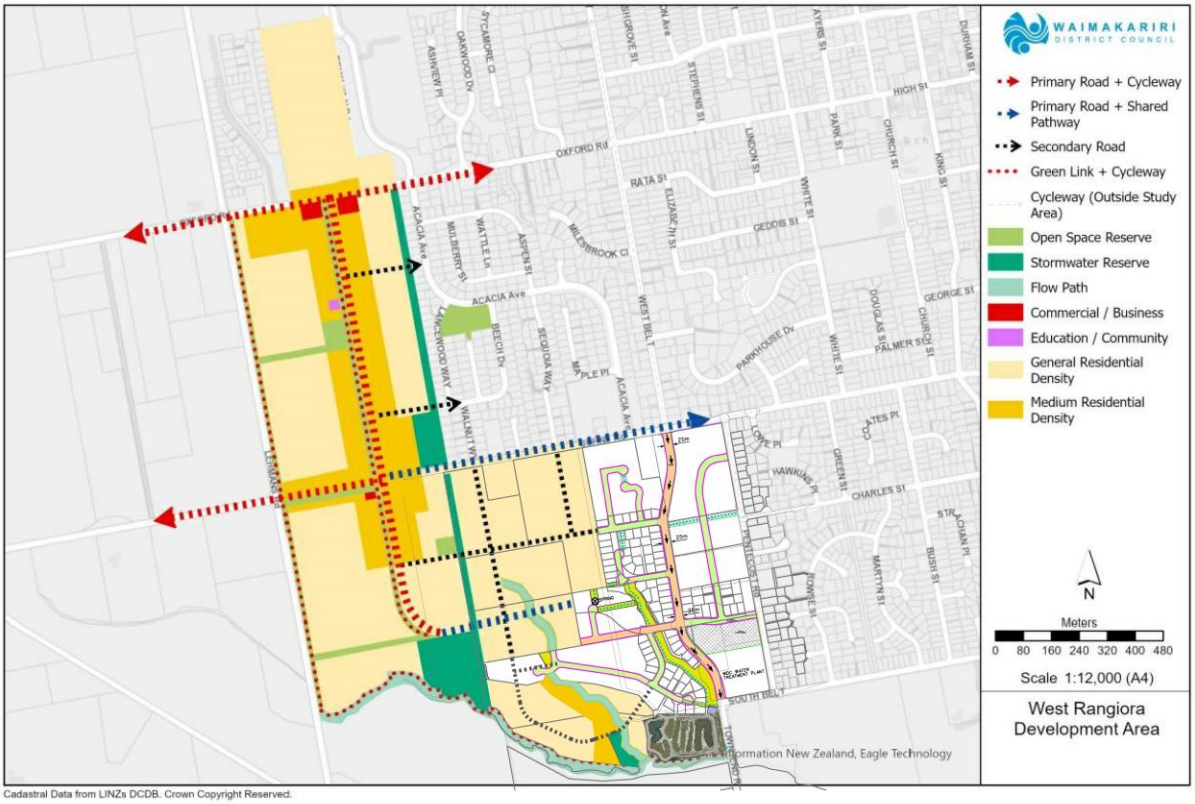
GRZ-P1

Residential character and amenity values

Provide for activities and structures that support and maintain the character and amenity values anticipated for the zone which:

1. provides for suburban character on larger sites primarily with detached residential units;
2. provides for a pleasant residential environment, in particular minimising the adverse effects of night time noise, glare and light spill, and limited signs;
3. provides opportunities for multi-unit residential development on larger sites;
4. has sites generally dominated by landscaped areas, with open spacious streetscapes;
5. ~~through careful design~~ provides a range of higher density living choices to be developed within the zone; and
6. provides for small scale commercial activity that services the local community, and home businesses at a scale consistent with surrounding residential character and amenity values.

Amend the West Rangiora Outline Development Plan (all layers as necessary including Land Use and Open Space and Stormwater Reserve) as below; or amend as below but remove all medium density areas and discuss potentially suitable locations in the ODP narrative, not on the ODP.



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Amend the West Rangiora Outline Development Plan narrative as below

DEV-WR-APP1 - West Rangiora Outline Development Plan

Land Use Plan

The Outline Development Plan for the West Rangiora Development Area provides for a variety of site sizes, **including some medium density residential activity. Appropriate locations will be determined at subdivision design stage. Suitable locations may include overlooking open space/green corridors and reserves; in proximity to reserves, existing or planned future public transport routes and/or local centres. Small clusters are likely to be suitable throughout the ODP area.**, ~~with medium density residential activity located along a key north/south primary road connection and along Johns and Oxford Roads, as these are suitable to have public transport links and associated higher amenity areas. Locating medium density residential activity along these maximises opportunities for alternative transport, including walking and cycling, to local amenity and services. The location of a concentration of medium density residential activity, at a minimum ratio of 70% medium density and a maximum of 30% general density, at either side of this primary road as shown in the Outline Development Plan is therefore fixed.~~ The Medium Density Residential Zone enables a minimum lot size of 200m2 while the General Residential Zone enables a minimum lot size of 500m2. Overall, the West Rangiora Development Area shall achieve a minimum residential density of 15 households per ha, unless there are identified constraints to development, in which

case **an exemption shall apply.** ~~no less than 12 households per ha shall be achieved.~~

A neighbourhood/local centre, shown in the Outline Development Plan as commercial/business, is located at the juncture of the north/south primary road and Oxford Road~~, to which the medium density residential activity in this vicinity connects well.~~ This enables access to local convenience goods and services to a maximised proportion of the Development Area's resident population, which has positive flow-on effects on neighbourhood businesses' sustainability. For these reasons, together with the centre's deliberate location on a strategic road (Oxford Road) and primary road (north/south primary road), this is a fixed component of the Outline Development Plan. An optional second, smaller neighbourhood/local centre is located on Johns Road, to provide local convenience goods and services to the largely southern catchment of the Development Area.

Land near the Southbrook Stream at the south of the Development Area is likely to be affected by Ashley River/Rakahuri flooding in a 1 in 200-year localised flooding and Ashley River/Rakahuri breakout event. **Raised floor levels are likely to be required.** ~~Feasibility of residential development in this area is going to be more challenging as a result.~~

An area to the west of the main north/south primary road is future-proofed for a potential small community facility. A new primary school, Te Matauru Primary School, is completed at Pentecost Road. It could be feasible that preschool(s) are established in the Development Area.

For water, wastewater and stormwater servicing reasons, staging of development from the south to the north is preferable, except where initial development can be serviced through a temporary commitment of existing infrastructure capacity. ~~Development within the West Rangiora Development Area is to be contiguous. The Outline Development Plan does not anticipate physically separated or ad-hoc development.~~

Movement Network

The Outline Development Plan for the West Rangiora Development Area provides access to this growth area through a network of primary and secondary roads that ensure development integration, efficient traffic management and public transport corridors. Only these more significant roads are identified in the movement network plan. The layout of additional tertiary roads to service the residential areas will respond to detailed subdivision design of those areas.**However, the ODP needs to ensure that as far as possible, roading connections are provided for which enable landowners to develop independently of other neighbouring landowners. In some cases, this may require the Council to take land for roading to facilitate roading links.** The specific roading classification of all roads will be ultimately determined at the time of development, to provide flexibility and match the eventual roading classification system made

operative through the District Plan. Primary and secondary roads for the West Rangiora Development Area are located to ensure that all existing parcels of land, when developed, can be served by the roading network.

A key movement network feature for the West Rangiora Development Area is a main north/south primary road parallel to Lehmans Road through the centre of the growth area that intersects with Oxford Road in the north of the Development Area and curves to meet Townsend Road in the southeast of the Development Area. This north/south primary road provides structure, connectivity and a high amenity corridor. A green corridor conducive to walking and cycling adjoins it on one side. **Some** ~~, and~~ medium density residential activity ~~sleeves it~~, **alongside it may be appropriate, but to a limited extent given the potential conflict with on street parking and the through road function, and potential shading issues given the north-south orientation.** ~~which is also located along Johns Road, as these have public transport links and maximise the proportion of residents accessing high amenity and connectivity areas.~~ This primary road will be designed to promote reduced vehicle speeds and increased safety to other street users. Intersection treatment and/or upgrades need to be considered at the main intersections of the north/south primary road and Oxford/Johns Roads to reduce traffic speeds and enhance safety.

East/west movement patterns, largely through a number of secondary roads, provide subdivision structure, are integrated with existing roading connections east of the Development Area, and reflect intentions signalled through current Outline Development Plans for adjacent zoned land in the south-eastern portion of the Development Area to connect to Townsend Road and further to Pentecost Road. Secondary roads generally assume a form which is of a more residential nature and cater less to through vehicle traffic. **Critical road connections are shown on the ODP to facilitate this.** Te Matauru Primary School is located at the juncture of Pentecost Road and Johns Road and the anticipated movement network connects the residential growth area to the school well.

No new east/west roading connections will intersect with Lehmans Road to recognise and reinforce this western urban edge and continue to ensure the safety and legibility of Lehmans Road for bypassing traffic. However the Outline Development Plan identifies two key greenways connecting to Lehmans Road to allow future flexibility in this regard. The exact locations of these are flexible, and subject to detailed subdivision design, however their provision is required including the appropriate widths to enable conversion into a roadway if necessary in the future.

Development of the Brick Kiln area north of Oxford Road is envisaged to function optimally with a road through the centre of the existing property boundaries that then connects to Charles Upham Drive. Brick Kiln Road to the east, and the currently shared accessway to the west, will be formalised into roads.

Cycling infrastructure is provided within a number of key movement corridors. A separated shared cycling path adjoins the main north/south primary road, continues along the edge of the southern stormwater management reserve and connects to a cycling path along the South Brook. A separated shared use path also connects the main north/south primary road to Te Matauru Primary School to provide a safe, active journey. Driveways to new properties immediately adjoining separated shared use paths must be provided from the rear to avoid vehicle/cyclist/pedestrian conflict. A green link along the length of Lehmans Road includes a cycleway, and further on-road cycling infrastructure is shown at key routes along Oxford Road and Johns Road. These connect to the wider cycling network for Rangiora west, outside of the Development Area.

Pedestrian footpaths will be provided on at least one side of each internal road. The movement network plan should be read in conjunction with the green network plan which also provides key informal cycling and walking corridors, such as along green linkages. The principle of walkability is incorporated through the use of a connected roading pattern, additional pedestrian links and the location of open spaces.

Open Space and Stormwater Reserves

The Outline Development Plan for the West Rangiora Development Area indicates two open space reserve locations together with a network of stormwater management areas and green corridors throughout the site.

One open space reserve is located to the west of the key north/south primary road, and adjoins a green link and small community facility. The total size of this asset will be approximately 0.5ha. A second open space reserve is located south of Johns Road, east of the north/south primary road shown for the Development Area. These reserves are located strategically in places that are highly prominent, easily accessed and have the ability to add to the character and identity of the development, as well as being within a 500m radius of all residential households in the West Rangiora Development Area. Flexibility of the exact location of the reserves is possible, as long as they are accessible within a 500m radius of the northern and southern residential areas in the West Rangiora Development Area respectively. To provide functionality, access and visibility, open reserves must be bordered by at least one road and either a second road or public accessway, such as a green link.

A network of green links is shown, some of which provide formal cycling paths as outlined in the movement plan. Green links must be bordered by at least one road frontage to provide appropriate access, visibility, amenity and safety for users (except where they provide short connections or serve to future-proof the option of a roadway). Where green links border both sides of a flow path, one road frontage between both sides is the minimum requirement.

Any required open space reserve should be prioritised in the early stages of a new residential development, and subsequently when further expansion extends beyond the margins of radius and/or resident population guidelines.

Existing Oak trees on the north side of Oxford Road near the Lehmans Road intersection should be retained, including one notable tree listed in the District Plan at 100 Oxford Road. New trees could be planted on the south of Oxford Road to compliment these and strengthen the west Rangiora gateway.

The key north/south primary road through the centre of the West Rangiora Development Area includes a green corridor adjacent to it that is conducive to walking, cycling and recreation. This strip provides high amenity for the neighbouring medium density residential developments. This green corridor allows for additional plantings for street enhancement and a physically separated cycling and walking path from the primary road. Green links also join up to stormwater management reserves and corridors that can have a passive recreational purpose for walking, cycling and playing, such as along the eastern edge of the Development Area. This stormwater corridor, which is anticipated to be approximately 15m wide, is required to avoid runoff in larger rainfall events entering the existing urban area of Rangiora.

A network of stormwater reserves are identified for the West Rangiora Development Area to respond to separate stormwater catchments: immediately north of Johns Road, and at the south and south-eastern points of the Development Area. The southern stormwater reserve east of Lehmans Road is proposed to be constructed in the Ashley River breakout zone, as this land would not be particularly suitable for the construction of residential dwellings. The ground in this area is known to have relatively high groundwater and therefore it is assumed this would need to be a wet basin. The south-eastern stormwater reserve west of**f** Townsend Road, already constructed for the Townsend Fields development, are all wet basins which have allowances for conveyance of spring water. **An additional stormwater management area nearby will accommodate stormwater flows arising from development of adjoining land to the west.** The optimal location for a stormwater reserve to cater for the catchment of development north of Oxford Road, west of Brick Kiln Road in a comprehensive manner is at the south-eastern point within this area of land. However, fragmented property ownership within the Development Area north of Oxford Road and consequently, a possibly site by site development pattern may dictate alternative stormwater management solutions, such as the use of on-site smaller (temporary or otherwise) stormwater reserves, soak pits, swales and/or raingardens. Therefore, stormwater management must be investigated and considered by individual landowners in reference to neighbouring development opportunities and servicing implications in order to achieve, as much as possible, an integrated solution.

Streams, springs and waterways are protected and included in the stormwater reserves where relevant, particularly in the south where they are present. Both southern flow paths are protected and green links

provided at either side. Appropriate waterbody setbacks apply where required by the Natural Character of Freshwater Bodies Chapter of the District Plan.

Waterbodies must be protected intact, or improved, as part of any development and any potential adverse impacts on the local and receiving waterbody ecology must be mitigated. Where possible, amenity planting will be encouraged, together with enhancement of habitat heterogeneity and in-stream conditions to improve stream health, facilitate migrations and promote recruitment. It is possible that some springs could feed directly into whanau mahinga kai areas and engagement with mana whenua is important.

Stormwater reserves provide attractive open space and visual relief in a built up residential environment, and the location of the Johns Road stormwater reserve in particular provides opportunities for the adjacent medium density residential areas to look out onto it and benefit from its amenity. Stormwater will be managed by an appropriately designed stormwater treatment system with high amenity values. All of West Rangiora Development Area's stormwater catchment discharges to ground or to the South Brook. All stormwater ponds are subject to design detailing. The Outline Development Plan for the West Rangiora Development Area provides an indicative size and location based on likely catchments around the key infrastructure.

Water and Wastewater Network

The provision of reticulated water supply assumes a skeleton network for the West Rangiora Development Area, where only water pipes 100mm in diameter and greater are specified. The exact location of the reticulation may change when road layouts are confirmed, noting that some identified road locations as specified under 'Movement Network' are fixed and others are flexible.

Reticulation upgrades proposed for Rangiora are both within Development Areas (East, North East and West) and within the existing network. Due to their location, all of the existing network upgrades can be attributed to the Development Areas. Source and headworks upgrades are not Development Area specific, rather they apply to the whole scheme.

A number of water network upgrades are required to service West Rangiora Development Area's four catchments. Reticulation requirements include upgrades to the existing network and extra over upgrades to development reticulation. These upgrades are required to maintain the existing levels of service to current and future customers. New mains along key roads are required to upgrade the Southwest Rangiora Supply Main, Johns Road West Supply Main, Lehmans Road Ring Main and Ayers Street Supply Main.

Development in the West Rangiora, North East and East Development Areas also contribute to the requirement to upgrade a number of wider Rangiora sources and headworks, such as additional wells and

associated pipework at Rangiora Source, new Surface Pumps and Generator at Ayers Street Headworks, new reservoirs at Ayers Street and South Belt, and a new Surface Pump at South Belt Headworks.

Existing water reticulation extends to the edge of the West Rangiora Development Area, making it straight-forward to connect to the scheme. High groundwater levels in the very southern portions of the Development Area may lead to some elevated costs.

Gravity wastewater infrastructure will service the West Rangiora Development Area and only the key trunk infrastructure is shown. Trunk mains run through the centre of the catchments to eventually connect to the Townsend Fields trunk main (and the Rangiora Central Sewer Upgrades). Ideally, the network would be constructed from south to north, so that there is infrastructure for subsequent catchments to connect into. Temporary solutions would need to be discussed if development was to occur in the north first.

Fixed Outline Development Plan Features for the West Rangiora Development Area:

~~Location of a concentration of medium density residential activity (meaning a minimum ratio of 70% medium density residential zone density and a maximum 30% general residential zone density) immediately adjoining the new north/south road~~

Location of the local/neighbourhood centre at the juncture of Oxford Road and the north/south road

Green link with cycleway adjoining the north/south road

Location of stormwater corridor at eastern edge of the West Rangiora Development Area

Separated shared pedestrian/cycleway at Johns Road and southern part of new north/south road

Cycleways at Oxford Road, the new north/south road, Johns Road, Lehmans Road and southern flow path

Integrated road connections with 77A Acacia Avenue, Beech Drive, Walnut Way and Sequoia Way

Flow paths and adjoining green links and cycleways, including any required water body setbacks

Delete all PWDP provisions relating to the proposed certification process and apply the appropriate residential and other zones, in particular for the land the subject of this submission (as shown on the relevant Outline Development Plans) and the means to bring land to the market through an RMA process. The land within the PWDP Development Areas is required to be rezoned in the Proposed Waimakariri District Plan to meet the requirements of the National Policy Statement – Urban Development.

Reasons for the Submission

Summary

5. The reasons for our submission are outlined below. In summary:

a) The preferred relief (**the proposed rezoning**) is both appropriate and necessary to achieve sustainable growth and development of Rangiora and meet the requirements of the National Policy Statement for Urban Development 2020 (**NPS-UD**).

b) The Site is an ideal, logical and preferred location for further urban growth of Rangiora. It has been identified in the PWDP as part of the West Rangiora Development Area **(DEV-WR)** but is zoned LRZ (Lifestyle Rural Zone).

c) It will achieve a compact, and efficient, urban form with excellent connectivity by multiple transport modes. It provides for continuous urban development up to the South Brook which acts as a strong zone boundary with its associated esplanade reserve.

d) The proposed rezoning will accommodate approximately 100 GRZ and MDR lots, which represents the equivalent of 1.3% of the current housing stock at Rangiora; along with other land in the West Rangiora Development Area, it will supply significant additional capacity and contribute to a well-functioning urban environment, meeting the NPS-UD Objective 6(c) criteria.

e) At present rates of land uptake there is about 4 years vacant land supply in Rangiora. Given it takes 3-5 years to bring land from zoned state to on the market as developed lots, there is urgency in providing additional capacity. This proposal helps address an anticipated shortfall in residential zoned plan enabled land in the face of high demand. Lack of supply has already resulted in escalating land and house prices, which will intensify if further land is not rezoned urgently. This is already happening, as confirmed in advice from Ray White (**Appendix 7**). Section sale prices at the adjoining Townsend Fields subdivision have approximately doubled in the last 12 months.

f) Any adverse effects on the environment arising from the proposed rezoning will be minimal, if any, and can be adequately mitigated. A high amenity master planned development is proposed.

g) Significant positive effects arise from the proposed rezoning. It will enable the short term housing demand at Rangiora to be met, and can deliver affordable medium density housing which is currently undersupplied.

h) There is no additional cost to the Council in re-zoning the Site as there is capacity in the public utilities and the existing road network, including planned upgrades.

i) The proposed rezoning is consistent with the PWDP objectives and policies, except those relating to Strategic Directions Urban Form and Development and Urban Growth which are already out of step with higher order Resource Management Act

1991 (RMA) statutory documents because they do not give effect to the NPS-UD (and are sought to be amended through this submission).

j) The alternatives of retaining General Rural or Large Lot Residential zones across the entire Site and relying on the proposed certification process to deliver additional housing is not an efficient use of land which immediately adjoins the urban area of Rangiora, and is highly accessible to the town centre by active transport modes as well as car.

k) The proposed rezoning is consistent with and the most appropriate, efficient and effective means of achieving the purpose of the RMA.

The Site

1. The Site is a 8.4 ha block of land ('the Site') held in two titles. **(Figure 1).** It is owned by the submitters J and C Broughton and contains an existing dwelling and garage within an established garden setting.

Figure 1: The site (outlined in red) (Canterbury Maps)

2. The original access to the dwelling was directly off Townsend Road (which we understand was via an easement). This was replaced with access off Angus Place. That form of access will not be sufficient for an urban development. It is via a Right of Way with a legal width of 7m and formed width of 5.5m as shown on the approved subdivision plan below (RC 195359). A residential collector road requires a minimum 20m legal width, and a local residential road a minimum 16m legal width.

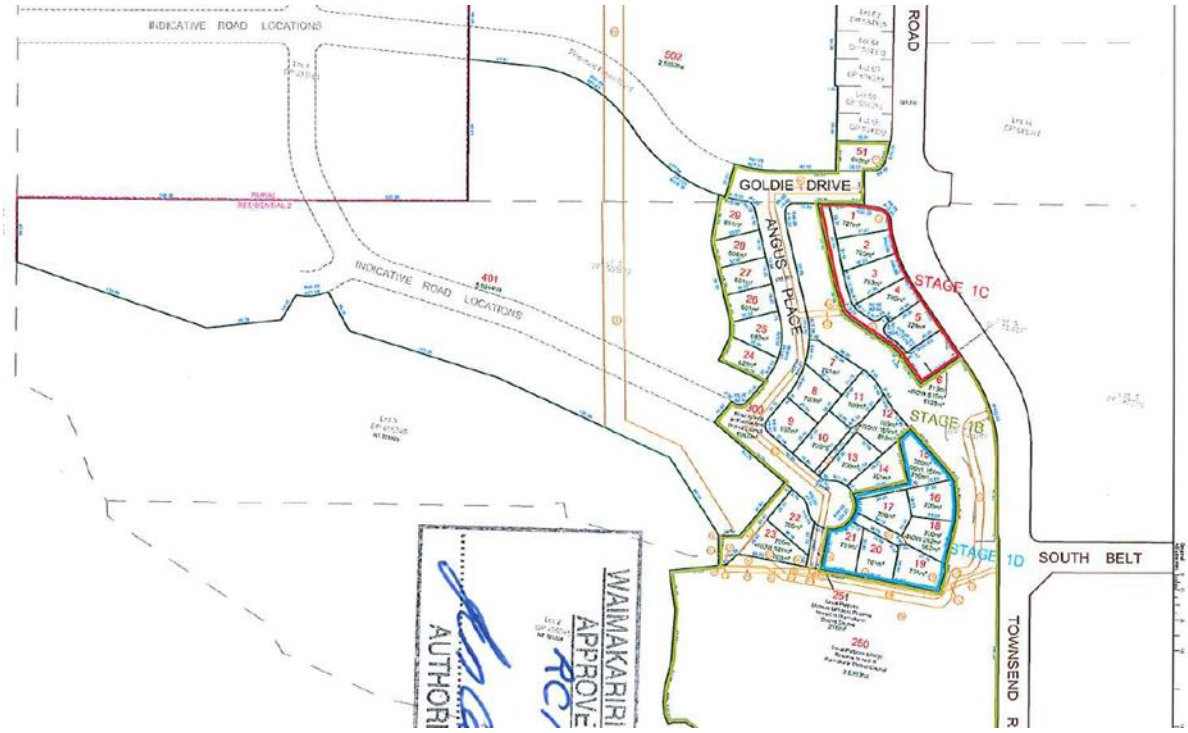

Figure 2: approved subdivision consent, Townsends Field Stages 1C

3. The Site has GRZ residential land to the north and east. Directly south and west are rural lifestyle blocks zoned RLZ extending to Fernside and Lehmans Roads. The Site boundaries are clearly defined on two sides by the South Brook and its esplanade reserve zoned NOSZ (Natural open space Zone), and the major stormwater detention ponds zoned OSZ (Open Space Zone) at the corner of Townsend Road and South Belt **(Figure 1).**
4. Land to the north is the Townsend Fields development. This is partially developed (**Figure 3)**.

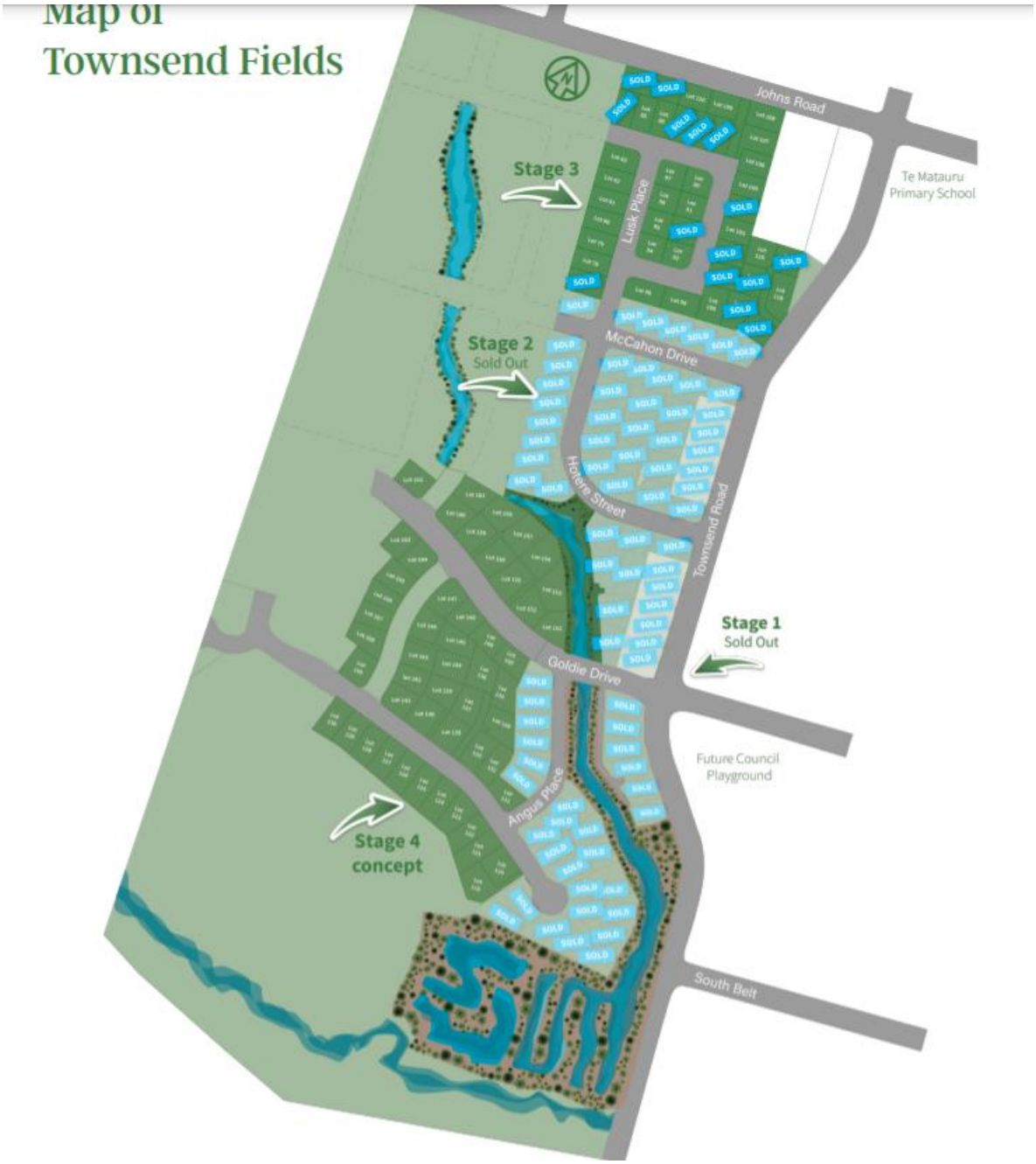

Figure 3: Townsend Fields (sourcehttp://townsendfields.co.nz/wp-content/uploads/Section-sizes-and-prices-27.pdf)

5. Stages 1-3 are consented but not Stage 4 which is conceptual only (see email advice from the Council, **Appendix 1).**
6. The Site is identified as part of the West Rangiora Development Area in the PWDP. This gives effect in part to one of the growth options for Rangiora shown in the Waimakariri District Development Strategy (WDDS) **(Figure 4).**

Figure 4: Figure 11 WDDS

7. The Site sits at the southern edge of Rangiora. Rangiora had a population of 17,841 (2018 Census). It grew steadily between 2006 and 2018. Growth of Rangiora since then has continued in step with the district growth which has increased 8.2% between 2018 and 2021 from 61,300 to 66,300 at an annual average of 2.8% from 2018 to 2020 (Statistics NZ Subnational population projections at 30 June 2021: provisional).

2006 (count)	2013 (count)	2018 (count)
12,165	15,069	17,841

Statistics NZ

Population projections at 30 June

					Average annual change, June 2018–2020 P		Population change, year ended 30 June 2021 P		
					Number	%	Number		%
Waimakariri district	2018	2019	2020P	2021P					
	61,300	62,800	64,800	66,300	1,700	2.8		1,500	2.2

Statistics NZ population projections.

PLANNING STATUS OF THE SITE

Chapter 6 of the Canterbury Regional Policy Statement ('C6'):

8. The Site is a Greenfield Priority Area (GPA) – Residential on Map A of the Canterbury Regional Policy Statement (CRPS). The GPA extends westward to the western boundary of the Site, and then runs in a straight line northwards to Johns Road.
9. As a result of the Minister for the Environment's decision of 28 May 2021 on Change 1 to Chapter 6, an area adjoining to the west of the Site, between Oxford Road and Fernside Road was included as a Future Development Area (**FDA**) (**Figure 5** orange).

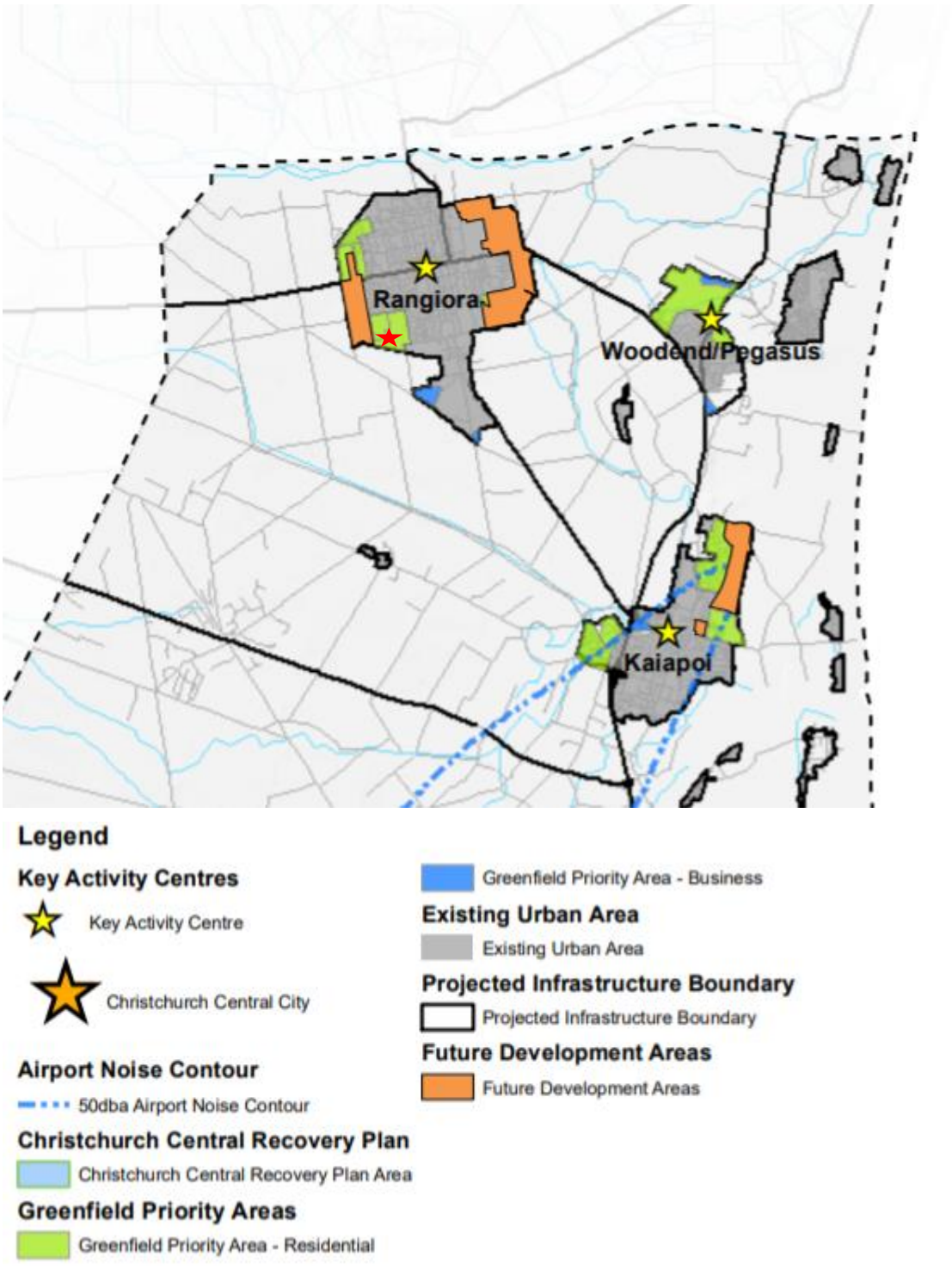

Figure 5: Map A Chapter 6 Regional Policy Statement Greenfield Priority areas

Site location identified with red star (appx)

10. The FDAs are intended to accommodate the increased demand for new dwellings in that part of Waimakariri District within the Greater Christchurch Urban Area and to respond to the NPS-UD. They do not provide “plan enabled” land as they need to negotiate a re-zoning process to confirm their status as land developable for housing and other urban purposes.

Operative Waimakariri District Plan

11. The Site is zoned Rural in the Operative Plan. The minimum lot size for subdivision and a dwelling is 4 ha.
12. The Site was also shown as having a Land Use Recovery Plan (LURP) Priority Area overlay with a Res: Not Zoned notation.
13. The Site is within the SW Rangiora Outline Development Plan area, and is shown as a High Flood Hazard Area (**Figure 6).** However, more recent Council flood assessments have reclassified it as partly medium and partly low flood hazard risk.

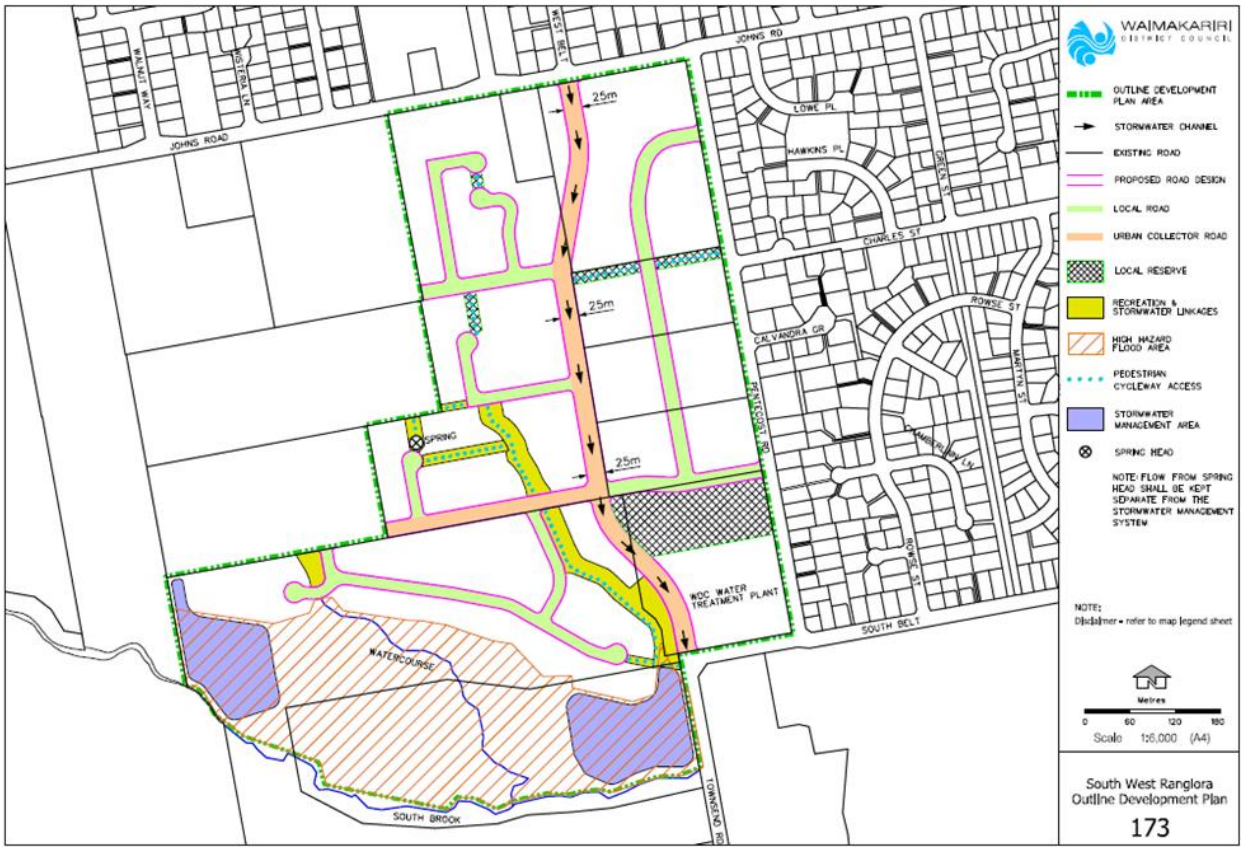

Figure 6: SW Rangiora Outline Development Plan (site outlined in red appx)

14. There are two proposed stormwater management areas shown as within the Site on the SW Rangiora ODP. The eastern basin has been completed (but needs to be extended to

make provision for stormwater from proposed urban development of the Site); and the western basin has been removed onto adjoining land to the west in the PWDP West Rangiora ODP.

15. The SW Rangiora ODP roading layout does not make any provision for roading access to the Site, other than possibly across a water course at the northwest end. This needs to be rectified on the PWDP West Rangiora ODP, to provide for at least two roading links into the Site from land to the north, and ideally from land to the west.

Proposed Waimakariri District Plan

16. The Site is zoned Rural Lifestyle Zone **(LRZ) (Figure 7).** The minimum lot size for subdivision and a dwelling in the LRZ is 4 ha.

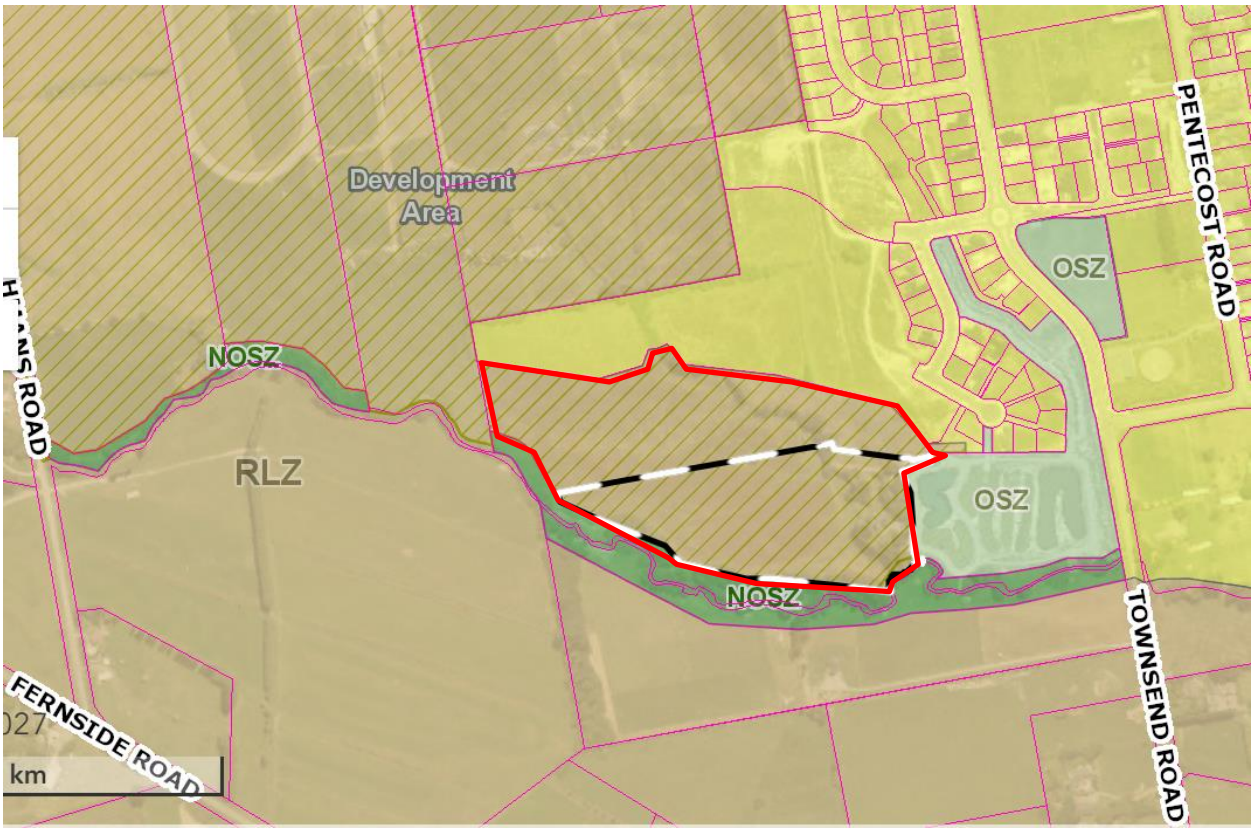

Figure 7: Proposed District Plan Zoning (site outlined in red)

17. The Site is also subject to a number of Overlays:
    a) West Rangiora Development Area (**Figure 8**)
    b) Geographic areas: Ecological Area – Plains

c) Ecological District – Low Plains

d) Nga Wai – ID SASM 024 (Sites of Significance to Maori)

18. The FDAs have been identified at various locations around Rangiora and Kaiapoi. They have been located to satisfy the urban form identified in the Future Development Strategy (**FDS**). The FDS has yet to be prepared (PWDP UFD-P2).

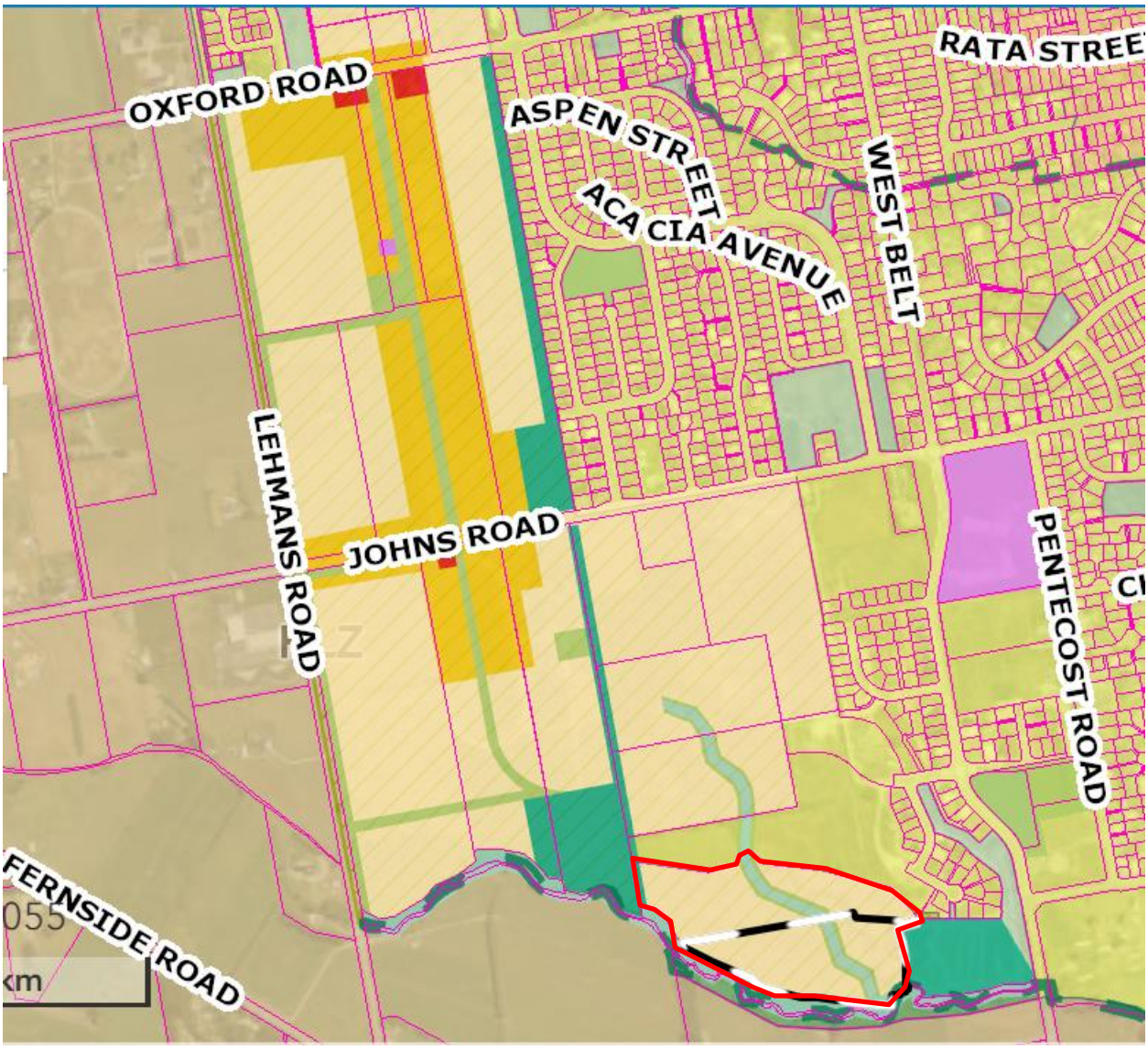

Figure 8: West Rangiora Development Area

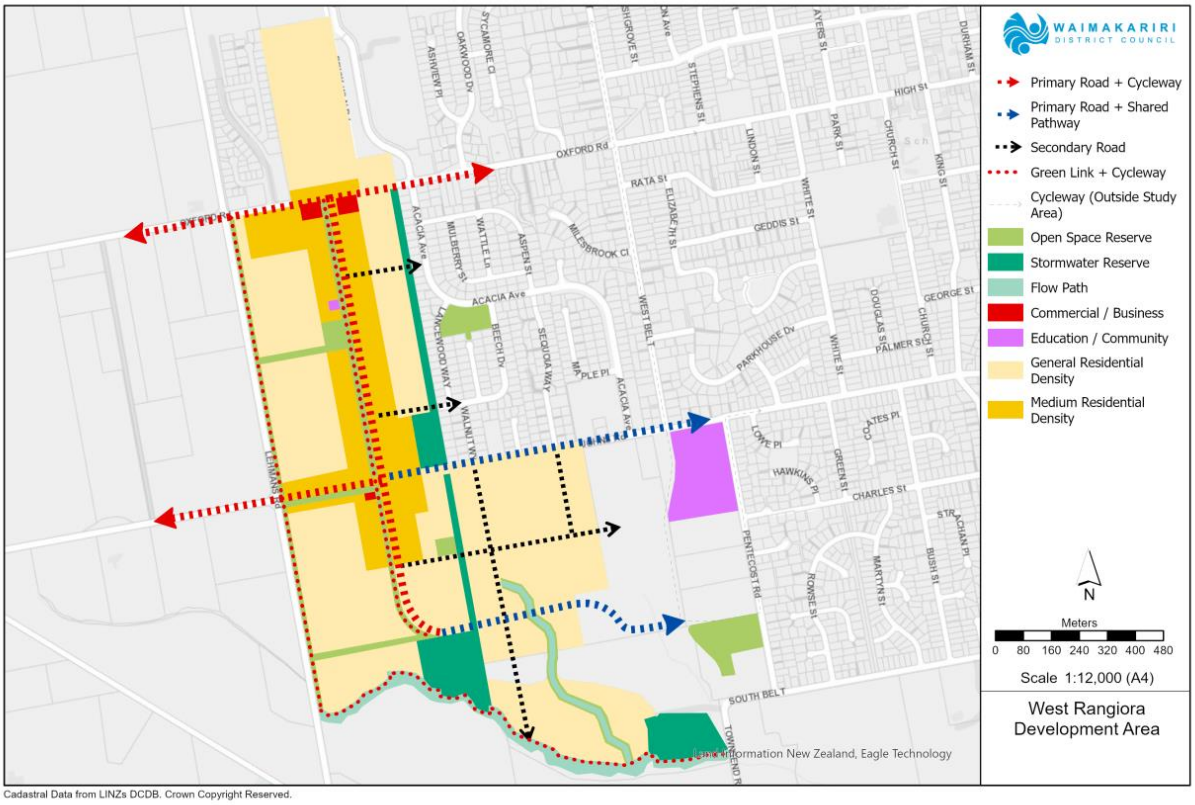

Figure 9: West Rangiora Structure Plan – Overall as notified

19. The West Rangiora Structure Plan (WRSP) shows the existing Townsend Fields stormwater management area adjoining the Site to the west; an appx north-south flow path through the Site linking to South Brook. The flow paths are described as "*protected and green links provided at either side".*
20. There is a north-south secondary road in the western portion. This links and passes through later stages of the Townsend Fields development, linking to Johns Road and Walnut Avenue at the northern end.
21. In effect, the proposed roading connections mean that Site development is entirely dependent on the timing of development by Townsend Fields. It is 'landlocked' in the meantime.
22. Amendments to the WR Structure Plan are necessary to address this.
23. There is no provision for medium density development within the Site in the WR ODP.

DEVELOPMENT PROPOSAL AND PROPOSED REZONING

24. The development will need to be consistent with the proposed West Rangiora Outline Development (subject to changes requested in this submission, and any changes resulting from the Enabling Housing Supply Act).
25. Subdivision of the Site will create approximately 100 GRZ and MDR lots.
26. The Submitter seeks amendments to the ODP consistent with delivery of the key design drivers for the development. These are:
    - Providing a continuous urban area between land being developed to the north of the Site and the South Brook esplanade reserve by developing what is now an isolated block of Rural land.
    - Ensuring the Site is easily and safely accessible to the community including by walking and cycling, and including a walkway along the northern side of South Brook (it is understood that land has already been taken by the Council for this purpose).
    - Creating strong connections with the immediate neighbourhood by providing a cohesive interconnected roading layout that picks up direct links to the neighbourhood off Townsend Road and the northern subdivision roading, and carries them into the Site; and providing suitable roading connections which enables development to proceed independently of other neighbouring developments including Townsend Fields
    - Creating a high amenity and diverse residential neighbourhood by providing interfaces to roads, reserves and rural environments.
    - Respecting and building on local identity and character of Rangiora by retaining specific vegetation features from the Site, respecting the esplanade reserve and anchoring the development into the wider landscape.
    - Enabling a range of housing typologies including medium density housing, co-located with green space where feasible. An ideal location shown on the amended ODP is on the southern side of the proposed green flow path. This will provide an attractive north facing outlook onto this green open space area; and suitable access on the southern side. This is akin to the design solution for parts of Silverstream, as illustrated on the masterplan below (see B4 + B5 north facing, B10 and B11 west facing and B1 and B2 east facing).


FUTURE STAGES
KAIAPOI CEMETERY
KAIAPOI
THE STERLING RETIREMENT VILLAGE
B1
B2
B4
B5
B6
B7
B8
B9
B10
B11
1
2a
2b
3a
3b
3c
4a
4b
5
6
7
8
9
LEGEND
Pre School
Retail Village
Area B - Medium Density
Area C - Small Density
Sterling - Building Type 1
Sterling - Building Type 2
Sterling - Building Type 3
Villas
Day Basin - Stormwater Management
Road
Pedestrian / Cycle Path
Fitness Trail Station

Figure 10: Silverstream Masterplan and aerial illustrating location of medium density housing overlooking open waterway corridors.

EFFECTS ON THE ENVIRONMENT

Township growth and urban form

27. The Site was recognised in the Operative district Plan as a LURP Priority Area overlay with a Res: Not Zoned notation.
28. The WDDS indicated a general preference for the direction of urban growth of Rangiora. The WDDS set itself the task of:
    - Confirming a plan for land for new houses within broad residential growth directions for Rangiora, Kaiapoi, Woodend/Pegasus and Oxford (see Figures 11-14 of the WDSS); and
    - Undertaking further work to determine the specific growth areas through the NPS-UDC and the District Plan Review.
29. The WDDS stated

For Rangiora, residential growth is anticipated to occur to the east and to some extent the west. In addition to the identified constraints, focusing the majority of Rangiora growth to the east better positions Rangiora town centre in the middle of an overall settlement pattern, and provides close proximity for new residential land to existing and proposed community facilities in the east. If in the future further residential areas are required, the area south of South Belt and east of Townsend Road should be considered, while recognising that this area may be better suited to business activities (p 19)

30. The approach of the WDDS was to signal growth options to be confirmed in the District Plan Review:

The broad directions for greenfield residential growth for the District's main towns are set out in Figures 11 to 14. Further work will be carried out to identify and confirm the exact locations and extent of these residential growth areas, together with the intensification opportunities within existing urban areas. These will be enabled through the District Plan Review and other planning tools.

31. The Strategic Planning documents clearly signal a change in land use for the Site. It confirms the logic of extending the Rangiora urban area out to a strong landscape feature (the South Brook) which can act as a strong defensible zone boundary. The WDSS included growth to the SW of Rangiora (Figure 2) which includes this Site.
32. Planned growth is intended to step westwards out to Lehmans Road and to keep the town edge squared up providing depth to future development and providing a rational basis for providing movement networks driven off the key roads such as Townsend and Rangiora-Oxford Roads. The West Rangiora Future Development Area confirms this approach.
33. The Site provides an area of urban in-fill between South Brook and the developing urban land to the north and will provide for urban integration and connectivity to the recreational greenspace of the esplanade reserve.
34. A full residential zoning such as GRZ will provide a better street character, overall amenity and passive surveillance over the street, and will create the correct lighting standards, roading standard, fully formed footpaths and cycleways required for a high quality uran environment.

Neighbourhood and wider community effects

35. The Site is well contained by Townsend Road, the esplanade reserve and the immediately adjoining residentially developing land to the north of the Site. A key positive neighbourhood and community effect will arise from the position of the Site immediately

adjacent to the existing esplanade reserve. Homes within that part of the Site will be attractive for the significant amenity and quality of environment that that affords, in addition to the visual and amenity benefits of the adjoining significant stormwater management area at the corner of Townsend Road and South Belt.

36. The Site has the potential to support a variety of residential building typologies and this will contribute to a mix of households within the development and provide built form variety and interest in the streetscape. To achieve the proposed minimum residential density of 15 households per ha it is likely that some medium density housing will be required, as provided for under the General Residential rules.

37. Rangiora is well-positioned to accommodate and service the needs of a fast-growing resident population that will in turn support more business activity, schools, community facilities and community organisations.

Effects on tangata whenua values

22. The Proposed District Plan does identify SASM – 024 as a resource or site of significance to tangata whenua **(Figure 11).**

23. That relates to the South Brook which is enveloped within its esplanade reserve. The SASM – 024 does not relate to the small tributary that traverses the Site.

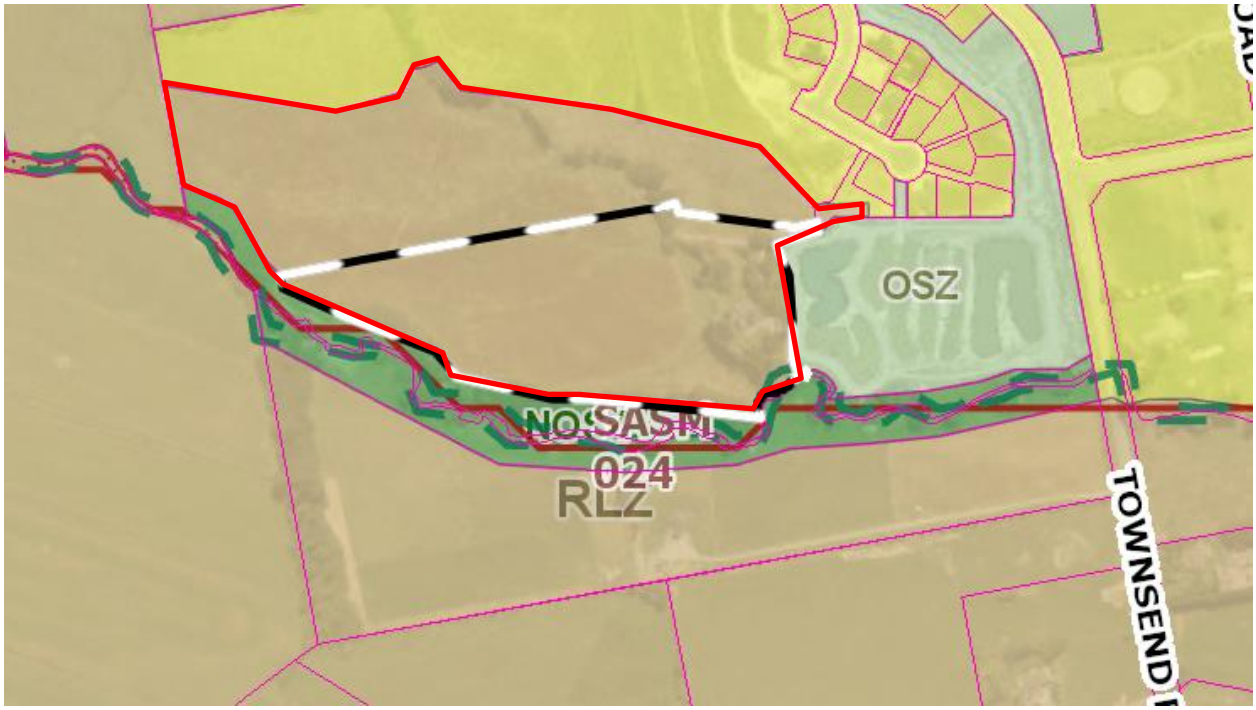

Figure 11: SASM 024. Site outlined in red

24. SASM-P5 sets out policy direction for management of activities in relation to Nga Wai.

25. SASM-P8 is also relevant:

Engagement with rūnanga

Te Ngāi Tūāhuriri Rūnanga and the District Council to encourage engagement with the Rūnanga priorto persons undertaking activities and/or applying for resource consent where the activity has thepotential to adversely affect identified sites or areas of Ngāi Tūāhuriri cultural significance. Where priorengagement with Te Ngāi Tūāhuriri Rūnanga has not been undertaken by an applicant for an activitythat has the potential to adversely affect an identified site, the District Council will consult with the Rūnanga.

26. The Site is not listed as an archaeological site on the NZ Archaeological Site database.

Landscape and visual effects

27. The ODP will help to achieve an integrated, cohesive and coherent development The proposal will lead to a change in the landscape of the Site from a predominantly lifestyle block landscape to an urban environment dominated by residential building that will, in time, get the benefit of street tree and reserve plantings and landscape treatments around the houses and esplanade reserve.
28. The visual effects which will arise from a change in the number of vegetative and built elements in the landscape are significant, but not avoidable, if the Site is to contribute to the on-going growth of Rangiora. The change will contribute to a different amenity and quality of environment, still of a high quality, and one that will be entirely consistent with and supportive of the urban and rural residential/large lot residential development that has proceeded to the north and east of the Site respectively already.
29. The landscape, amenity and visual changes have been foreshadowed in the PWDP Future Development Overlay for the Site and the Site's status as being within a preferred growth direction in the WDSS. The Strategy provides guidance and policy direction on how best to manage future residential development within the Waimakariri district.

Well-functioning urban environments

30. The Site adjoins the existing built up urban area of Rangiora. Immediately to the north and east are existing or developing residential areas.
31. The conversion of the Site from present rural and rural lifestyle uses to residential will continue a pattern of outward expansion of Rangiora. Such a change will be consistent with the PWDP's identification of a Future Development Overlay for the Site.
32. Rangiora is growing apace. It is attracting significant interest from new home buyers as people respond to the significant investment in upgraded transport links (Northern Corridor

and public transport) and a growing economic base for employment within the District and the City.

33. Rangiora has excellent connectivity to the City, both via the new Northern Corridor, and a nascent cycleway link into the City. There is a very regular bus service every half hour.(the No 1 Blue Line) The standard trip takes 70 minutes, and the twice daily weekday morning express service from Rangiora, and seven times weekday express out to Rangiora all via Kaiapoi..
34. It is important in planning terms to view Rangiora as part of Greater Christchurch, rather than assume it must satisfy all relevant planning outcomes within itself. It is part of, and contributes to, a bigger economic and social network part of which has been in place a very long time. It would be fanciful and inefficient for there to be an expectation that Rangiora should replicate services, jobs, facilities and amenities that are close by within Christchurch City. Our Space states that *"encouraging more of the growth to occur in Christchurch City, where the employment opportunities are, will be vital to manage the effects of growth and reduce transport network pressures."*
35. The Site will help provide a squaring off of the western and southern edge of Rangiora, and provide a good interface connection to the esplanade reserve.
36. The Site is convenient to Dudley Park, Southbrook Park, and Matawai Park enabling easy walking and cycling access. It is about 2km from the Southbrook commercial area, and 2.7km form the town centre.
37. The following assessment of the criteria in the NPS-UD for determining a well-functioning urban environment shows that the proposed rezoning will deliver urban, housing and residential outcomes that meet those criteria. There will be a variety of homes enabled by lot types that cater for standard and medium density lots. The Site is well-positioned, building as it does on an existing township well-serviced by public transport and cycling options, to provide good accessibility to jobs, community services, and open spaces, as well as mitigating climate change impacts and future natural hazards by being not near the coast and well removed from major rivers.

NPS-UD Policy 1	**Assessment**
(a) have or enable a variety of homes that: (i) meet the needs, in terms of type, price, and location, of different households; and (ii) enable Māori to express their cultural traditions and norms;	The proposal is to have medium density and standard housing typologies. The site has the potential to create a unique urban environment in Rangiora. It backs on to a significant stormwater management area, and an additional stormwater management will be required within the

	Site. It has an esplanade reserve providing access to and along the south Brook and an open overflow corridor, to which future housing can respond in a design sense.. These provide options to locate medium density housing on parts of its margins.
(b) N/A business sectors	
(c) have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport; and	The Site has access to Townsends Road and is close to arterial roads providing easy access to key community amenities and facilities. The town is served by a public bus route to the city, and a cycle trail connecting to Kaiapoi and the City. The site is in walking distance to Dudley Park and Southbrook Park. It about 2.7km from the town centre and closer to Southbrook commercial area making it easily accessible.
(d) support, and limit as much as possible adverse impacts on, the competitive operation of land and development markets; and	The demand for housing and land in Rangiora is largely ahead of the planning means to respond. This proposal will "top up" the land presently set aside in the PWDP and provide a necessary 100 lot buffer to demand. The Site is held in one ownership and the owners have been keen to release this land for development for some time; there is no prospect of land banking. They are working closely with a housing company who will be delivering house and land packages to the market as soon as the zoning is confirmed.
(e) support reductions in greenhouse gas emissions; and	The Site has significant advantages in being easily accessible to the town centre and reserves, community facilities and schools. The proposal enables a consolidated form to Rangiora with enhanced connectivity and linkages to recreation space and commercial centres reducing the need for car travel.
(f) are resilient to the likely current and future effects of climate change	The Site is an inland site away from major rivers. It is not at risk from climate change induced extreme natural hazard events like sea level rise. Any risks associated with flooding of South Brook can be managed, as outlined in the Reeftide Stormwater and Flood Management Report (**Appendix 2).**

Effects on ecosystems and habitats

38. The Site is currently used for some limited grazing and residential lifestyle purposes. The existing dwelling is set within an attractive landscaped setting with views to Mount Oxford.
39. The Site has been identified in the PWDP with two ecological overlays (the PWDP ecological overlay –Plains and Low Plains Ecological District). They are a district-wide overlays and no specific ecological values have been identified in the Proposed Waimakariri District Plan. These overlays seek primarily to retain indigenous vegetation.
40. The PWDP identifies SASM 024 over the Site. That is a Site and Area of Significance to Maori and in SASM - Schedule 1 is identified as Cam/Ruataniwha (incl. tributaries) with the description *being River and tributaries (ngā awa me ngā manga) with Mahinga Kai environs, habitats and taonga species.*
41. There is a minor waterway that traverses the Site that may need investigation to establish the cultural, waterway and habitat values that it may have. The Southbrook is identified as SASM – 024; it is protected by the esplanade reserve and does not form part of the Site.

Effects on natural and physical resources

42. The soils underlying the Site are Temuka soils comprising deep silt over clay (Canterbury Maps) and classified as LUC 3. The Site drains in a SE direction towards the Stormwater Management Area and the South Brook.
43. There will be a degree of site disturbance as part of creating the roading network, and reserves, and as part of curtilage development on each lot.
44. The proposed use for residential activity inevitably leads to loss of some rural productive potential as built forms and hard surfaces become dominant.
45. Conversion of the Site to residential use is an effect foreshadowed by the PWDP Development Area Overlay and the WRSP.
46. The Site contains Class 3 soils as defined in the NZ Land Use Inventory (Landcare Research) Land Use Capability classes 1-3. Productive use of these soils other than for low level purposes i.e. grazing, is not feasible given the small size of the individual titles, existing land ownership pattern and urban edge location (with potential for reverse sensitivity effects arising with more intensive production).

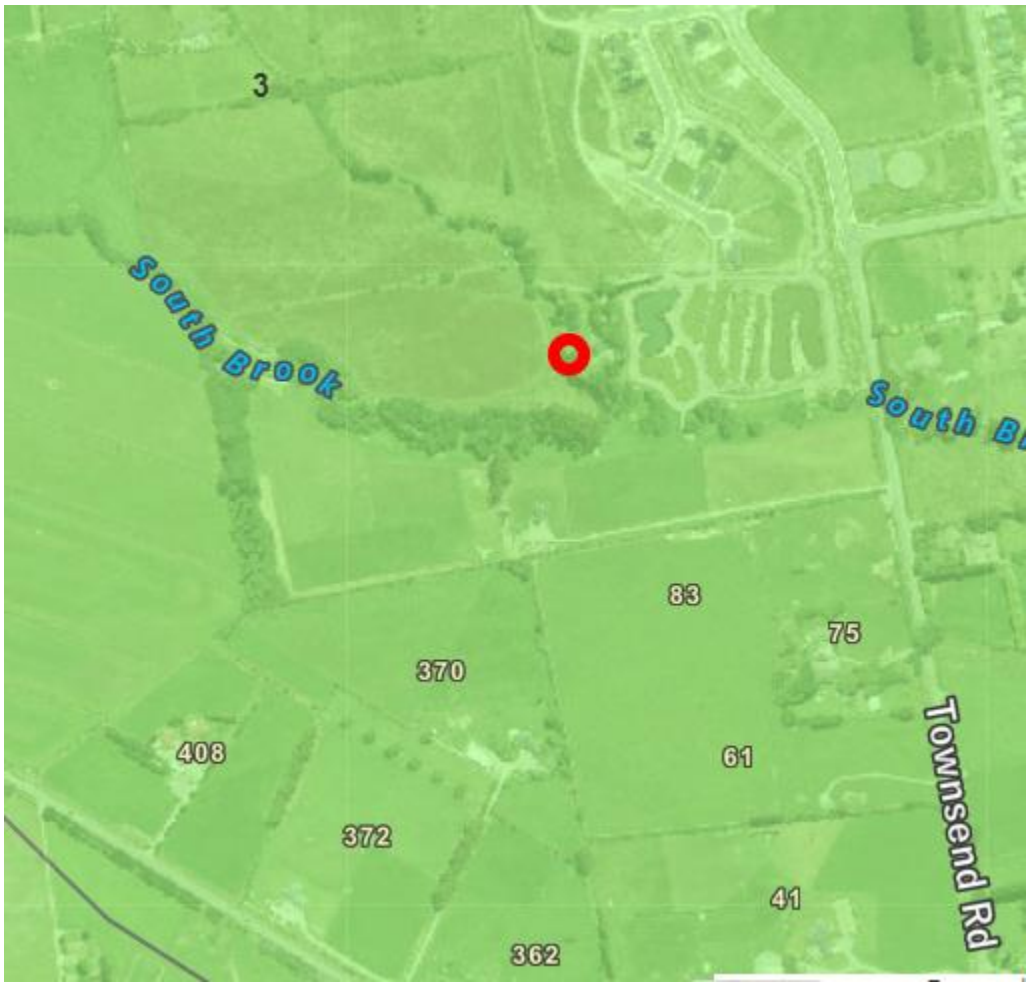

Figure 12: Site soils: Class 3 soils – light green;

Discharges of contaminants into the environment

47. There will be no discharges of contaminants into the environment. Wastewater will discharge to the Council's reticulated system and stormwater discharges to an approved and consented stormwater management and treatment area which will meet all relevant Council standards.

Risks from natural hazards or hazardous installations

48. The PWDP planning maps show the Site as being within a Non-Urban Flood Assessment Area.

49. The District Plan maps do not identify high flood hazard areas or high coastal flood hazard areas, rather these are identified through the flood assessment certificate process. This enables the most up-to-date technical information to be used. However, as a guide,

areas that are potentially high hazard can be identified through the Waimakariri District Natural Hazards Interactive Viewer (NH - Introduction).

50. Most of the Site is within a medium flood hazard area.

Figure 13: Flooding status – Site outlined in red: blue – medium hazard, green – low hazard

51. Rules that refer to a Flood Assessment Certificate require a certificate to be obtained from the District Council to determine compliance with the relevant rule. The alternative is to apply for resource consent as set out in the rule.

52. Rule NH-R2 states

> if located within the Non-Urban Flood Assessment Overlay, the building:
>
> a. is not located on a site within a high flood hazard area as stated in a Flood Assessment Certificate issued in accordance with NH-S1; and
> b. has a finished floor level equal to or higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH-S1; and
> c. is not located within an overland flow path as stated in a Flood Assessment Certificate issued in accordance with NH-S1;

53. Assessment of stormwater management and flood risk has been undertaken by Reeftide (**Appendix 2**).

54. Stormwater from the developed site will be treated and attenuated within the proposed Stormwater Management Area (SMA area) shown on the amended ODP (above). This will be located in the southeast portion of the Site. First flush treatment will be carried out in a wet pond (first flush basin) sized to treat the first 25 mm of any rainfall.

Treatment will be carried out via a wetland before being discharged to South Brook Stream. The wetland will also serve as a detention facility. The stormwater detention will ensure stormwater neutrality is achieved so that the post development flows are less than or equal to the predevelopment flows.

55. The WDC hazard maps show that the Site is subject to flood levels ranging from low, medium and high risk. The areas of high flood risk are small with most of the flooding in the low to medium range. The effects of flooding can be mitigated in a number of ways to ensure compliance with the district and regional requirements. For example, the earthworks will be carried out to raise the existing ground levels above potential flood levels and provide flow paths for overland stormwater flows.
56. Part of the Site would be susceptible to flooding in the event of a breakout of the Ashley River, up to depths of 0.5 – 0.75m. This risk can be mitigated by constructing an earth bund along the southwestern boundary of the SMA and of the Site (especially 117 Townsend Road) to protect future residential lots.
57. The Reeftide report concludes that the Site can be rezoned for residential development. Any site constraints are able to be mitigated to ensure compliance with the various District and Regional Council statutory requirements.
58. There will be no hazardous installations proposed on the Site.

Geotechnical assessment

59. The PWDP planning maps show the Site as being "Liquefaction damage is unlikely. Standard investigation procedure outlined in NZS3604 is appropriate".

Contaminated land

60. A PSI in 2012 was undertaken for the then proposed Ravenscar Park subdivision, including this Site by Coffey Environments (**Appendix 3).** This confirms that the Site has only been used for general pasture and arable land, and that the site investigation has not revealed contamination issues that should prevent subdivision and subsequent development of the Site.

Servicing

61. Reeftide Environmental and Projects has carried out a stormwater and flood assessment for the proposed development on the Site **(Appendix 2).**

62. The purpose of the assessment was to develop a stormwater and flood management master plan to support the proposed ODP for the Site. An additional SMA is proposed in the south east corner, as shown on the amended WR ODP.
63. The Site adjoins the existing Townsend Fields subdivision and can be economically serviced by extension of services from that development. It is within the Greenfield Priority Area and so infrastructure has been planned to service the Site since the CRPS was notified, in 2007.

Economic effects

64. The proposed urban development enabled by rezoning will generate economic activity through land development and construction, and support professional and have positive economic effects.

Climate Change effects

65. An assessment of the effects of the proposed rezoning on climate change is included as part of the assessment of a well-functioning urban environment above.
66. A well-functioning urban area that is designed and serviced in an integrated manner, applying sound urban design principles, will enable a reduction in greenhouse gas emissions compared to unplanned, ad hoc development that does not create compact urban forms located where the services and benefits of existing, established urban areas are not readily accessible.
67. There is a triangle of planning influence that can be brought to bear on reducing greenhouse gas emissions
    a) Compact urban form minimising distances between homes and work/play options
    b) Proximity of homes to community facilities, services and amenities and business/work areas
    c) Design and provision of movement corridors and linkages that create opportunities other than for vehicles for getting around
68. The Site of the proposed rezoning:
    a) Helps in building a compact urban form to Rangiora; it squares up the township.
    b) Is located about 2.7km km from the town centre and is located convenient to the two major community reserves (Southbrook and Dudley Parks).
    c) The Site provides access to the esplanande reserve which as open space is able to be used for recreation in addition to the passive use of the Stormwater Management Area.

69. Rangiora has excellent connectivity to the City, both via the Northern Motorway, the new Northern Corridor, a cycle way link to Kaiapoi which is linked to the new north city cycle way along the Northern Corridor and a very regular bus service.

Positive effects

70. The proposed rezoning will provide for the continued growth of Rangiora by managing the development an ODP. The proposal will provide a buffer to on-going high level demand for lots in Rangiora. The proposed rezoning is anticipating a form of development that is a much more efficient use of a qualifying site supporting a well-functioning urban area. It is a positive endorsement of Rangiora as a growth node in the District.
71. The benefits derived from a planned ODP approach include facilitating high levels of connectivity, creating community links to the esplanade reserve and the multi-use Stormwater Management areas. The Site is close to three parks (Matawai, Southbrook and Dudley). The strategic allocation of medium density areas provides variety and focus to the development and the adjoining Stormwater Management Areas and esplanade reserve will provide a distinctive environmental quality and point of difference to the development.
72. The Site adjoins existing and developing residential development on the western edge of Rangiora and supports the notified Development Area in the PWDP.
73. From a community well-being perspective, the provision of additional land for residential growth will continue to support the Council's investment in community infrastructure by maintaining and facilitating growth rates, increasing the rating base and attracting development contributions.

SERVICING FOR PROPOSAL & EFFECTS ARISING FROM SERVICING

74. Proposals for servicing the Site as GRZ and the effects from such servicing in relation to domestic water supply, wastewater, stormwater, roading, and telecommunications can be provided as evidence for any hearing.

STATUTORY PLANNING ASSESSMENT

75. Submissions must be assessed under the provisions of the RMA, including Part 2 and Section 32 (Requirements for Preparing Evaluation Reports).

National Policy Statements

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

76. The NPS–UD applies to this proposal as it is directed at Tier 1 urban environments, and Tier 1 local authorities which includes Waimakariri District as part of the Christchurch urban environment that is defined in Table 1 of the NPS, and additionally defined as:

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

77. The NPS-UD recognises the national significance of:

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

78. The NPS outcomes are to be achieved through objectives that address:

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

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

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

80. However, there has been work on development capacity completed for the NPS - UDC 2016 by the Greater Christchurch Partnership. This took the form of an Update of the existing Urban Development Strategy (UDS) – Our Space (2019). This work . It identified targets for sufficient feasible development capacity which were subsequently inserted into the CRPS (Policy 6.2.1a) and have been carried over into PWDP UFD-01. However, these are out of date and do not address the requirements of the NPS-UD. Also, consistent with national policy, the targets (bottomlines under the NPS-UD) need to treated as minimum housing supply requirements, not maximums.

81. Key policies in the NPS-UD are assessed here:

NPS-UD Policy	Assessment
Policy 1 – Planning decisions for well-functioning urban environments	Assessed at para 37.
Policy 2 - Sufficient development capacity Tier 1, 2, and 3 local authorities, at all times, provide at least sufficient development capacity to meet expected demand for housing and for business land over the short term, medium term, and long term.	The proposed rezoning is anticipated to provide for approximately 100 lots/houses. This will mean sections will be available for the short term (up to 3 years) and into the medium term (3-10 years) if adopting a more conservative outlook. The locational and amenity advantages of Rangiora also favour strong ongoing demand. UFD-O1 Feasible Development Capacity for residential activities identifies the need for 6300 residential units in the period 2018-2028, and 7100 residential units 2028-2048. These numbers are derived from Chapter 6 CRPS Table 6.1 which in turn are derived from Our Space which is out of date and was prepared under the previous NPS-Urban Development Capacity 2016 replaced by the NPS-Urban Development 2020. The latest Housing Development Capacity Assessment (HDCA) was publicly released in July 2021 by the Greater Christchurch Partnership. They project a Medium Term (at 2031) shortfall in capacity for Waimakariri of 3137 if the remaining unzoned Greenfield Priority Area (the Site) and recently Gazetted Future Development Areas are excluded.
Policy 8 – Responsiveness to plan changes Local authority decisions affecting urban environments are responsive to plan	The Site will add significant additional capacity given the very limited remaining existing land supply at Rangiora. It is a Priority Greenfield Area in the CRPS and within the WR ODP area. It is adjoining the existing urban area so is logically an 'in-sequence' development. However, regardless, it meets the Policy

changes that would add significantly to development capacity and contribute to well-functioning urban environments, even if the development capacity is: (a) unanticipated by RMA planning documents; or (b) out-of-sequence with planned land release	8 criteria for proposals that will add significant development capacity.

82. The the re-zone proposal at Townsend Road achieves the NPS-UD objectives and policy outcomes. The absence of operative criteria in the CRPS for determining what constitutes "adding significantly to development capacity" is not a bar to considering this submission on its merits. The Council can and must apply Policy 8 as from the date the NPS-UD came into effect on the basis that the purpose of Policy 8 is to facilitate rezoning to meet known housing needs.
83. The mandatory requirement of the NPS-UD is that every tier 1 local authority must provide at least sufficient development capacity to meet expected demand for housing. Development capacity for the medium term must be plan enabled; infrastructure ready; and feasible and reasonably expected to be developed . Medium term means that at all times, there must be a least 10 years supply available.
84. For the medium term, 'plan enabled' land must be zoned for housing in a proposed district plan.
85. For the medium term, 'infrastructure ready' means there is either adequate existing development infrastructure to support the development of the land; or funding for adequate infrastructure to support development is identified in a long term plan.
86. The PWDP certification approach does not satisfy the above mandatory requirements.
87. Adopting the submission to re-zone the land, and enable the proposed development, at Townsend Road will satisfy the objectives and mandatory requirements of the NPS-UD.

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

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

a) Recognise the full range of values and benefits associated with its use for primary production

b) Maintain its availability for primary production for future generations

c) Protect it from inappropriate subdivision, use, and development.

89. The NPS-HPL is still a proposal and not intended to take effect until after Gazettal. At the date of this submission the NPS-HPL has no effect and no assessment of it is required for the purposes of this submission.

90. The Proposed NPS-HPL interim definition of HPL is land defined as Land Use Capability Class 1-3 soils. The Site comprises Class 3 soils. Highly productive use of these soils is not realistic given the small size of the individual titles and urban edge location (with potential for reverse sensitivity effects arising with more intensive production). Its present use as a lifestyle block is the only realistic use if not rezoned.

91. Importantly Objective 3 of the Proposed NPS-HPL specifically refers to highly productive soils being protected by avoiding *"uncoordinated urban expansion on highly productive land that has not been subject to a strategic planning process".* The Site has been identified through a strategic planning process (WDDS 2018) as a preferred site for residential development, and is identified with an Development Area Overlay in the PWDP.

92. It is therefore considered that this submission to re-zone the Site is in accordance with the Proposed NPS-HPL.

National Planning Standards

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

94. The proposed rezoning adopts the standard zone appellation, in this case General Residential and Medium Density Residential as contained in the PWDP.

95. The PWDP identifies plan standards for minimum and average net site areas for the respective zones. These are adopted for the proposed rezoning.

Canterbury Regional Policy Statement 2013 (CRPS)

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

remainder of the RPS also apply.[1]"

97. Change 1 to the CRPS identified Future Development Areas at west and east Rangiora, and north east Kaiapoi; and a policy framework to enable their development for urban purposes to meet medium term housing supply needs, in accordance with housing capacity targets including in the CRPS.

The Site is next to but not within a FDA as it is already **a Greenfield Priority Area but not yet zoned.**

98. The location of Greenfield Priority land at West Rangiora is shown below.

Figure 14: CRPS Greenfield Priority Area land, not yet zoned

100. The CRPS anticipates that land within the Greenfield Priority Areas will rezoned. This is evident from the fact that this is a 'priority area'. The key relevant CRPS policy is (underlining added).

6.2.1 Recovery framework

Recovery, rebuilding and development are enabled within Greater Christchurch through a land use and infrastructure framework that:

[1] RPS Introduction

1. identifies priority areas for urban development within Greater Christchurch;
2. identifies Key Activity Centres which provide a focus for high quality, and, where appropriate, mixed-use development that incorporates the principles of good urban design;
3. avoids urban development outside of existing urban areas or greenfield priority areas for development, unless expressly provided for in the CRPS
4. protects outstanding natural features and landscapes including those within the Port Hills from inappropriate subdivision, use and development;
5. protects and enhances indigenous biodiversity and public space;
6. maintains or improves the quantity and quality of water in groundwater aquifers and surface waterbodies, and quality of ambient air;
7. maintains the character and amenity of rural areas and settlements;
8. protects people from unacceptable risk from natural hazards and the effects of sea-level rise;
9. integrates strategic and other infrastructure and services with land use development;
10. achieves development that does not adversely affect the efficient operation, use, development, appropriate upgrade, and future planning of strategic infrastructure and freight hubs;
11. optimises use of existing infrastructure; and
12. N/A

6.2.2 Urban form and settlement pattern

The urban form and settlement pattern in Greater Christchurch is managed to provide sufficient land for rebuilding and recovery needs and set a foundation for future growth, with an urban form that achieves consolidation and intensification of urban areas, and avoids unplanned expansion of urban areas, by:

1. aiming to achieve the following targets for intensification as a proportion of overall growth through the period of recovery:
   a. 35% averaged over the period between 2013 and 2016
   b. 45% averaged over the period between 2016 to 2021
   c. 55% averaged over the period between 2022 and 2028;
2. providing higher density living environments including mixed use developments and a greater range of housing types, particularly in and around the Central City, in and around Key Activity Centres, and larger neighbourhood centres, and in greenfield priority areas, Future Development Areas and brownfield sites;
3. reinforcing the role of the Christchurch central business district within the Greater Christchurch area as identified in the Christchurch Central Recovery Plan;
4. providing for the development of greenfield priority areas, and of land within Future Development Areas where the circumstances set out in Policy 6.3.12 are met, on the periphery of Christchurch's urban area, and surrounding towns at a rate and in locations that meet anticipated demand and enables the efficient provision and use of network infrastructure;
5. encouraging sustainable and self-sufficient growth of the towns of Rangiora, Kaiapoi, Woodend, Lincoln, Rolleston and Prebbleton and consolidation of the existing settlement of West Melton;…

Proposed Waimakariri District Plan

99. An assessment of this proposal against the relevant PWDP Objectives and Policies for urban growth and development as notified on 17 September 2021 is set out in **Appendix 4.**

100. That assessment shows that the proposed rezoning is entirely consistent with the relevant objectives and policies noting that UFD-P2 anticipates the content of a FDS which is yet to be prepared:

In relation to the identification/location of residential development areas:

1. residential development in the new Residential Development Areas at Kaiapoi, North East Rangiora, South East Rangiora and West Rangiora is located to implement the urban form identified in the Future Development Strategy;

101. The proposed rezoning is contingent on UFD-P6:

UFD-P6 Mechanism to release Residential Development Areas

The release of land within the identified new development areas of Kaiapoi, North East Rangiora and South East Rangiora occurs in an efficient and timely manner ~~via a certification process~~ to enable residential activity to meet short to medium-term feasible development capacity and achievement of housing bottom lines.

(as sought to be amended by this submission)

102. The proposal will address UFD-P10:

UFD-P10 Managing reverse sensitivity effects from new development

Within Residential Zones and new development areas in Rangiora and Kaiapoi:

1. avoid residential activity that has the potential to limit the efficient and effective operation and upgrade of critical infrastructure, strategic infrastructure, and regionally significant infrastructure, including avoiding noise sensitive activities within the Christchurch Airport Noise Contour, unless within an existing Residential Zone;
2. minimise reverse sensitivity effects on primary production from activities within new development areas through setbacks and screening, without compromising the efficient delivery of new development areas.

103. The PWDP has provisions relating to new development areas that give effect to the Strategic Directions chapter for urban growth and development. It sets out this approach in this way:

Future development areas will be required in order to respond to population growth. In response to this issue, the Strategic Directions and Urban Form and Development Chapters sets out objectives and policies for when and where urban expansion should take place and the mechanism to be used to provide for future urban development.

Four areas for development for Rangiora and Kaiapoi have been identified. Provisions are included which provide for their transition from an underlying Rural Lifestyle Zone to development in accordance with DEV-WR-APP1 if and when they are required due to a demonstrated sufficiency shortage of land available in existing residential zones. West Rangiora has been identified as a Development Area.

Urban development within a Development Area is managed through a certification process, where land is released for development by the District Council's Chief Executive Officer or their delegate, once identified criteria are met. The future urban development provisions for a Development Area is identified through the Development Area name on the Outline Development Plan. Once development of these areas has been completed, the District Council will remove the Development Area layer and rezone the area to the appropriate zones.(WR-West Rangiora Development Area – Introduction)

104. The certification approach to enabling urban growth and development is new and unproven within New Zealand (other than on a much more limited basis in the Dunedin City Plan). It is a hybrid process and one that stands outside the conventional RMA approach to re-zoning land through plan changes or plan reviews under s74 RMA.
105. Consequently the certification process needs a sound statutory and process framework if it is to be lawful and feasible. It is assumed that the Council took legal advice on this approach but that advice is not part of the s32 record.
106. The certification process does give rise to statutory and process issues which form part of this submission and are identified in the decisions requested part of this submission. These can be expanded on more fully in evidence to any hearing as necessary, but in short the issues identified relate to:
    a) The statutory authority for the certification process given it is not a process provided for under the RMA;
    b) The statutory basis of the Chief Executive's determination (it is not clear if it is or can be a decision under the RMA or the LGA 2002);
    c) Issues of fairness and natural justice when it seems the process does not:
        - provide for a standard application and information requirements which the applicant can be required to supplement as in s92 requests;
        - require a written decision with reasons from the Chief Executive;
        - anticipate the preparation and exchange with an applicant an evaluation/assessment/recommendation report upon which the Chief executive will rely in making his/her decision;
    d) The certification criteria do not provide a clear standard for certification, and enable the exercise of an discretion by the Chief Executive
    e) The lack of an objection or appeal process to the certification decision;
    f) A lack of clarity around the process post-certification that provides for the change in zoning. The RMA only provides a pathway under s74 but the inference in the PWDP

is that a change in zone will be a mechanical process step rather than a conventional publicly notified process. Part of that requires a clear direction to whether the process is a Council-initiated change, or a private plan change.

g) Some parts of the certification process duplication the RMA subdivision consenting requirements and processes.

This submission seeks amendments to the certification process to address these and other potential issues as less preferred relief. The primary relief is that the Council re-zone the land GRZ and MDR.

ASSESSMENT AGAINST OTHER PLANNING DOCUMENTS

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

107. Our Space is a non-statutory document prepared under the Local Government Act.
108. The Our Space housing capacity targets (Table 3) are reproduced above.
109. Our Space, like the CRPS (and the Operative District Plan) are now out of date, as they do not reflect or give effect to the new requirements of the NPS-UD.

Waimakariri 2048 District Development Strategy (WDDS)

110. The Waimakariri District Development Strategy (WDDS) indicated a general preference for the direction of urban growth of Rangiora. The WDDS set itself the task of:
    - Confirming a plan for land for new houses within broad residential growth directions for Rangiora, Kaiapoi, Woodend/Pegasus and Oxford (see Figures 11-14 of the WDSS); and
    - Undertaking further work to determine the specific growth areas through the NPS-UDC and the District Plan Review.
111. The approach of the WDDS was to signal growth options to be confirmed in the District Plan Review:
112. The broad directions for greenfield residential growth for the District's main towns are set out in Figures 11 to 14. Further work will be carried out to identify and confirm the exact locations and extent of these residential growth areas, together with the intensification opportunities within existing urban areas. These will be enabled through the District Plan Review and other planning tools.
113. The Strategic Planning documents clearly signal a change in land use for the Site. included growth to the west of Rangiora as far as Lehmans Road which includes this Site.
114. Planned growth is intended to extend westwards out to Lehmans Road and to keep the

town edge squared up providing depth to future development and providing a rational basis for providing movement networks driven off the key roads such as Townsend and Rangiora-Oxford Roads. The West Rangiora Future Development Area and WRODP confirms this approach. The Site is in a key strategic position to facilitate this. It is next to the existing Townfields subdivision in a township edge location.

Mahaanui Iwi Management Plan

115. Part 1 of the PWDP in a section "Mana Whenua" sets out the position with respect to iwi and the review of the district Plan:

    a) *The District's territorial area sits within the takiwā (territory) of Ngāi Tūāhuriri which is one of eighteen Ngāi Tahu regional papatipu rūnanga, constituted under the Te Rūnanga o Ngāi Tahu Act 1996 to represent mana whenua interests.*
    b) *The preparation and change of a district plan must take into account relevant iwi documents. For the District, Ngāi Tahu has set out its resource management values, issues, objectives and policies within the Mahaanui Iwi Management Plan (2013).*
    c) *The Mahaanui Iwi Management Plan identifies objectives, issues and policies for natural resource and environmental management for six pāpatipu rūnanga (including Te Ngāi Tūāhuriri Rūnanga). It seeks to ensure that the taonga and resources of Ngāi Tahu mana whenua are recognised and protected in the decision-making of statutory agencies. The Mahaanui Iwi Management Plan contains a comprehensive suite of policies and objectives addressing the range of resource management matters of significance to tangata whenua. The District Council shall have regard to the Mahaanui Iwi Management Plan when preparing or changing the District Plan, to the extent its content has a bearing on resource management issues of the District.*

116. The Mahaanui Iwi Management Plan (MIMP) 2013 was released on 1 March 2013.
117. The MIMP is a tool for tangata whenua to express their identity as manawhenua and their objectives as kaitiaki, to protect their taonga and resources, and their relationships with these. The MIMP seeks to ensure that these taonga and resources are recognised and protected in the decision-making of agencies with statutory responsibilities to tangata whenua. Importantly it is also a tool that assists Papatipu Rūnanga representatives to articulate their values, issues and policy into statutory processes.
118. The MIMP includes both general objectives and policies about the management of land, air, and water, and also includes catchment specific objectives and policies.

119. Section 5.3 Wai Maori (pp77-98) contains an extensive discussion about tangata whenua rights and interests in freshwater. It provides a suite of Issues, Objectives and Policies for freshwater
120. Section 5.4 Papatuanuku (pp101-124) sets out the Ngai Tahu Subdivision and Development Guidelines that are to be read along-side objectives relating to:
    a) *Land use planning and management in the takiwā reflects the principle of Ki Uta Ki Tai. (from the mountains to the sea)*
    b) *Rural and urban land use occurs in a manner that is consistent with land capability, the assimilative capacity of catchments and the limits and availability of water resources.*
    c) *Inappropriate land use practices that have a significant and unacceptable effect on water quality and quantity are discontinued.*
    d) *Ngāi Tahu has a prominent and influential role in urban planning and development.*
    e) *Subdivision and development activities implement low impact, innovative and sustainable solutions to water, stormwater, waste and energy issues.*
121. Section 5.5 Tane (pp127-137) includes objectives that focus on:
    a) *Regional policy, planning and decision making in the takiwā reflects the particular interest of Ngāi Tahu in indigenous biodiversity protection, and the importance of mahinga kai to Ngāi Tahu culture and traditions.*
    b) *The customary right of Ngāi Tahu to engage in mahinga kai activity is recognised, protected and enhanced…*
    c) *Customary use, and therefore mahinga kai, is given effect to as a first order priority for freshwater management in the takiwā.*
122. Section 6.4 (pp213-224) addresses issues of particular significance to the lands and waters of the Waimakariri catchment within which the site lies.
123. Relevant Objectives relating to urban development of land in that catchment include:
    a) The natural “energy, vitality and life” of the Waimakariri River as a braided river is protected and restored.
    b) The discharge of contaminants to the Waimakariri and its tributaries is eliminated.
    c) Water quality and flows in the Waimakariri and its tributaries are improved to enable whānau and the wider community to have places they can go to swim and fish.
    d) The mauri and mahinga kai values of the Waimakariri and its tributaries and associated springs, wetlands and lagoons are protected and restored; mō tātou, ā, mō kā uri ā muri ake nei.

124. A key issue relating to subdivision and development is that *subdivision and development activities in the lower catchment have the potential to adversely affect Ngāi Tahu values such as waterways, mahinga kai and sites of significance (*Issue Wai4).
125. The proposal provides for full urban reticulation of the three waters and is consistent with the objectives and policies contained in Chapters 5.3 and 5.4 of the MIMP. The proposal does not preclude individual land owners from installing rainwater collection and use from roof areas at the time of building development.
126. The proposal has been designed taking into consideration the potential effect of resultant subdivision and development on the rivers and streams that flow into the lowland rivers.
127. Adjoining the Site is SASM 024 taking in the South Brook. That river is protected to a significant extent by its full width 20m esplanade reserve on both banks.
128. Overall it is considered that the proposal will not have adverse impact on the cultural values of iwi as set out within the MIMP.

SECTION 32 ASSESSMENT

129. A Section 32 assessment is contained in **Appendix 5.**
130. In summary, the PWDP zoning and associated rules (RLZ Zone with a minimum lot size for subdivision and a dwelling 4ha) do not reflect the present use and development on the Site nor its context sitting between new developing residential areas and the South Brook..
131. The PWDP provides an ODP and a Development Area Overlay for the Site. That signals the suitability of the Site for residential development. That planned outcome is entirely consistent with earlier strategic Council planning documents (specifically the WDDS).
132. Neither LRZ is not an efficient use of this block of land located as it is immediately adjoining the urban area of Rangiora, and in a location easily accessible to the town centre by active transport modes as well as car and several district reserves.
133. The PWDP proposes to rely on a costly, uncertain, discretionary and unappealable certification process to deliver land for housing. Certification does not result in residential zoning. The Site retains the LRZ zoning until all of the WR ODP/Development Area is certified.
134. The Section 32 assessment concludes that the proposal to re-zone the Site from LRZone to GRZ and MRZ is the most appropriate method for achieving the objectives of the proposal, rather than the other alternatives considered. Rezoning is mandatory to give effect to the higher order documents, namely the NPS-UD and CRPS. It is the most appropriate (indeed only) option given:

a) The proposals adopt the PWDP zones, development and activity standards. This ensures continuity of the District Plan anticipated environmental outcomes and urban amenity for Rangiora and adjoining residential areas;
b) Will be consistent with and give effect to the relevant PWDP objectives and policies;
c) It is a logical extension to the developed and developing residential land adjoining the Site while achieving a compact, efficient urban form that removes pressure on isolated rural land elsewhere around Rangiora..
d) Any additional cost to the Council in re-zoning the Site land in this proposal has been assumed to have been a factor in the Council assigning FDA status for the Site in the PWDP and as it is subject to an approved SW Rangiora ODP. That suggests there will be capacity in the public utilities and the existing road network, including planned upgrades, to accommodate the traffic effects of about 100 households;
e) The proposal will bridge the existing urban area to the South Brook esplanade reserve; and
f) The proposed Site specific ODP provides certainty of the final form and disposition of the re-zoned area including its proposals for reserves, roading, future linkages for pedestrian and vehicular traffic.

135. The inclusion of the GRZ and MRZ in the re-zoning proposal is considered to be appropriate to achieve the sustainable growth and development of Rangiora.
136. The economic, social and environmental benefits of the proposed rezoning outweigh any potential costs.
137. The overall efficiency and effectiveness of the proposed rezoning (Option 2) is high, in comparison to the alternative option set out in the s 32 Assessment which is low.
138. The proposed rezoning is considered to be the most appropriate, efficient and effective means of achieving the purpose of the RMA.

CONSULTATION

139. The landowners and their consultants held a pre-submission meeting with Council staff on 16 September 2020 (meeting minutes attached in **Appendix 6**).
140. Key feedback was that Council staff were preparing new overall structure plans for West Rangiora within the CRPS infrastructure boundary and that new flood maps were imminent confirming that the Site would no longer be shown as high hazard.

141. The landowners confirmed an intention to seek GRZ in the reviewed district plan and raised issues around the proper provision of access to the 8ha.

CONCLUSION

172 The submission seeks to rezone 8.4 ha of land adjoining Rangiora from Lifestyle Rural Zone (LRZ) to General Residential (GRZ).

142. The Site has a long history of rural lifestyle use and is not significantly restricted by potential natural hazards, it adjoins a site of significance to iwi (SASM – 024), there is a small tributary crossing the Site. The Site has access to new adjoining subdivision roading, immediately adjoins the urban area of Rangiora, and is well located to join in to Council utility services. It is well suited for conversion to residential use.

143. The Site is identified within the westward growth direction for Rangiora in the District Development Strategy 2018. It is in a location that achieves compact town growth offering ease of access to business services, community facilities, reserves and the primary road network.

144. The proposed rezoning provides for a connected and high amenity residential living environment while avoiding and/or mitigating any potential adverse effects on the environment. It will provide for continuing high demand for a variety of residential sections in an ideal location, easily accessible to the existing town centre services and facilities. It will broaden the range of housing available.

145. The use of this Site for residential purposes has been demonstrated through this submission to be a sustainable and efficient use of land and infrastructure. The proposed rezoning better provides for the social, economic, environmental well-being of the Rangiora community than continuation of the current low intensity lifestyle land use, or any form of large lot/low density residential use.

146. The potential adverse effects of the implementation of the proposed rezoning have been described in this submission. Capacity will need to be confirmed for infrastructure, power and road network. Any future subdivision of the Site will need to confirm water supply and wastewater treatment and disposal options.

147. Rezoning of the site to General Residential and Medium Density Residential zone is consistent with the policies and objectives of the PWDP and the CRPS – it is within a Greenfield Priority Area and the West Rangiora FDA in the PWDP.

148. The proposed rezoning helps achieve the purpose of the RMA, and is mandatory to give effect to the relevant provisions of the NPS-UD and CRPS – the Council has no option but to rezone the Site in the PWDP.

……

(Signature of applicant or person authorized to sign on behalf of the submitter)

Date: November 26, 2021

Appendices:

Appendix 1: Council advice re Townsend Subdivision Consents

Appendix 2: Reeftide Stormwater and Flood Assessment)

Appendix 3: Coffey Preliminary Site Investigation (2012

Appendix 4: Assessment of Proposed District Plan Objectives and Policies

Appendix 5: Section 32 Assessment

Appendix 6: Record of meeting with Waimakariri Council staff

Appendix 7: Real estate advice

Appendix 1: Council Correspondence – Townsend Fields

From: Duty Planner <duty.planner@wmk.govt.nz>
Sent: Thursday, 4 November 2021 8:23 am
To: Will Salmond <will.salmond@ppgroup.co.nz>
Subject: RE: Townsend

Hi Will,

Thank you for your email.

I believe this may be a future subdivision stage of Townsend Fields. At this point of time, we do not have any subdivision application lodged against this site.

Regards

Ian Carstens | **Senior Resource Management Planner**
Plan Implementation Unit
Phone: 0800 965 468 (0800 WMK GOV)
Mobile: +64272966038

WAIMAKARIRI DISTRICT COUNCIL

waimakariri.govt.nz

From: Will Salmond <will.salmond@ppgroup.co.nz>
Sent: Wednesday, 3 November 2021 2:27 PM
To: Duty Planner <duty.planner@wmk.govt.nz>
Subject: Townsend

Hello

Has a consent been issued for a further stage of the Townsend subdivision of the area shaded yellow below?

If there is, can you please for copy of consent with associated plans?

If no consent has been issued has an application been made?

Thanks

Will

Will Salmond

Principal

Licensed Cadastral Surveyor

M 021 226 3422

P (03) 928 1533

E will.salmond@ppgroup.co.nz

Paterson Pitts Limited Partnership, trading as:

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Christchurch, New Zealand

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113-117 Townsend Road, Rangiora

Stormwater and Flooding Assessment

Prepared in Support of a Submissionon the Proposed Waimakariri District Plan

26 November 2021

Client:	John Broughton
Document Type:	Report – Plan Change
Document Number:	198-2021 John Broughton
Prepared by:	Victor Mthamo
Date:	26 November 2021

Contact
Email – victor.mthamo@reeftide.co.nz
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Table of Contents

1 Introduction

1.1 Background and Proposal

John Broughton (the Submitter) is seeks the rezoning of 113-117 Townsend Road, Rangiora from rural to enable future subdivision and development of 113-117 Townsend Road.

Mr Broughton has lodged a submission to the Proposed Waimakariri District Plan (pWDP) in support of the Outlined Development Plan (ODP) which covers the Site (113-117 Townsend Road) and neighbouring properties. The intention of the proposed ODP is to provide certainty regarding key requirements for any future residential activity on the site whilst allowing flexibility as the detailed design phases evolve in the future. The proposed ODP includes:

- Residential, commercial, education/community, open spaces.
- Future roads and road links.
- Stormwater management areas.

Figure 1.1 and Appendix A show the proposed ODP. These show key elements to be incorporated into future residential activity on the site.

Figure 1.1 – Proposed Outline Development Plan

1.2 Purpose of the Report

Reeftide Environmental & Projects has been engaged by Mr Broughton to:

- Carry out an assessment of the stormwater and flooding associated with the proposed development of the Site (113-117 Townsend Road).
- Prepare a report (this report) to be submitted in support of Mr Broughton's submission.

This report provides an assessment of the stormwater and flooding within the proposed ODP area. The assessment is preliminary and has been carried out to a level that

demonstrates feasibility of the stormwater and flooding management at the Site. Further detailed modelling and detailed design will be carried out at the subdivision stage.

2 Description of the Site

2.1 Site Description and Location

The submitter's Site is on land which is at or about NZTopo50 Map BW24:6567-0358. The legal description of the Site and the title numbers are presented in Table 2.1. The site location is shown in Figure 2.1 below.

Table 2.1 –Property Details

Lot No	Street Address	Titles	Area (ha)
Lot 3 DP 495345	117 Townsend Road, Rangiora	CB46C/20	4.45
Lot 2 DP 495345	113 Townsend Road Rangiora	CB40D/790	4.04
Total			8.49

Figure 2.1 – Location of the Site

2.2 Topography and Land Use

There is a single residential dwelling located at 113 Townsend Road. The only physical infrastructure at 117 Townsend Road are farm sheds.

The Site has a flat topography, with a moderate slope from north-west to southeast. The site contours show an approximate ground surface elevation of approximately RL 28.5 m at the north-western boundary and a minimum elevation of approximately RL 26 m at the south-eastern boundary (Lyttleton Vertical Datum).

Most of the site is under pasture and used for grazing or it is cut and carried off site.

The Townsend Fields residential development is located to the north and northeast of the Site. The Townsend Fields stormwater management area is located to the east of the site. The remainder of the site bounded by rural land.

2.3 Groundwater

The land within the Site lies over the unconfined/semi-confined groundwater aquifer. The groundwater levels have been determined from the wells within and outside the project area. These wells show that the groundwater can be:

- Within 1 m of the ground surface north of the Site.
- At the ground surface (BW24/0405) on the south side of South Brook Stream.

This makes discharge of stormwater to ground impractical.

2.4 Surface Water

2.4.1 South Brook Stream

The South Brook Stream is a tributary of the Cam River. It is located along the southern boundary of the Site and it flows south eastwards. The stream channel is approximately 1-3 m wide along the Site frontage.

South Brook Stream is known to flood and overtop the Townsend Road which is approximately 250 m from the edge of the Site in extreme events. The WDC flood maps and models show that the stream:

- Is within a high hazard flood area based on 200- and 500-year rainfall events.
- Flow rates for the 100-year storm to be 5.5 m^3/s.

2.4.2 Other Surface Water Channels

A spring fed creek starts from 203 Johns Road and runs through 113 & 117 Townsend Road discharging into Southbrook Stream.

2.4.3 Stormwater Facility

A wet pond/wetland stormwater treatment and attenuation facility is located just east of the 113 Townsend Road, and this serves the Townsend Fields subdivision located north of it. Treated stormwater is discharged into South Brook Stream. The stormwater facility owned and operated by WDC.

Figure 2.2 shows these surface waterways.

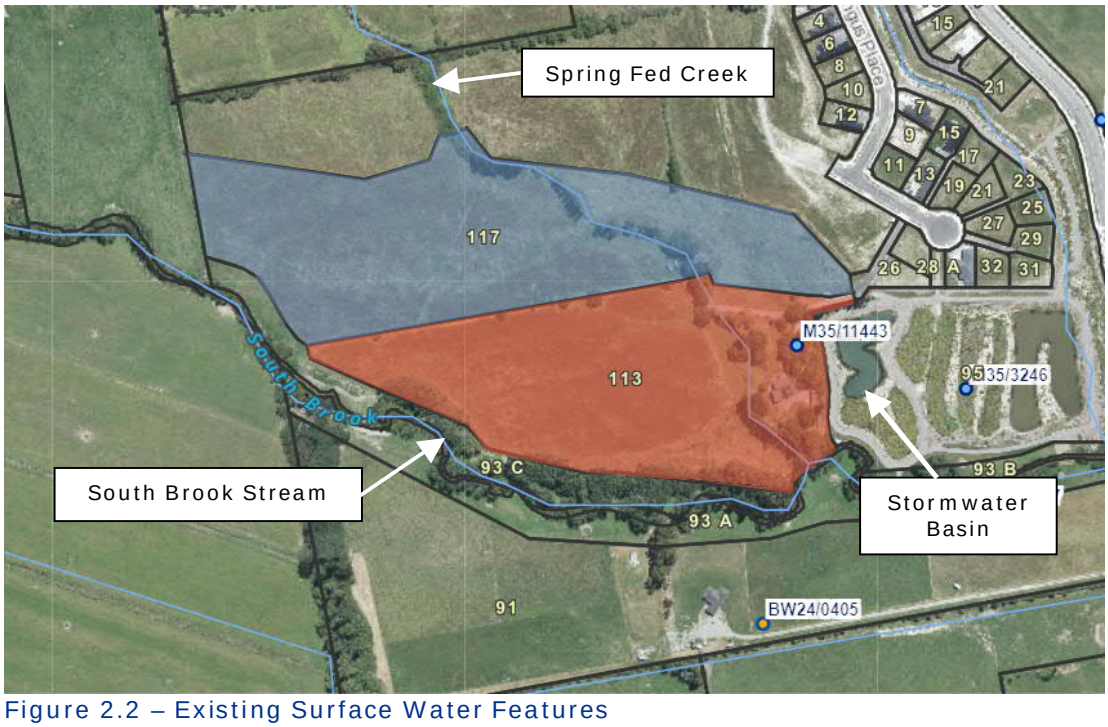


Figure 2.2 – Existing Surface Water Features

3 Stormwater Management Philosophy

3.1 General

This section describes the proposed stormwater management philosophy. It demonstrates that stormwater from the development of the Site can be mitigated (both in terms of water quality and quantity) effectively.

3.2 Existing Stormwater Flows

The site topography, land use and features have been discussed in Section 2. Currently stormwater falling onto the Site flows down the grade. This discharges directly into South Brook Stream or into the creek running through the Site and then into South Brook.

Some soakage to ground occurs but this is limited by the soils and the high groundwater levels during some rainfall events.

3.3 Stormwater Management

3.3.1 Overview

The existing council stormwater ponds located to the east of the Site do not have capacity for any new areas outside of the Townsend Field development. A new stormwater system will be required for the developed Site.

Due to the high winter groundwater levels within the Site discharge to ground is not considered a viable option. Therefore, discharge to surface water is the proposed means of stormwater disposal.

3.3.2 Primary Stormwater Collection and Conveyance

The stormwater runoff from the Site's allotments, reserves and roading will be conveyed by roadside swales, kerb/channel, sumps, pipes and a piped reticulation network to the Stormwater Management Area (SMA) shown on the proposed ODP (Appendix A).

The design of the collection and reticulation systems will be in accordance with the WDC engineering standards.

3.3.3 Secondary Flows and Overland Flow Paths

Secondary flows above the capacity of the primary stormwater network from the developed Site will be directed to the SMA via the internal roading network and conveyance infrastructure such as swales. The SMA will be sized to accommodate flows from up to 50-year events. WDC has accepted a critical duration of 12 hours for some of the neighbouring developments and it is anticipated that this will also apply for the Site. The final design critical duration will be based on discussions with WDC at the subdivision stage.

Flows above the design capacity of the stormwater system (2% AEP) will be directed to South Brook Stream.

It is proposed that detailed engineering designs and reports will be submitted to WDC for engineering approval for the stormwater servicing of new allotments and the overall development at the subdivision stage.

3.4 Stormwater Management Area

As noted in Section 3.3.2, the proposed ODP identifies a SMA (Figure 3.1). Provision has been made for the SMA. A total footprint of 4,000 m^2 has been identified.

The SMA design will comprise of:

- A treatment train system to remove the first flush contaminants to mitigate the potential effects on the stormwater quality on the receiving environments (groundwater and surface water).
- Attenuation to ensure that the post development stormwater discharges into South Brook Stream are less than or equal to the predevelopment flows. This will ensure mitigation of stormwater quantity resulting from the increase in impervious surfaces.

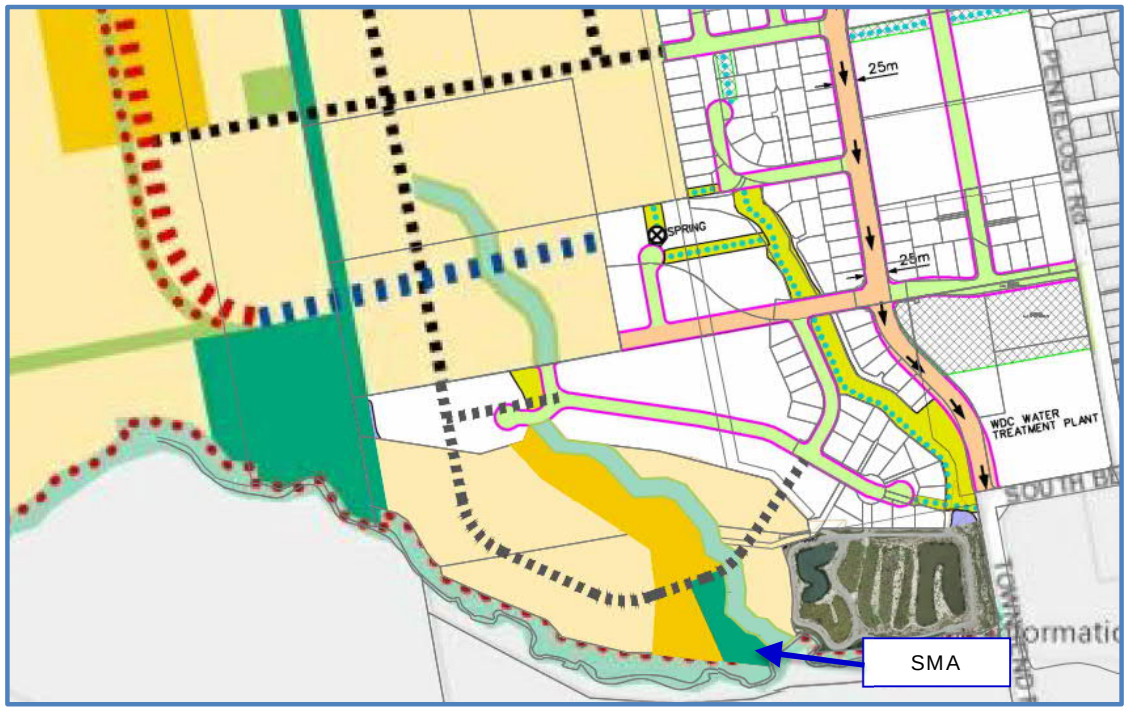


Figure 3.1 – Location of the SMA for the Site

3.5 Stormwater Treatment and Detention

3.5.1 Proposed Treatment and Attenuation Method

As noted in Sections 2.3 and 3.2 the Site has very high groundwater levels especially in the winter months. This limits the options for stormwater treatment and detention.

The existing adjacent subdivision (Townsend Fields) utilises a Wet Pond/Wetland (Section 2.4.3) facility for treatment and detention. This is comprised of a first flush basin and a wetland. This system works well under the same conditions as those within the Site and has been accepted by WDC as being an acceptable solution for this area as this method of treatment and detention is used at other developments in Rangiora.

Therefore, a shallow first flush basin and a wetland system is proposed for stormwater first flush treatment and attenuation at the Site. Figure 3.2 below has been extracted from the Christchurch City Council's (CCC) Waterways, Wetlands and Drainage Guide Part B (WWDG, 2013) and it shows the proposed concept.

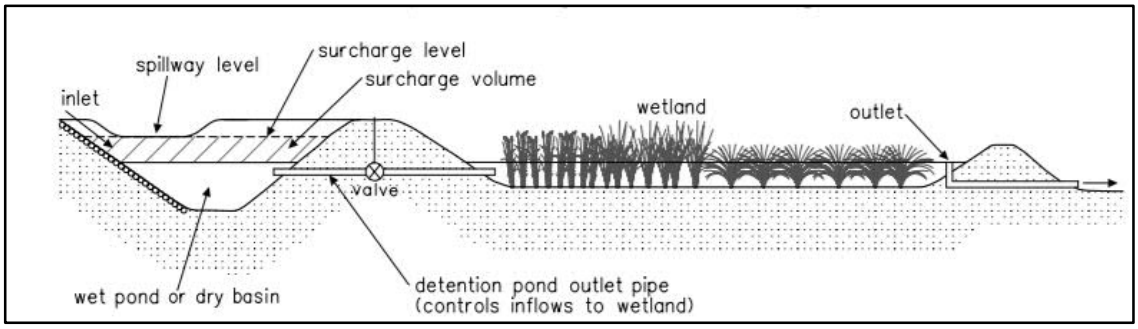


Figure 3.2 – Wet Pond and Wetland Conceptual Layout (Extracted from Figure 6-25 in the WWDG)

Discharge from the stormwater facility will be via piped to South Brook Stream. The outfall will include an outlet with controls to limit the peak discharge rate to the agreed predevelopment flow rate. The outfall will also be designed to reduce effect of the flow velocities (e.g. stream bed erosion) on South Brook Stream.

3.5.2 Preliminary First Flush Volume Calculations

Reeftide has undertaken a high-level assessment of the capacity of the treatment and detention basin. A conservative approach has been adopted to confirm that there is sufficient space allowed for in the SMA to accommodate the wet ponds (first flush basin and the wetland.

The following assumptions have been adopted:

- First flush treatment would be provided for the first 25 mm of any rainfall event in accordance with the Christchurch City Council's (CCC) Waterways, Wetlands and Drainage Guide Part B (WWDG, 2013). It is noted that a treatment depth of 20 mm would also be consentable.
- The first flush volume would be released to the wetland over 4 days.
- A wetland residence time of 2 days.
- The esplanade area has conservatively been taken as 1.86 ha. This area may change as the design is refined.

Table 3.1 – Estimation of the First Flush Volume

First Flush (FF) Depth	25	mm
Gross Area of the Site	8.49	ha
Assumed Esplanade Strip Area	1.86	ha
Net Developed Site Area	6.63	ha
First Flush (FF) Runoff Coefficient (WWDG, Living 1)	0.41	

First Flush Volume = FF Depth x FF Runoff Coefficient x Area

First Flush Volume	679.5	m^3

Therefore, the minimum volume of the first flush basin will be 680 m^3. For this assessment we have assumed a 750 m^3 basin.

The wetland area is calculated using the formula from the WWDG:

$$\textit{Wetland Area} = \frac{\textit{(FF Volume/Detention Time in FF Basin) x Wetland Residence Time}}{\textit{Flow Depth x Porosity}}$$

Table 3.2 provides the calculation of the minimum wetland area required to serve stormwater from the Site.

Table 3.2 – Wetland Area

FF Basin Detention Time	4	days
Wetland Residence Time	2	days
Flow Depth	250	mm
Porosity	0.75	
Wetland Area	1,812	m^2

For this assessment we have assumed that the wetland will be designed to cover an area of 2,500 m^2.

3.5.3 Preliminary Attenuation Volume Calculations

Storage Available

The first flush basin will provide attenuation of at least 750 m^3. The wetland will also provide attenuation with a minimum water depth of 250 mm over the 2,500 m^2 extent of the wetland. This gives a gross volume of 625 m^3 (0.25 m x 2,500 m^2).

Further attenuation will be provided in the wetland. In Section 6.8.2, the WWDG states that "*Allowance can be made for up to 500 mm average detention storage depth over the water quality volume, for more extreme storm events*". This means that the wetland will be designed for a maximum depth of 500 mm. This additional depth provides a further 625 m^3 storage.

As has been a WDC's requirement for other developments, a sediment forebay will be included in the design. This will be sized based on 15% of the first flush basin giving a volume of 113 m^3. Table 3.3 provides a summary of these volumes.

Table 3.3 – Wetland Area

Facility	Volume (m^3)
First Flush Volume	750
Forebay Volume (15% of the FF Volume)	113
Wetland Permanent Volume (m^3) - 250 mm	625
Wetland Surcharged Volume (m^3) - 250-500 mm	625
Total Volume Available	2,113

Therefore, between the first flush wet pond, the forebay and the wetland the total volume of storage will be 2,113 m^3.

Storage Requirements

A number of developments have been consented or gone through a private plan change process in the area in the recent past and the most recent being the Townsend Fields and Plan Change 29 (Summerset Villages).

WDC required that the stormwater be designed to ensure that the post development flows were equal to or less than the predevelopment flows for all rainfall events up to and including the 50-year 12-hour storms. We expect this to be the standard that will be applicable to the stormwater from the Site. Therefore, the total storage provided in the SMA has to be sufficient to attenuate 50-year 12-hour events.

The following assumptions have been made in estimating the pre and post development volumes:

- The predevelopment riparian area around the waterways will be 1.1 ha.
- While the design standard for the catchment is to achieve stormwater neutrality for 50 Year 12 hr storms, in estimating the detention volume we have used 50 Year 24 hr storms to be conservative and demonstrate capacity for larger duration flows.
- A default conservative Curve Number 74 has been adopted for pervious surfaces.

Details of the preliminary calculations are provided in Appendix B. Table 3.4 summarises the assessment results and presents the pre and post development volumes and the minimum volume of detention required.

Table 3.4 – Pre and Post Development Volumes and Minimum Detention Requirements

Stage	Annual Recurrence Interval		
	2 Year	10 Year	50 Year
Post Development Volume (m^3)	2,105	4,412	7,187
Pre-Development Volume (m^3)	1,125	2,825	5,107
Minimum Attenuation Required (m^3)	979	1,586	2,080

The minimum detention required is 2,080 m^3. This is based on conservative assumptions, and we expect the actual detention volume required to be <1,900 m^3.

3.6 Summary

The stormwater from the Site can be:

- Treated to remove first flush contaminants.
- Attenuated and discharged at a rate equal to or less than the predevelopment discharges. The storage available based on the preliminary calculations will be 2,113 m^3. The volume that will need to be attenuated will be 2,080 m^3.
- The area that has been designated for the SMA is 4,000 m^2. There is ample space for the treatment and detention facilities for stormwater from the Site.

The assessment provided above is preliminary. Detailed modelling and design will be undertaken and submitted to WDC for engineering approval at the subdivision stage.

4 Flood Assessment

4.1 Introduction

As noted in Section 1.2, this report has been prepared to provide an assessment of the flooding at the Site. This section discusses this in detail.

4.2 District and Regional Considerations

4.2.1 General

In discussing issues to do with flooding at the Site it is important to put these into context by looking at the district and regional planning requirements. The following sections outline the most relevant issues.

4.2.2 District Statutory Requirements

The Operative Waimakariri District Plan and the proposed District Plan Natural Hazards Chapter require that site earthworks are undertaken in manner that does not exacerbate or create flood hazards beyond the development boundary.

The planning rules require the minimum building floor heights to comply with the Building Act/Code or to be above the 200-year flood levels with finished floor levels being up to 400 mm above flood levels depending on the site and the subdivision or private plan change conditions. The former is a lower standard to what is required or now proposed under the proposed District Plan.

4.2.3 Regional Statutory Requirements

The Canterbury Regional Policy Statement (RPS) includes two specific policies relating to flood hazard management which District Councils are required to give effect to these policies through district plans. These policies are:

- Policy 11.3.1 – Avoidance of inappropriate development in high hazard areas. High hazard being defined as "*defined as areas 'where the water depth (m) x velocity (m/s) is greater than or equal to 1, or where depths are greater than 1 metre in a 0.2% AEP flood event*".
- Policy 11.3.2 – Avoid development in areas subject to inundation. Areas subject to inundation are defined as "*areas that are not 'high hazard', but are subject to inundation by a 0.5% AEP (200 year ARI) flood event*".
- Policy 11.3.2 requires this Council to avoid new subdivision use and development unless new buildings have an appropriate floor level above the 0.5% AEP design flood level.

4.2.4 Summary of the Statutory Requirements

In fulfilling the brief of this work, we have assessed the requirements primarily against the regional statutory requirements. As the site is proposed for subdivision and the conditions of the subdivision consent will reflect these requirements if the Site's proposed zoning is incorporated into the proposed plan and the District Council is to consent the subdivision.

4.3 Flooding Assessment

4.3.1 General Sources of Flooding

Usually, the potential risk of flooding is in relation to the following sources:

- Rain falling on to the site also called Pluvial Flooding.
- Flooding from rivers breaches more specifically the Ashley River.
- Flooding from the upstream catchment.
- Flooding from groundwater resurgence (undercurrents).
- Coastal flooding.

4.3.2 Site Specific Flooding Assessment

The Waimakariri District Council Hazard Map shows the flood hazard and depths across the Site. Figures 4.1 and 4.2 show the 1 in 200 Year (0.5% AEP) and 1 in 500 Year (0.2% AEP) hazard from a combination of three modelling methods – Localised flooding, river breakouts and coastal flooding.

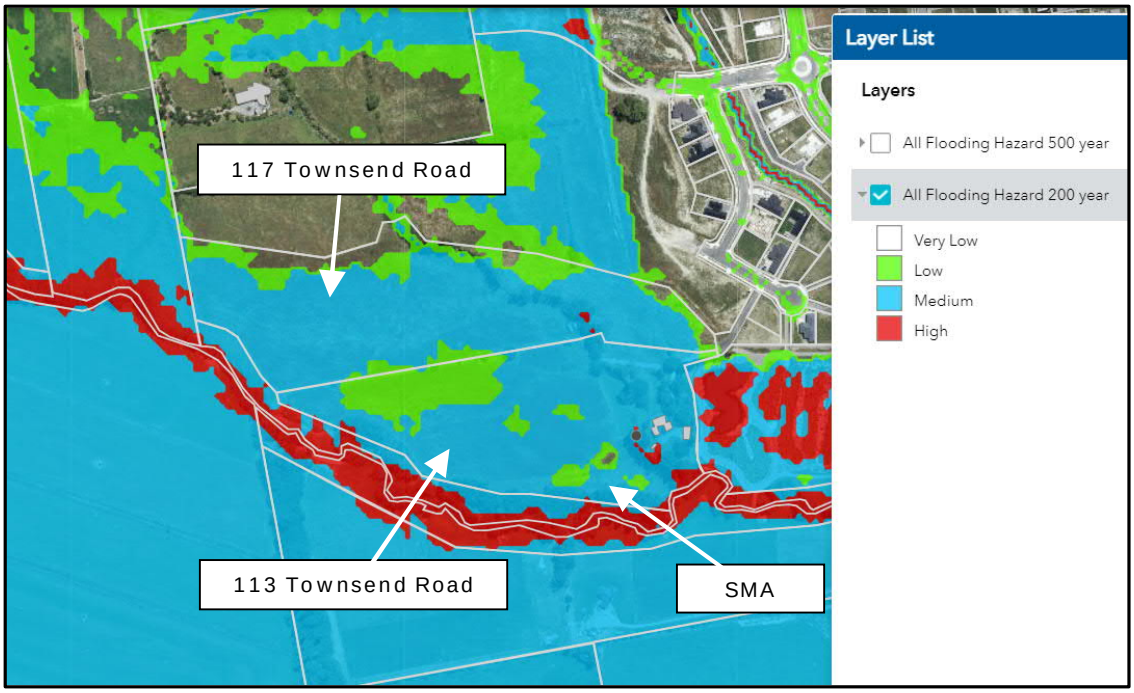


Figure 4.1 – Extract of the 1:200 Year Flood Risk Map

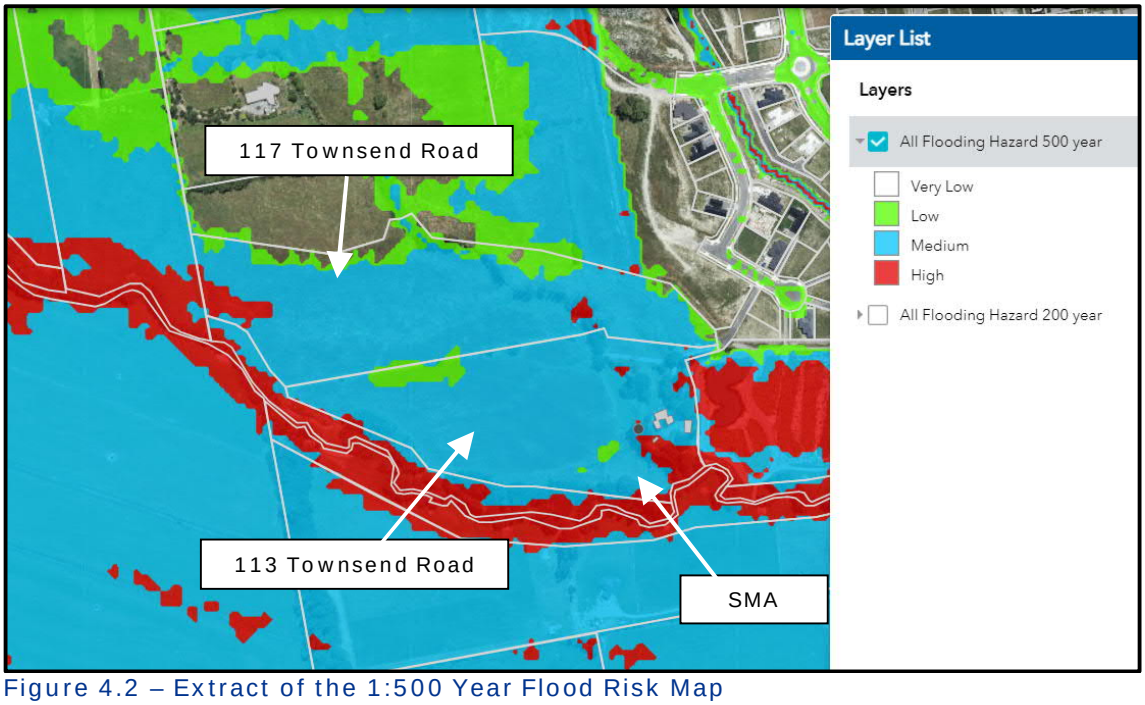


Figure 4.2 – Extract of the 1:500 Year Flood Risk Map

The maps identify the Site as being at medium (blue) or low risk (green) of flooding in 1:200-year and 1:500-year flood events. The high flood hazard areas are primarily within the margins of South Brook Stream and in the south-eastern corner of the 113 Townsend Road. The 1:500-year flood map shows a marginal increase in the flood hazard classes compared to the 1:200-year flood map. This is due to the connectivity

of this ponding area to a very large flood plain which requires very significant changes in volume to achieve small changes in level.

In addition to the risk maps above, WDC flood hazards site provides the 1:200-year localised flooding depths and 1:200-year Ashley Breakout flood depths. Figures 4.3 and 4.4 shows the range of flooding depths for these scenarios.

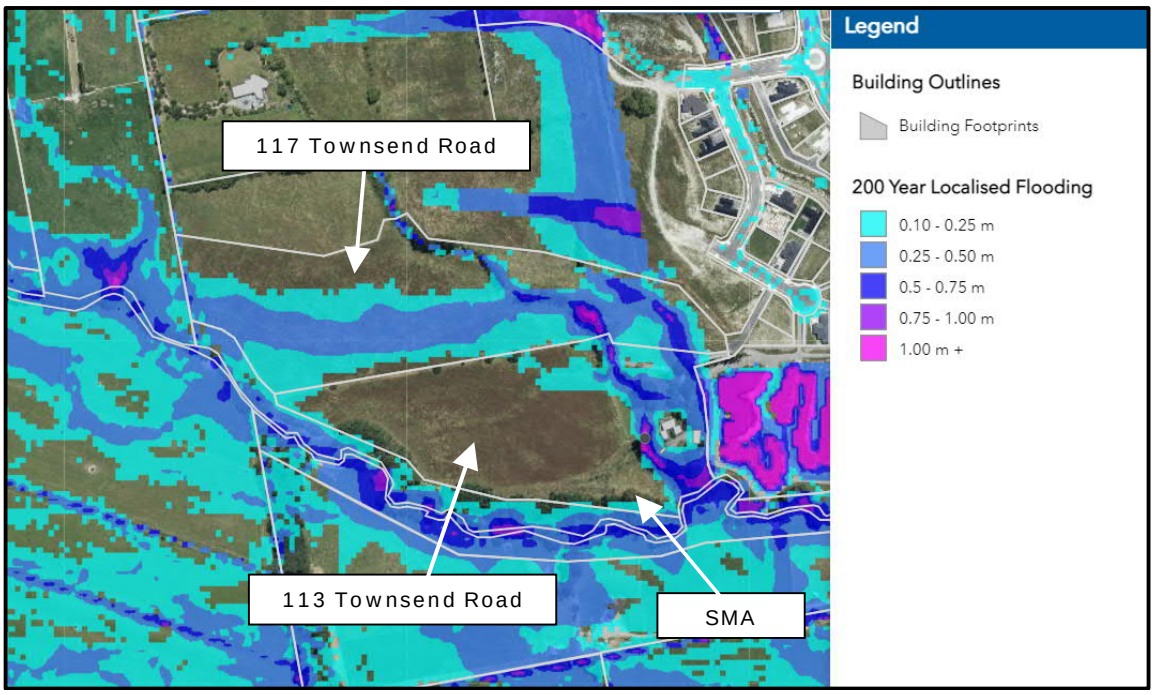


Figure 4.3 – Localised Flood Depths

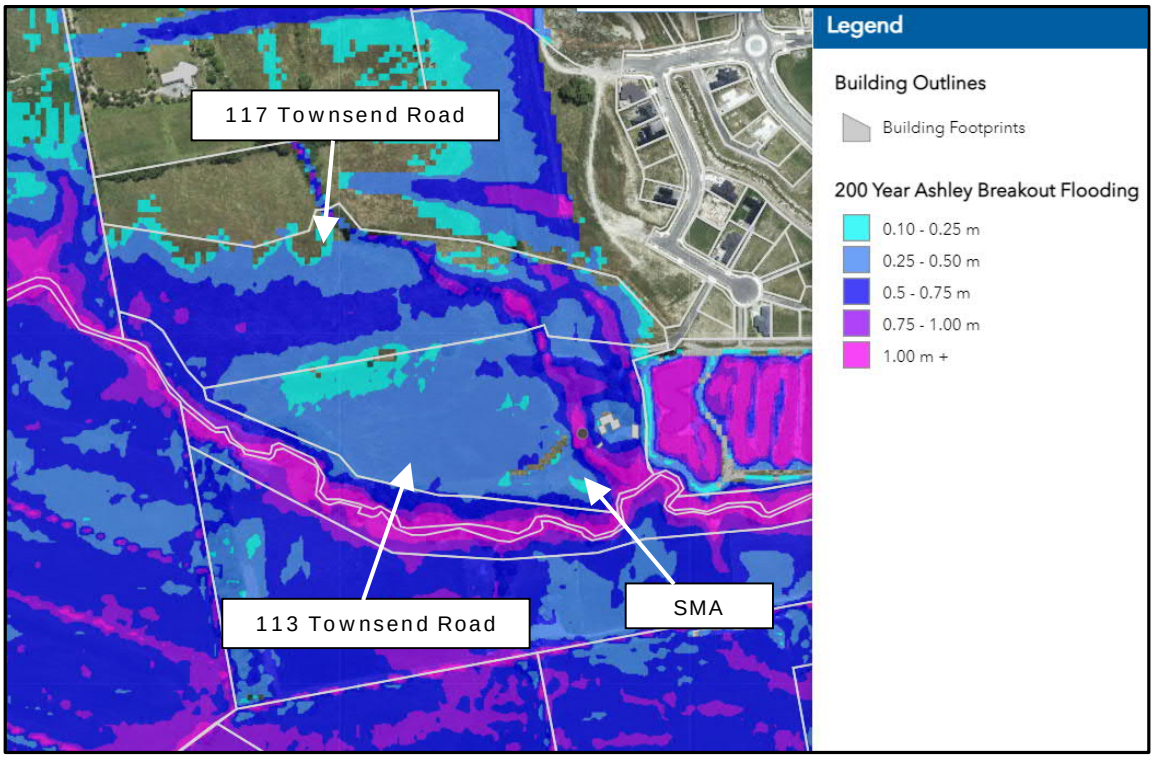


Figure 4.4 – Ashley Breakout Flood Depths

Upon close analysis of the flooding depths in Figures 4.3 and 4.4 we note that:

- The largest localised flooding depths within the Site occur along or within the margins of the spring fed creek (Section 2.4.2). For most of the site the flood depths range from 0-0.41 m.
- The Ashley Breakout flooding depths are larger than the localised flood depths. The model shows that the South Brook breaches resulting in increase of flood depths to 0.5-0.75 m through 117 Townsend Road as the water flows to the spring fed creek. The highest flooding depths are still along the spring fed creek. Regardless, over 60% of the site has flood depths <0.5 m.

4.4 SMA and Flooding

The proposed ODP shows the proposed location of the SMA. Most of the SMA will be within a low to medium flood risk area. However, the portion closer to South Brook Stream is within the high hazard area. However, this is a very small area (<1%) compared to the areas that are low-medium risk.

As best practice, the first flush basin and wetland will be located close to or above the 2% AEP flood level to ensure effective treatment can be provided in the design event. The future residential development will be designed higher than the 2% AEP to ensure stormwater drains to the SMA.

As noted in Section 3.5.3, there is sufficient land area ensure that these competing requirements are achieved. Detailed stormwater design and modelling will be carried out as part of the:

- Subdivision engineering design for submission to WDC for approval and acceptance.
- Stormwater treatment and discharge resource consent application via the regional council (ECan). The detailed modelling and design plans will demonstrate that the effects are less than minor. To this end the application documentation will be able to demonstrate that it will perform optimal to achieve the water quality and quantity requirements for the catchments and for compliance with the CLWRP.

4.5 Mitigation and Compliance with the Statutory Requirements

4.5.1 General

Detailed modelling and design will be carried out to ensure compliance with the various requirements. This modelling will inform on the design of the mitigation measures proposed below to ensure that the proposal complies with the various statutory requirements.

4.5.2 Filling and Future Site Levels

To mitigate the effects of flooding earthworks will be required to raise the existing ground levels above potential flood levels and provide flow paths for overland stormwater flows. This can be achieved by elevating the developed lots or the roads will be lowered or a combination of these strategies to ensure that the roads act as effective secondary flow paths to mitigate the potential effects of floods.

The road corridors will serve to convey the flood flows away from the houses. This will reduce the depths likely to be experienced for future residential development on the Site. Therefore, it is expected that the flooding risk to future residential development on the Site will be able to be appropriately managed.

4.5.3 Bunding

An earth bund can be constructed along the southwestern boundary of the SMA and of the Site (especially 117 Townsend Road) to protect future residential lots from a 0.5% AEP flood event associated with an Ashley River Breakout scenario. The height and extent of the bund will be established at the detailed design stage.

4.6 Flood Compensatory Storage

Displacement of flood waters as a result of any fill placed below the flood levels will have the potential to increase downstream flooding. The detailed modelling and design will assess the need for and provide compensatory storage should this be required. The area that has been designated as the SMA is large enough to provide additional compensatory storage should this be required.

4.7 Summary

The Site is subject to low-medium risk of flooding. Some high flood risk scenarios are possible for both the 200- and 500-year events especially in localised depressions and the surface water channels (South Brook and the spring fed creek). It is possible to provide mitigation through detailed engineering and filling to mitigate the effects of the 1:200-year events thus enabling future development to comply with the flood hazard requirements in both the district and regional plans.

5 Conclusions

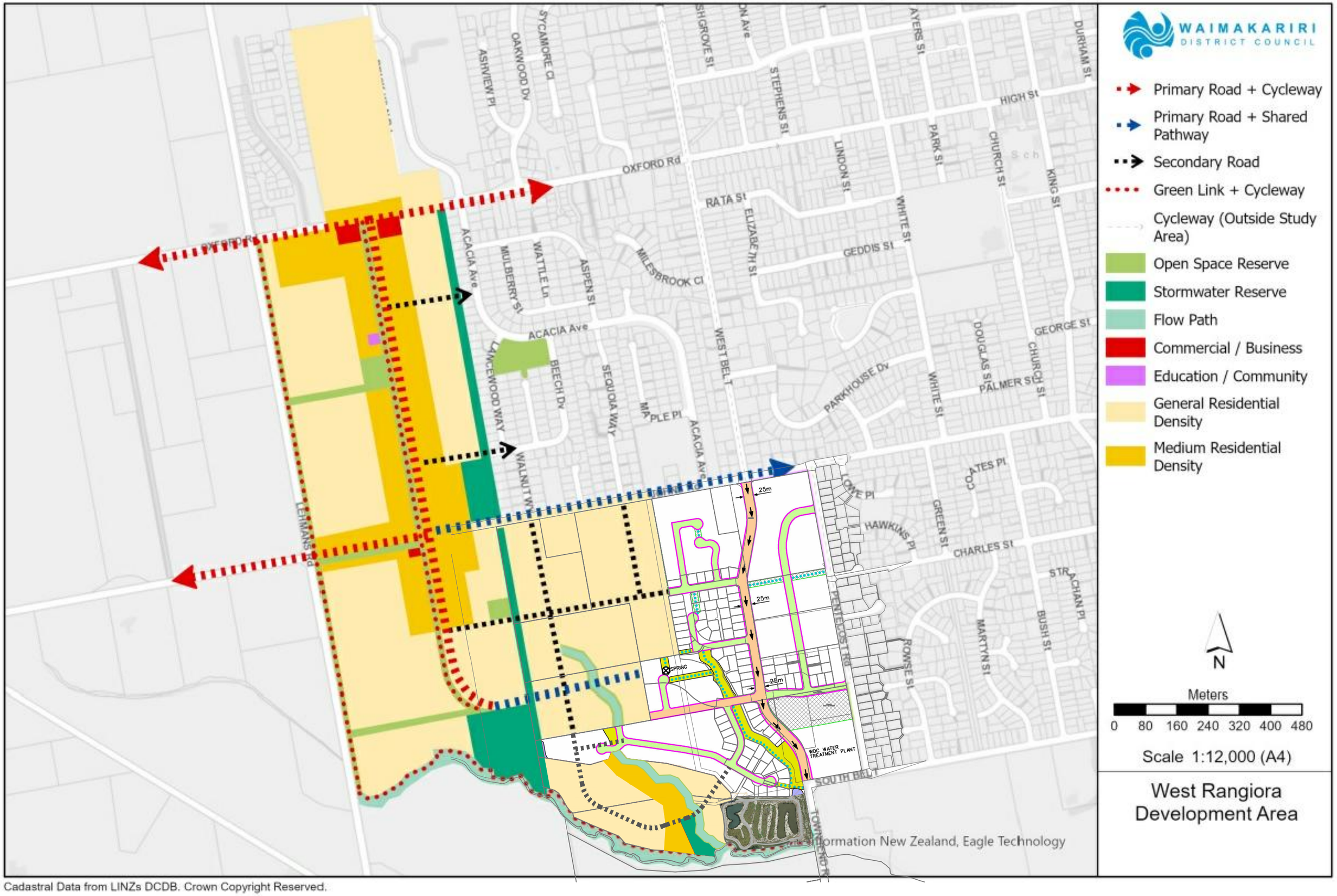
This report has been prepared in support of the proposed zoning at 113 & 117 Townsend Road to demonstrate that stormwater and flooding can be managed and mitigated effectively to ensure compliance with the relevant district and regional requirements.

The stormwater management methodologies detailed in this report will ensure that the adverse effects from the discharge of stormwater will be less than minor. Stormwater from the developed site will be treated and attenuated within the proposed SMA area. First flush treatment will be carried out in a wet pond (first flush basin) sized to treat the first 25 mm of any rainfall. Treatment will be carried out via a wetland before being discharged to South Brook Stream. The wetland will also serve as a detention facility. The stormwater detention will ensure stormwater neutrality is achieved so that the post development flows are less than or equal to the predevelopment flows.

The WDC hazard maps show that the Site is subject to flood levels ranging from low, medium and high risk. The areas of high flood risk are small with most of the flooding in the low to medium range. The effects of flooding can be mitigated in a number of ways to ensure compliance with the district and regional requirements. For example, the earthworks will be carried out to raise the existing ground levels above potential flood levels and provide flow paths for overland stormwater flows.

Based on the assessments in the preceding sections, the Site can be rezoned for residential development. Any site constraints are able to be mitigated to ensure compliance with the various District and Regional Council statutory requirements.

Appendix A Draft ODP



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Appendix B Preliminary Stormwater Calculations

PREDEVELOPMENT FLOWS AND VOLUMES

TP108 Worksheet 1 - Runnoff & Time of Concentration

Total Area	8.49	ha
Pervious Area	8.44	ha
Impervious Areas	0.05	ha
Channel Factor C	0.80	Overland flow
Catchment Length (L)	0.458	km
Catchment Slope (Sc)	0.03	

1/. Runoff Curce (CN) and Initial Abstraction (Ia)

Cover Description	Curve Number (CN)	Areas (ha)	Product CN x Area
Impervious Areas - Hardstand	98	0.05	4.9
Pervious Areas	74	8.44	624.56
	Total	8.49	629.46

CN (weighted) = Product of CN x A/Total Area	74.14		
Ia (weighted) = 5 x Pervious Area/Total Area	4.971		
2/. Predevelopment Time of Concentration			
Runoff Factor	0.58908		
Tc	0.256	hrs	15.37 mins
SCS Lag for HEC-HMS "tp"=2/3 x Tc	0.171	hrs	10.25 mins

TP108: Worksheet 2: Graphical Peak Flow Rate

Catchment Area =	0.0849	km^2
Storage Calculation (S) =	88.58889	

	Storm 1	Storm 2	Storm 3
Annual Recurrence Interval	2	10	50
24 Hour Rainfall Depth - mm	46.5	78.4	114
Compute c* = $(P_{24}-2Ia)/(P_{24}-2Ia+2S)$ - mm	0.171	0.279	0.370
Specific Flow Rate (q* from Figure 8-1)	0.038	0.061	0.078
Peak Flow Rate (qp) = $qxAP_{24}$ - m3/s	0.150	0.406	0.755
Runoff Depth (Q24) = (P24-Ia)^2/((P24-Ia)+S) - mm	13.3	33.3	60.2
Runoff Volume V_{24} = 1000 x Q_{24} x A (m3)	1125	2825	5107

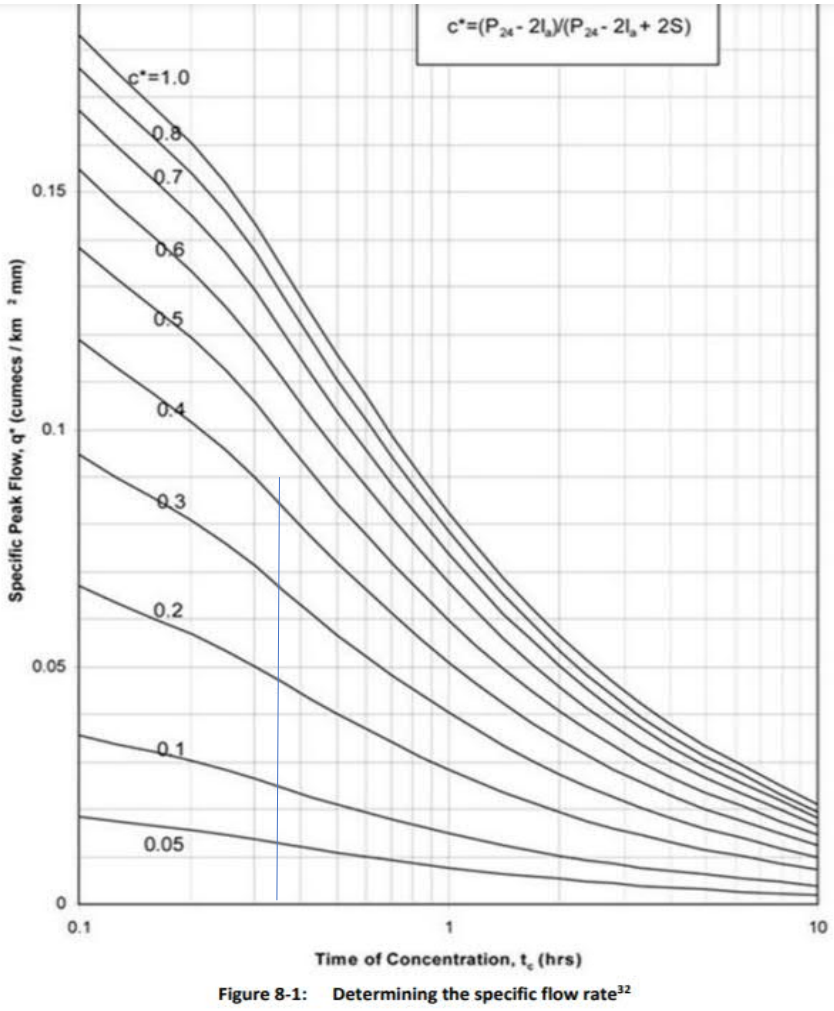

Figure 8-1: Determining the specific flow rate[32]

POST DEVELOPMENT FLOWS AND VOLUMES

TP108 Worksheet 1 - Runnoff & Time of Concentration

Total Area	8.49	ha
Esplanade	1.86	ha
Pervious Area	1.989	ha
Impervious Areas	4.641	ha
Channel Factor C	0.8	Overland flow
Catchment Length (L)	0.458	km
Catchment Slope (Sc)	0.02	

1/. Runoff Curce (CN) and Initial Abstraction (Ia)

Cover Description	Curve Number (CN)	Areas (ha)	Product CN x Area
Impervious Areas - Hardstand	98	4.641	454.818
Pervious Areas	74	1.989	147.186
Pervious Esplanade	74	1.86	137.64
	Total	8.49	739.644

CN (weighted) = Product of CN x A/Total Area 87.12

Ia (weighted) = 5 x Pervious Area/Total Area 1.171

2/. Postdevelopment Time of Concentration

Runoff Factor	0.77178			
Tc	0.249	hrs	14.97	mins
SCS Lag for HEC-HMS "tp"=2/3 x Tc	0.166	hrs	9.98	mins

TP108: Worksheet 2: Graphical Peak Flow Rate

Catchment Area = 0.0849 km^2

Storage Calculation (S) = 37.55377

	Storm 1	Storm 2	Storm 3
Annual Recurrence Interval	2	10	50
24 Hour Rainfall Depth - mm	46.5	78.4	114
Compute c* = $(P_{24}-2Ia)/(P_{24}-2Ia+2S)$ - mm	0.370	0.503	0.598
Specific Flow Rate (q* from Figure 8-1)	0.098	0.114	0.124
Peak Flow Rate (qp) = qxAP_{24} - m3/s	0.387	0.759	1.200
Runoff Depth (Q24) = (P24-Ia)^2/((P24-Ia)+S) - mm	24.8	52.0	84.7
Runoff Volume V_{24} = 1000 x Q_{24} x A (m3)	2105	4412	7187

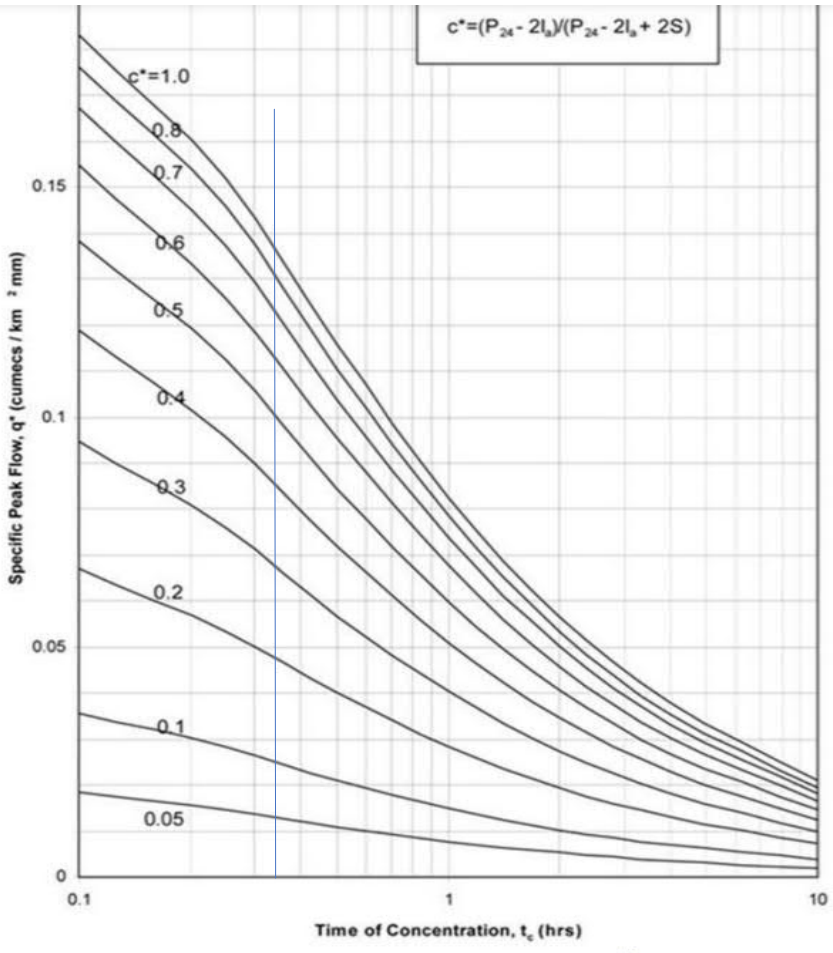

Figure 8-1: Determining the specific flow rate[32]

ATTENUATION REQUIREMENTS

Stage	Annual Recurrence Interval		
	2 Year	10 Year	50 Year
Post Development Volume (m^3)	2,105	4,412	7,187
Pre Development Volume (m^3)	1,125	2,825	5,107
Minimum Attenuation Required (m^3)	979	1,586	2,080

AVAILABLE DESIGNED STORAGE

First Fush Volume (m3)	750
Forebay Volume (15% of the FF Volume)	113
Wetland Permanent Volume (m3) - 250 mm	625
Wetland Surcharged Volume (m3) - 250-500	625
Total Volume Available	2112.5

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SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE

PRELIMINARY SITE INVESTIGATION FOR RAVENSCAR PARK, RANGIORA, CANTERBURY

Prepared for:

Ravenscar Park Limited
C/- Eliot Sinclair
PO Box 4597
Christchurch 8140

Report Date: 21 June 2012
Project Ref: ENNZAUCK51094AA

Written/Submitted by:	Reviewed/Approved by:
Duncan Pickering	**Erika McDonald**
Environmental Engineer	Senior Environmental Consultant

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SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE

21 June 2012

Ravenscar Park Limited
C/- Eliot Sinclair
PO Box 4597
Christchurch 8140

Attention: Mr M Allan

Dear Mark

RE: Preliminary Site Investigation for Ravenscar Park, Rangiora, Canterbury

Please find attached our report presenting the findings of our preliminary environmental site investigation of the Ravenscar Park, Rangiora, completed for Ravenscar Park Limited care of Elliot Sinclair Limited. This assessment was conducted in accordance with our proposal dated 10 April 2012.

If you have any queries or you require further clarification on any aspects of this report, please contact the undersigned.

For and on behalf of Coffey Environments,

Duncan Pickering
Environmental Engineer

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ABBREVIATIONS

bgl	below ground level
DP	Deposited Plan
IANZ	International Accreditation New Zealand
LIM	Land Information memorandum
LLUR	Listed Land Use Registrar
m	metres
MfE	Ministry for the Environment
NES	National Environmental Standard
NZFS	New Zealand Fire Service
QA / QC	Quality Assurance and Quality Control
RPD	Relative percent difference
WDC	Waimakariri District Council

1 INTRODUCTION

This report presents the findings of a Preliminary Site Investigation (PSI) undertaken at Ravenscar Park, Rangiora (the "site"). The work was commissioned by Project Control Management Ltd (PCM) on behalf of Elliot Sinclair and Partners Limited, following the submission of Coffey Environments' (Coffey) proposal dated 10 April 2012. The purpose of the work was to investigate the site history and potential for contamination at, and immediately surrounding, the proposed residential redevelopment site at Ravenscar Park, Rangiora. A site location plan is presented in Figure 1.

Note that a contemporaneous environmental site investigation was carried out on the adjacent properties, which make up the Ravenscar Park, Pentecost Block Subdivision.

2 SCOPE OF WORK

The objective of this PSI was to assess the potential for contaminants to have been deposited at the proposed development site as a result of historic activities undertaken within or in the immediate vicinity of the property, and to investigate whether horticultural/agricultural activities could have contributed to soil contamination at the site. In order to achieve this objective, a scope of work was adopted in general accordance with the staged process defined by the Ministry for the Environment (MfE) Contaminated Land Management Guidelines No. 5: *Site Investigation and Analysis of Soils* (MfE, updated 2011) and the findings are presented in general accordance with the MfE Contaminated Land Management Guidelines No.1: *Reporting on Contaminated Sites in New Zealand*, (MfE, updated 2011).

The following scope of works was developed, based on the MfE Contaminated Land Management Guidelines for a Stage 1 PSI:

- Site walkover to consider land contamination indicators (e.g. visual evidence of waste dumping/material spills, chemical storage and/or usage areas, anomalous die-back in vegetation, ground staining etc).
- Review of available geotechnical, environmental and site contamination reports (if any) held within the property files of the regional and district councils.
- Review of the Hazardous Activities and Industries Register for the Waimakariri District Council (WDC).
- Review of the Land Information Memorandum (LIM) and Certificate of Titles for the site.
- Review of the New Zealand Fire Service databases, relating to pollution incidents recorded at the site and immediate surrounds.
- Review of published geological maps and the Coffey database to appraise likely soil and groundwater conditions at the site.
- Review of publically available aerial photographs, or other accessible historical photographic and service line information (e.g. underground services such as sewer and water lines that may act as preferential pathways for contamination at the site).
- Collection of 10 soil samples from shallow surface soils during the site walkover.
- Analysis of four soil samples for agricultural/horticultural land use contaminants, from targeted locations selected during the site walkover.

- Preparation of this PSI report.
- These works represent a preliminary assessment of the likelihood and/or existence of environmental issues or impacts at the site, based on the review of information available from the data sources described above.

3 DEVELOPMENT PROPOSAL

Detailed design plans for future developments at the site have not been made available to Coffey; but it is understood that the site will be subdivided to allow redevelopment as residential lots.

4 SITE CONDITION AND SURROUNDING ENVIRONMENT

4.1 Site Condition

The site layout is shown on Figure 2 and photographs of the site are presented in Appendix A, Photographs 1 to 6. The site is located between the northern end of Townsend Road and Johns Road at the western edge of the town of Rangiora. The southern portion of the site is square and is bounded by Townsend Road to the east and agricultural land to the south, west and north. The second part of the site is a narrower strip of land that extends northwards to Johns road and is bounded by the Pentecost subdivision block (currently agricultural land) to the east and agricultural land to the west.

The site covers a total area of 41.3 hectares and can be accessed from either Townsend Road or Johns Road. The site is made up of approximately 15 grazing fields separated by hedgerows and tree shelter belts. The south west corner of the site is low lying and at the time of the site walkover was wet and marshy. Three very small streams pass through the site running in a north westerly to south easterly direction and these converge to form the Wakefield Stream to the south of the site.

A small asphalt road enters the site from the end of Townsend Road and leads to a single residential dwelling in the centre of the site. The dwelling is surrounded by a wooded area.

4.2 Surrounding Environment

4.2.1 Land Use

The site is situated immediately west of the town of Rangiora. The area surrounding the site is predominately agricultural land interspersed with residential and the occasional commercial/industrial property.

4.2.2 Topography

A topographic map of the site and surrounding area is provided on Figure 3. The topographic map shows that the site is situated in a low lying area, less than 10 metres above mean sea level (amsl). The site and surrounding area is relatively flat however there is a gentle gradient towards the south east corner of the site.

4.2.3 Geology and Hydrogeology

4.2.3.1 Geology

Published geological maps (Forsyth *et al* 2008) indicate that the subject site is underlain by the alluvium river deposits of the Karewa Group sedimentary lithology (Quaternary epoch). These deposits comprise terrace alluvium (clays, silts, sands, and gravels). In general, river deposits consist of differentiated deposits of well sorted gravels, sand and silt.

4.2.3.2 Hydrogeology

While no information was available regarding likely groundwater flow direction in the vicinity of the site, based on the topography of the site and visible surface water, it is considered likely that groundwater will flow in a south easterly direction, similar to the small surface streams that cross the site.

5 SITE HISTORY

The following section summarises the historic activities undertaken within or in the immediate vicinity of the development area as determined from the information sources described in Section 1.1.

5.1 Aerial Photographs

Table 1: Review of Historic Photographs

Aerial Photograph	Key Points Identified
Earlier Aerial Photographs	Aerial photographs predating 2005 were not available from Waimakariri District Council (WDC) or Environment Canterbury Regional Council (ECAN)
2005 Aerial View Supplied by WDC	The site is very similar to its current day state. The only visible changes are regarding the positioning of fence lines denoting some of the field boundaries. A dark scar transects the northern part of the site and appears to represent either a former track or localised underground service. No significant changes to the land surrounding the site are denoted (Refer to Figure 5).
2010 Aerial used for Figure 2.	No Significant change since 2005, however the dark scar transecting the northern part of the site is not present.

5.2 Summary of Literature Relating to the Site

The following section provides a summary of the data sources reviewed during the site history search.

5.2.1 Waimakariri District Council

WDC were contacted on the 25 April 2012 to discuss the available records held relating to the site. The following information was made available:

- Certificates of Title.
- LIM Reports.

Information held on a LIM report that is generally relevant to environmental investigations includes:

- Building permits, consents and code compliance certificates.
- Protected buildings and trees, historic buildings.
- Planning information, e.g. resource consent planning zones.
- Resource consents issued on neighbouring properties.
- Any special characteristics of the land or buildings.
- Any requisitions issued by the Council within the property.
- Water, sewer, stormwater and drainage plans.
- Drainage information relating to sewer and/or stormwater.
- Licences.

A review of information available in the LIM reports highlighted that resource consent was sought and granted for the following land uses that may indicate potential contamination sources at the site:

- 1998, RC980290/980291, to develop a hazelnut orchard and share cropping business on part of the site (Lot 2 DP80253).
- 2005, RC 055015, to undertake earthworks exceeding permitted standards (Lot 2 DP80253).
- 2006, RC 065331, to undertake earthworks and stockpile soil in quantities exceeding permitted activity standards on the site (Lot 2 DP80253).

5.2.2 Certificates of Title

The subject site is located on the western side of Rangiora. The site consists legally of Lot 2 DP80253, Lot 1 DP434889 and Lot 2 DP434889.

Certificates of title indicate all three legal parcels of land are owned by Mr and Mrs Wakefield.

Table 2: Summary of Certificates of Title

Property Address	Legal Description	Land Area (ha)	Owner
113 Townsend Road	Lot 1 DP 434889	9.185	Wakefield, Alfred James Wakefield, Susan Mary
91 Townsend Road	Lot 2 DP 434889	20.018	Wakefield, Alfred James Wakefield, Susan Mary
137 Johns Road	Lot 2 DP 80253	12.120	Wakefield, Alfred James Wakefield, Susan Mary

The Certificates of Title did not provide any information on current land use or potentially contaminating activities on the properties.

5.2.3 Canterbury Regional Council

A Site Contamination Enquiry sent to Environment Canterbury Regional Council (ECAN) revealed that no pollution incident files regarding spills or contamination were found for the site. ECAN's files include sites on the Listed Land Use Register (LLUR).

Please note that if a property is not currently entered on the LLUR, it does not mean that an activity with the potential to cause contamination has never occurred, or is not currently occurring there. The LLUR is not complete, and new sites are regularly being added as ECAN conduct their investigations into current and historic land uses. The information provided by ECAN is presented in Appendix B

5.2.4 New Zealand Fire Service Database Search

A request for information relating to incidents (including hazardous material and pollution incidents) attended by the New Zealand Fire Service (NZFS) in 50 metre vicinity of the site boundary was lodged with the NZFS on 16 April 2012. The information provided by the NZFS is presented in Appendix B and a summary of the locations of incidents is shown on Figure 4.

Several minor incidents have occurred within the vicinity of the subject site since the NZFS began keeping records in 1998. These incidents all involved small fires on various adjacent properties. No incidents have been reported to have involved a hazardous substance spill or leakage.

No significant incidents have been recorded within the vicinity of the site and it is considered unlikely that contamination has occurred through hazardous incidents.

5.2.5 Previous Site Investigations

No previous environmental investigations are known to have taken place at the site.

5.2.6 Underground Services

No underground service lines (gas, water, sewer, and electricity) are shown on the site by WDC GIS viewer, however it is expected that the residential dwelling at the centre of the site will be supplied with common utility services. It is considered likely the services are located under or adjacent to the asphalt road that leads to the dwelling from the corner of Townsend Road and South Belt Road. There was no evidence of heating oil tanks outside the building and it is considered likely that the house is connected to a private septic tank, although no evidence of a septic tank was observed.

5.3 Site Walkover

Coffey Environments conducted a site walkover on 4 May 2012. During the site visit, the following information regarding the site was recorded (refer to Appendix A, Photographs, and Appendix C, Field Forms).

5.3.1 137 Johns Road

- Stock still grazing on the property.
- No visible signs of farm dumps were observed.

- No old buildings or machinery storage areas were observed.
- No evidence of sheep dipping activities was observed (e.g. hollows, concrete baths, sumps and race).
- One area of old machinery (non mechanical such as ploughs and harrows) was observed in the very north west corner of the lot adjacent to Johns Road.
- An “L’ shaped soil stockpile of unknown origin was present in the south west corner of the site. The approximate dimension of the stockpile was 120 m length, 10 m wide and 2.5 m high.

5.3.2 91 Townsend Road

- Stock still grazing on the property.
- No visible signs of farm dumps were observed.
- No old buildings or machinery storage areas were observed.
- No evidence of sheep dipping activities was observed (e.g. hollows, concrete baths, sumps and race).
- Three small streams cross the property.
- One farm shed is present just north of the corner of Townsend Road. The shed still appears to be in use. No evidence of fuel storage, chemical storage or contamination issues were observed.

5.3.3 113 Townsend Road

- Stock still grazing on the property.
- No visible signs of farm dumps were observed.
- No old buildings or machinery storage areas were observed.
- No evidence of sheep dipping activities was observed (e.g. hollows, concrete baths, sumps and race).
- One residential dwelling, accessed by an asphalt road, exists to the centre of the property.

5.3.4 Interviews

During the site walkover, Coffey field staff interviewed the farm manager about the former uses and known history of the site. A resource consent application had been sought and granted for hazelnut cultivation on the site. However, the farm manager confirmed the land was never used for orchard activities. The farm manager commented that the land had only ever been used for general pasture and arable land which is consistent with the available aerial photographs. The farm manager also noted that any fuel storage related to farm machinery would have been at the old farm house on the adjacent site at 131 Johns Road.

6 SITE CHARACTERISATION

The site walkover and review of site history information highlight a limited potential for historical site contamination issues; however, two possible sources of site contamination were identified:

- Possible low level agricultural/horticultural contaminants across the wider site.
- Possible contamination in the stockpile of unknown origin.

With consideration to the future residential land use of the site, the following potential receptors are considered to be relevant to the site:

- Future residential occupants of the subdivision.
- Construction workers during redevelopment of the site.
- Ecological receptors in the three surface streams that cross the site.

7 SOIL SAMPLING

During the site walkover, Coffey field staff drilled 10 soil bores to collect shallow surface soil samples from approximately 200 mm below ground level (bgl). The collection of soil samples was requested by Eliot Sinclair Ltd prior to the site walkover to provide the option of testing soils for potential contaminants of concern identified during the desktop study. Sample locations were targeted based on the field engineer's appraisal of likely contamination hotspots. However, the majority of the site showed only agricultural land uses. Therefore, several samples were located at random intervals to allow background soil contamination testing for agricultural/horticultural contaminants. The sampling locations are presented on Figure 2.

7.1 Soil Sampling Methodology

Soil samples were collected from directly below the vegetation root system approximately 200 mm bgl.

The following procedures were adopted during investigation works:

- All fieldwork was carried out in compliance with a project specific Safety, Health and Environmental (SHE) Plan prepared for the site works.
- Samples collected from hand auger locations were collected directly from the auger or trowel using a clean pair of nitrile gloves for each discrete sample and then placed into laboratory supplied sample containers. Prior to sampling, the equipment (i.e. hand auger or trowel) was decontaminated by washing with potable water, followed by a decontamination solution, and rinsing with deionised water.
- Following collection, all samples were placed directly into chilled storage prior to transport to R J Hill Laboratories Ltd in Hamilton (Hill Laboratories) for analysis. Samples were transported under standard Coffey chain of custody procedures.

Following a review of the literature relating to the site, and based on the field engineers observations, four samples were selected and scheduled for laboratory analysis. A summary of the samples selected for analysis is shown in Table 3, and sample locations are shown in Figure 2. Four samples, including one duplicate sample, were submitted for laboratory analysis. Samples were analysed for select metals (arsenic, copper and zinc) and organochlorine pesticides. The analytical reports, as received from the laboratory, are provided in Appendix D. Note that for confidentiality reasons, the sample results for the neighbouring property (Pentecost Block Subdivision) are blacked out on these laboratory reports.

Table 3: Summary of Samples Scheduled for Analysis

Sample I.D.	Location	Reason for Scheduling
SO3	Southern arm of 'L' shaped stockpile	Unknown origin of the stockpile material
SO4	Northern arm of 'L' shaped stockpile	Unknown origin of the stockpile material
SO7 and QC01	South east corner of the site	At random to represent agricultural land

Note that samples S08 - S11 were collected from the neighbouring site as part of the Pentecost Block Subdivision site investigation (refer to Section 1).

7.2 Relevant Acceptance Criteria

Screening criteria were derived from the proposed future land use as a residential development. Additionally, Disposal Criteria were considered in the event that excess spoil generated during redevelopment activities needed to be disposed of offsite.

7.2.1 Investigation Criteria

The analytical results were assessed against soil guideline values for residential land use, to determine whether resource consent or further investigation is required for redevelopment of the site. Criteria for Maintenance/Excavation workers were also considered to represent potential exposures to construction workers during site redevelopment activities. However, criteria specific to this population are not available in the NES or several of the MfE hierarchy documents. In these cases, criteria for Commercial/Industrial Outdoor Workers were used.

The following investigation criteria have been selected in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (referred herein to as the NES), which sets soil contaminant standards for 12 "priority contaminants" and also references the hierarchy defined in the MfE Contaminated Land Management Guideline No.2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, as updated 2011). It should be noted that the ECAN Contaminated Land Management Strategy (2008) also references the hierarchy of documents defined in the MfE Contaminated Land Management Guidelines Guideline No.2.

A summary of the hierarchy of the relevant acceptance criteria documentation is provided in Table 4 overleaf.

Table 4: Summary and Hierarchy of Relevant Acceptance Criteria.

Media		Reference Document and Hierarchy
Soil	Inorganic and Organic Contaminants	1. *Resource Management (National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations*. MfE 2011. 2. *Guidelines on the Investigation Levels for Soil and Groundwater (NEPC 1999) (health investigation levels, residents land use only).* 3. *Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, USEPA*, *1996 (last updated May 2012) (USEPA RSLs).*

7.2.2 Disposal Criteria

The analytical results were assessed against Disposal Criteria to aid the in the management of potentially contaminated spoil.

As disposal to a "cleanfill" site represents the most cost effective offsite disposal option, the soil results have been compared to MfE definition of "cleanfill". As outlined in the publication "A Guide to the Management of Clean Fills" (MfE 2002), cleanfill is defined as:

"Material that when buried will have no adverse effect on people or the environment. Cleanfill material includes virgin natural materials such as clay, soil and rock, and other inert materials such as concrete or brick that are free of:

- *Combustible, putrescible, degradable or leachable components.*
- *Hazardous substances.*
- *Products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices.*
- *Materials that may present a risk to human or animal health such as medical and veterinary waste, asbestos or radioactive substances.*
- *Liquid waste."*

Background concentrations of trace elements, which form the basis of these Disposal Criteria, are from "Background concentrations of selected trace elements in Canterbury soils" (ECAN, 2007).

7.2.3 Assumptions

The guideline documents referenced in Table 4 provide soil acceptance criteria for a number of different land uses, potential exposure pathways, soil types and depths of contamination. The selection of acceptance criteria for this assessment was based upon the following considerations:

- Residential land uses have been considered based on the future subdivision and rezoning of the site.
- A standard residential land use is considered to be a single dwelling site with gardens, including home grown produce consumption (10%) (MfE, 2011).
- In New Zealand acceptance criteria are typically derived based on an incremental lifetime risk of cancer of 1 in 100,000 (or 10^{-5}). Other jurisdictions, for example in the United States, derive

acceptance based on an incremental lifetime risk of cancer of one in 1,000,000 (or 10^{-6}). Therefore, where acceptance criteria from other jurisdictions are cited and this difference occurs (i.e. USEPA) the criteria have been adjusted to an incremental lifetime risk of cancer of 1 in 100,000.

- Under "Background concentrations of selected trace elements in Canterbury soils" (MfE, 2007), soils are identified as "Gley" structure. Trace element levels are derived from this soil type.
- United States Environmental Protection Agency (USEPA) "*Regional Screening Levels for Chemical Contaminants at Superfund Sites*" have been cited in preference to criteria available from other USEPA regions as they represent the harmonisation of similar risk-based screening levels used by Regions 3, 6, and 9 into a single database. As the criteria adopted across the 10 different USEPA regions can vary by several orders of magnitude, consistency of approach across a number of regions is considered to provide a strong indicator of likely future trends.

7.3 Results

7.3.1 Field Observations (visual and olfactory)

No visual or olfactory (odour) evidence of contamination was noted during the sampling works or site walkover.

7.3.2 Analytical Results

The results of soil laboratory analysis are provided in Tables 5 and 6, and are summarised below.

Metals

No samples contained metals concentrations exceeding the soil guideline values for a residential development with 10% home produce consumption or for Maintenance/Excavation Workers.

The concentration of zinc in all samples, copper in S03 and S04, and arsenic in S03 exceeded the published background concentrations (ECAN, 2007).

Organochlorine Pesticides

No pesticides were measured in samples above the laboratory limit of detection.

7.4 Quality Assurance

7.4.1 Use of Accredited Laboratory

Hill Laboratories is an International Accredited and New Zealand (IANZ) accredited laboratory, and was engaged to conduct all laboratory analysis.

7.4.2 Laboratory Quality Control

Because Hill Laboratories is accredited by IANZ, it is expected to comply with the accreditation requirements that include confirmation of the validity and suitability of results. Any such breaches in laboratory quality control would be notified at the time of release of the analytical results. No breaches were reported.

7.4.3 Duplicate Sample Results

One duplicate sample QC01 was taken to replicate the analysis of primary sample SO7. The relative percentage difference (RPD) between the primary and duplicate samples was calculated as the difference between the two results expressed as a percentage of their mean.

If both results were below the laboratory reporting limit, an RPD was not calculated. Where one result was above and one was below, RPDs were calculated assuming one-half the laboratory reporting limit for the non-detectable concentration.

It is typically considered acceptable if an RPD range of less than 50% is achieved for soil samples (MfE, 2004). As shown in Table 6, RPDs for metals were below 50%, indicating a very high degree of replication and consistency in analytical processes. RPDs were not calculated for organochlorine pesticides as none of these chemicals were detected.

7.4.4 Sample Handling and Holding Times

The chain of custody records provided in Appendix D show that the samples were submitted and analysed by Hill Laboratories in Hamilton within the generally accepted time for these analyses.

8 DISCUSSION AND CONCLUSIONS

The environmental investigations carried out at the site have identified no current activities that are likely to present a risk to human health or the environment. The desktop study and site walkover identified limited potential for sources of past site contamination. Soil samples were collected from the on-site stockpiles, and analysed as a precautionary measure to provide quantitative data at possible contamination sources. The results of laboratory analysis did not identify any contamination issues at the site. Results showed contaminant concentrations were below the adopted soil guideline values. Concentrations of metals in the stockpile exceeded the ECAN published background guideline value. Therefore, this material is not considered suitable for off-site disposal as “cleanfill”. No other imported fill material was identified on site during the site walkover.

Due to the exceedance of the background guideline value for zinc at S07 (the one non-stockpile based sample), excess spoil generated during redevelopment works (if any) should be tested to confirm a suitable offsite disposal location.

Interviews with the farm manager confirmed that hazelnut orcharding activities were not undertaken at the site. On the basis of the information collected to date, Coffey considers there to be limited contamination risk associated with the site.

As with any assessment of this nature, there is the potential that additional items not visible during the investigation may be revealed during the development of the site. In the event that any contamination is identified during future earthworks, the material should be evaluated by a suitably qualified environmental consultant prior to work continuing in the area.

Overall, the site investigation has not revealed contamination issues that should prevent subdivision and subsequent development of the site.

9 RECOMMENDATIONS FOR FUTURE WORK

Coffey recommend that no further investigation work be performed prior to redevelopment of the site. However, if surplus spoil material is generated during redevelopment activities, the material should be tested to confirm a suitable offsite disposal location.

10 LIMITATIONS

The findings of this report should be read together with “Important Information About Your Coffey Environmental Report” attached to this report.

11 REFERENCES

CCME (2002) Canadian Environmental Quality Guidelines, Canadian Councils of Ministers of the Environment, Environment Canada Guidelines and Standards Division, Hull, Quebec, Canada, 2002.

Barrrell D, Jongens R, Forsyth P (2008) Geology of the Christchurch Area, Institute of Geological and Nuclear Sciences Limited.

ECAN (2007) Background concentrations of selected trace elements in Canterbury soils, Christchurch, New Zealand, February 2007.

ECAN (2007) Contaminated Land Management Strategy, Christchurch, New Zealand, February 2007.

MfE (1999) Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand. Ministry for the Environment, Wellington, New Zealand, August 1999.

MfE (2002) A Guide to the Management of Cleanfills. Ministry for the Environment, Wellington, New Zealand.

MfE (2003a) Contaminated Land Management Guideline No. 1: Reporting on Contaminated Sites in New Zealand. Ministry for the Environment, Wellington, New Zealand, October 2003.

MfE (2003b) Contaminated Site Management Guidelines No. 2: Hierarchy and Application in New Zealand of Environmental Guideline Values. Ministry for the Environment, Wellington, New Zealand, November 2003.

MfE (2004) Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils, Ministry for the Environment, Wellington, New Zealand, February 2004.

MfE (2011) Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.

USEPA (2002) Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, Office of Emergency and Remedial Response, United States Environmental Protection Agency, Washington, D.C., December 2002.

USEPA (2010). United States Environmental Protection Agency Regions 3, 6, and 9. Regional Screening Levels for Chemical Contaminants at Superfund Sites. May 2010 update.

Tables

Preliminary Site Investigation
Ravenscar Park, Rangiora, Canterbury

Table 5: Summary of Soil Analytical Results

Analyte	Investigation Criteria		Disposal Criteria	S03 (mg/kg)	S04 (mg/kg)	S07 (mg/kg)	
	Human Health Criteria (by NES and MfE and Hierarchy) (mg/kg)		Cleanfill (Background) [2] (mg/kg)	0.2 - 0.4 mbgs	0.2 - 0.4 mbgs	0.2 - 0.4 mbgs	0.2 - 0.4 mbgs
	Residential 10% Home Produce	Maintenance / Excavation [1]				Primary	Duplicate (QC01)
Metals							
Arsenic	20 [3]	70 [3]	8.7	**10**	8	5	5
Copper	>10,000 [3]	>10,000 [3]	15.5	**23**	**21**	13	13
Zinc	7,000 [4]	310,000 [5]	65.6	**76**	**67**	**92**	**96**
Organochlorinated Pesticides[7]							
DDE	14 [5,6]	51 [5,6]	<LOR	< 0.010	< 0.010	< 0.010	< 0.010
DDT	70 [3]	1,000 [3]	<LOR	< 0.010	< 0.010	< 0.010	< 0.010
DDD	20 [5,6]	72 [5,6]	<LOR	< 0.010	< 0.010	< 0.010	< 0.010
Dieldrin	2.6 [3]	160 [3]	<LOR	< 0.010	< 0.010	< 0.010	< 0.010
Endrin	18 [5, 6]	180 [5,6]	<LOR	< 0.010	< 0.010	< 0.010	< 0.010

Notes:

Bold text indicates concentration exceeds adopted Cleanfill Criteria

No other criteria were exceeded.

<LOR = less than the laboratory limit of reporting

mbgs = metres below ground surface

mg/kg = milligrams per kilogram

A hyphen (-) indicates criteria are not available or the chemical was not analysed

1. Where criteria specific to this population were not available, criteria for Commercial / Industrial Outdoor Workers were used.
2. ECAN Environment Canterbury Regional Council Technical Publication "Background concentrations of selected trace elements in Canterbury soils"- Under the guidance of Gley Soils in the regional report
3. National Environmental Standard Soil Guideline Value (MfE,2011)
4. Guidelines in the Investigation Levels for Soil and Groundwater (NEPC 1999).
5. Regional Screening Levels (RSLs) for Chemical Contaminates at Superfund Sties, USEPA, 1996 and last updated May 2012.
6. Increased criterion by a factor of 10 to account for the difference between acceptable lifetime cancer risks in the US versus New Zealand (i.e. 1 in 1,000,000 in the US versus 1 in 10,000 in New Zealand).
7. Refer to the appended analytical laboratory reports for the full list of organochlorine pesticides analysed.

Table 6: Summary of QC Analyses

Analyte	Analytical Results (mg/kg)		
Sample Location	S07	QC01	RPD (%)
Metals			
Arsenic	5	5	0
Copper	13	13	0
Zinc	92	96	4
Organochlorine Pesticides			
DDE	<0.01	<0.01	-
DDT	<0.01	<0.01	-
DDD	<0.01	<0.01	-
Dieldrin	<0.01	<0.01	-
Endrin	<0.01	<0.01	-

Notes:

<LOR indicates less than laboratory level of reporting

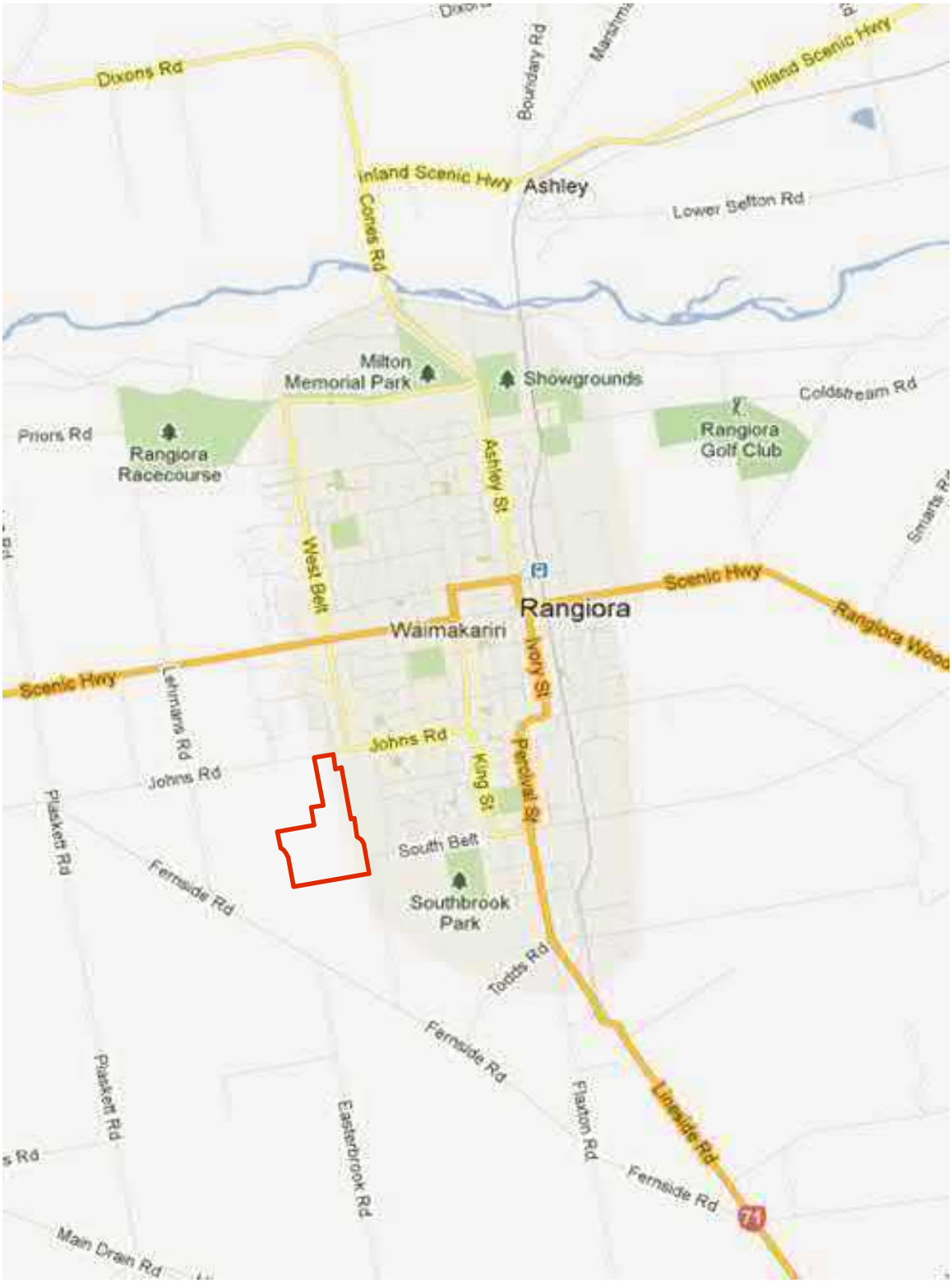
mg/kg = milligrams per kilogram

Figures

Preliminary Site Investigation
Ravenscar Park, Rangiora, Canterbury

Legend

Approximate Site Boundary

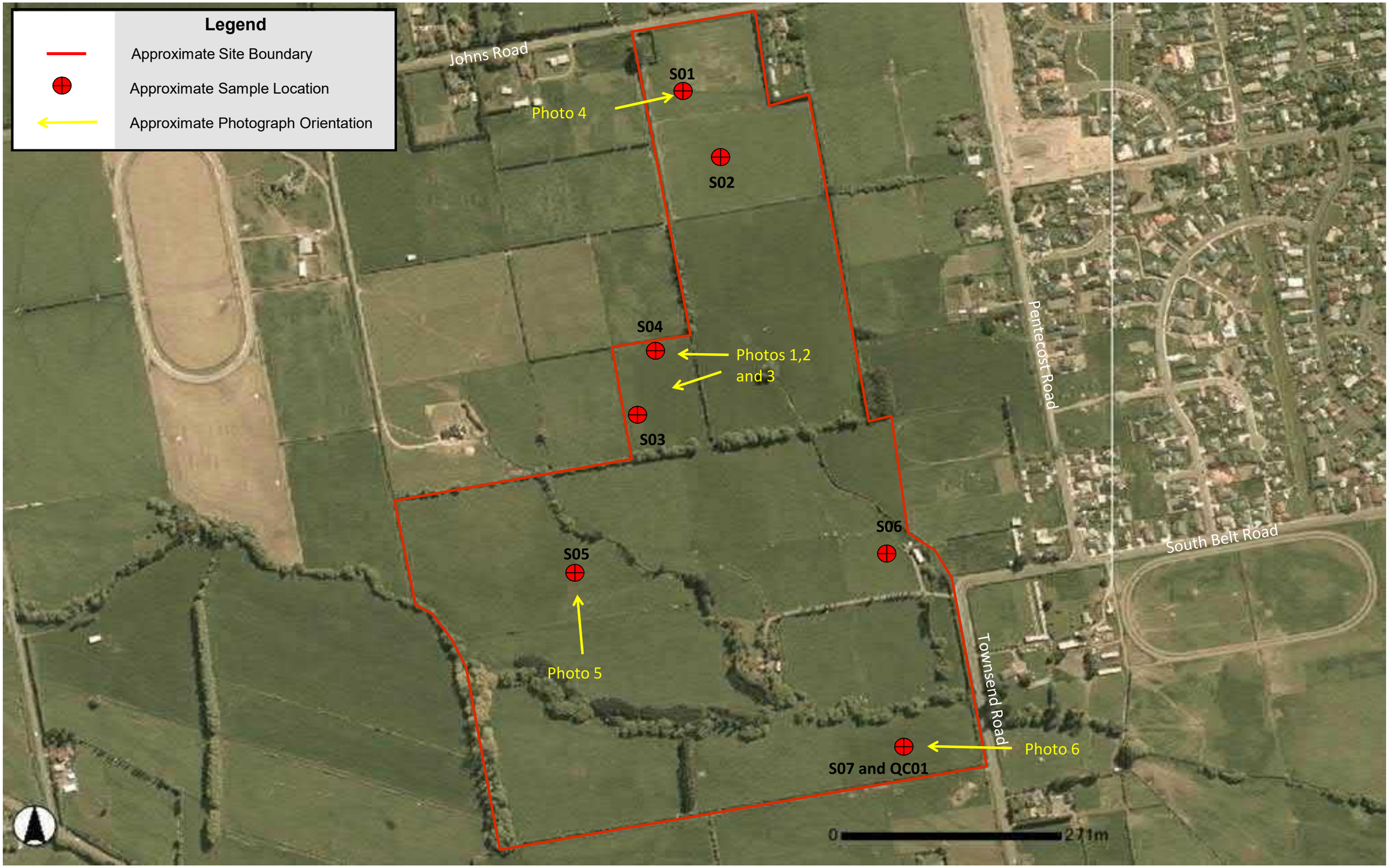


CLIENT: **Waimakariri District Council**		PROJECT:	51094AA	DESIGNED:	RJB
		DWG #:		DRAWN:	RJB
		REVISION:			
PROJECT TITLE: **Wakefield Block Subdivision**		SCALE:	NA	STATUS:	FINAL
		DATE:	30/05/12		

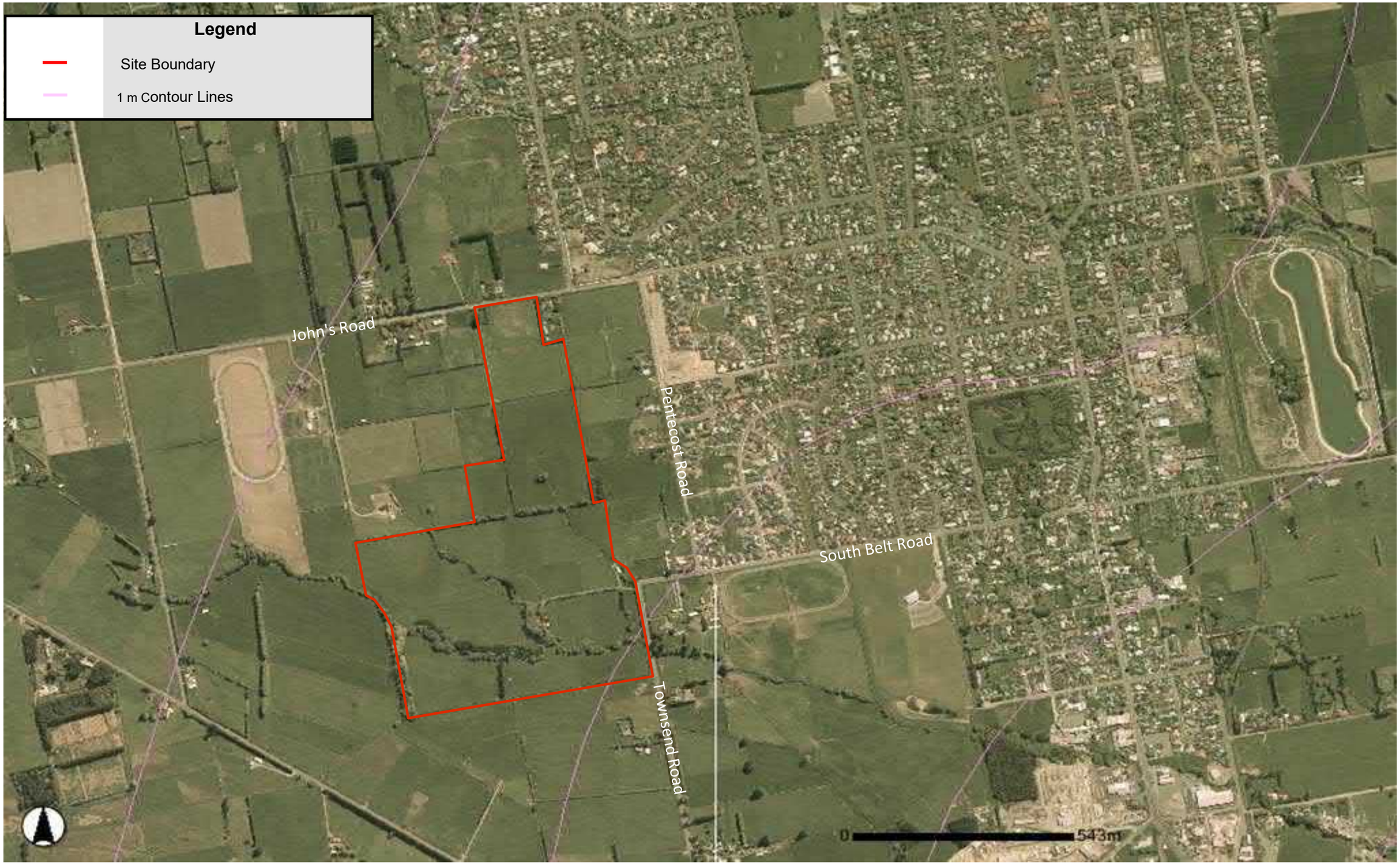
FIGURE TITLE **Site Location**

FIGURE: 1

coffey environments



Notes:		CLIENT: **Waimakariri District Council**	PROJECT:	51094AA	DESIGNED:	RJB	FIGURE TITLE: **Site Layout**
			DWG #:		DRAWN:	RJB	
			REVISION:		STATUS:	FINAL	
		PROJECT TITLE: **Wakefield Block Subdivision**	SCALE:				FIGURE NUMBER: 2
			DATE:	30/05/12			coffey environments



Notes:

CLIENT: **Waimakariri District Council**

PROJECT TITLE: **Wakefield Block Subdivision**

PROJECT:	51094AA	DESIGNED:	RJB		
DWG #:		DRAWN:	RJB		
REVISION:		STATUS:	FINAL		
SCALE:	NA				
DATE:	30/05/12				

FIGURE TITLE: **Site Contour Map**

FIGURE NUMBER: 3

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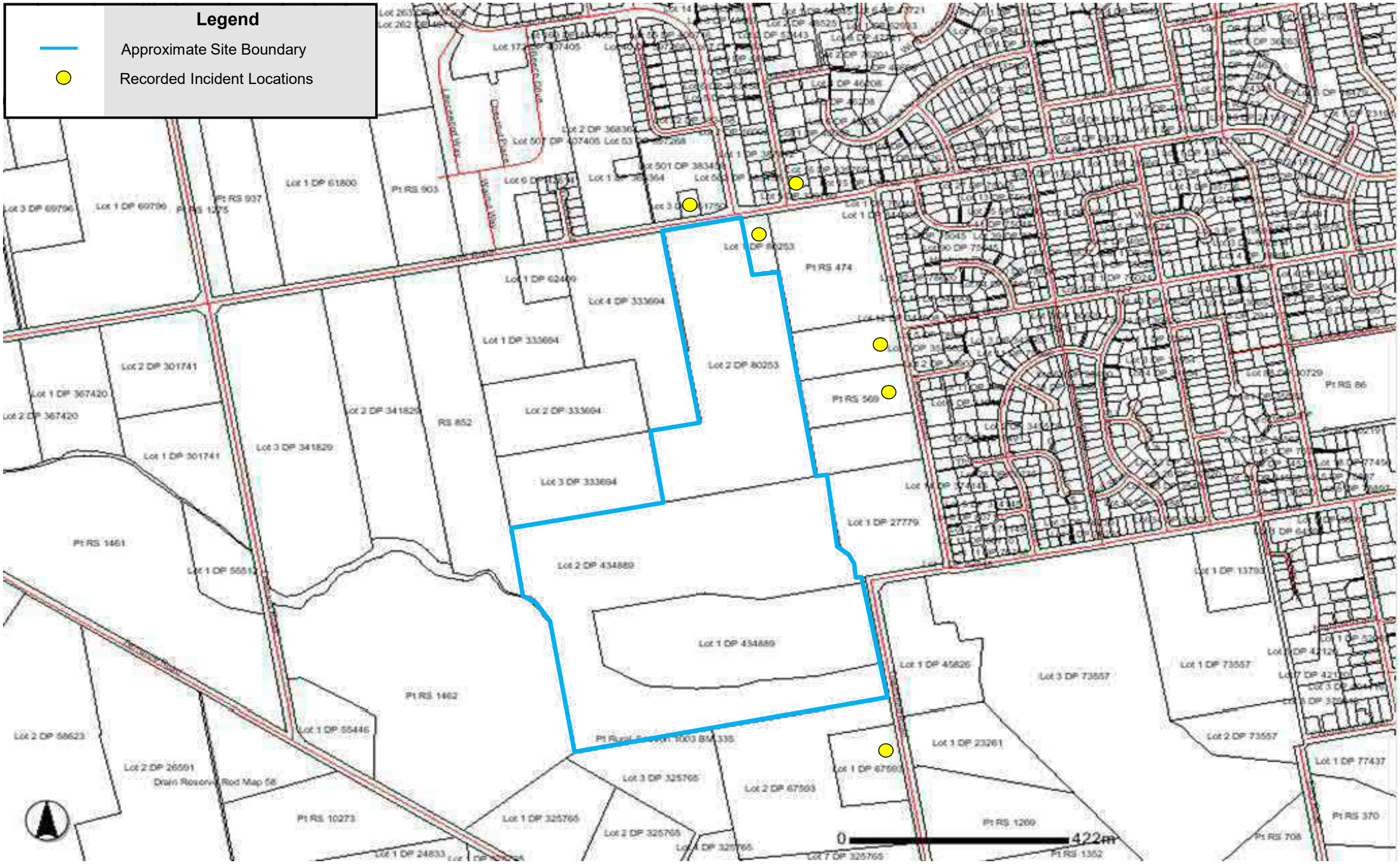

Notes:	N	CLIENT: **Waimakariri District Council**	PROJECT:		DESIGNED:	RJB	FIGURE TITLE: **Recorded Incident Locations**
			DWG #:		DRAWN:	RJB	
			REVISION:		STATUS:	FINAL	
		PROJECT TITLE: **Wakefield Block Subdivision**	SCALE:	NA			
			DATE:	30/05/12			FIGURE NUMBER: 4

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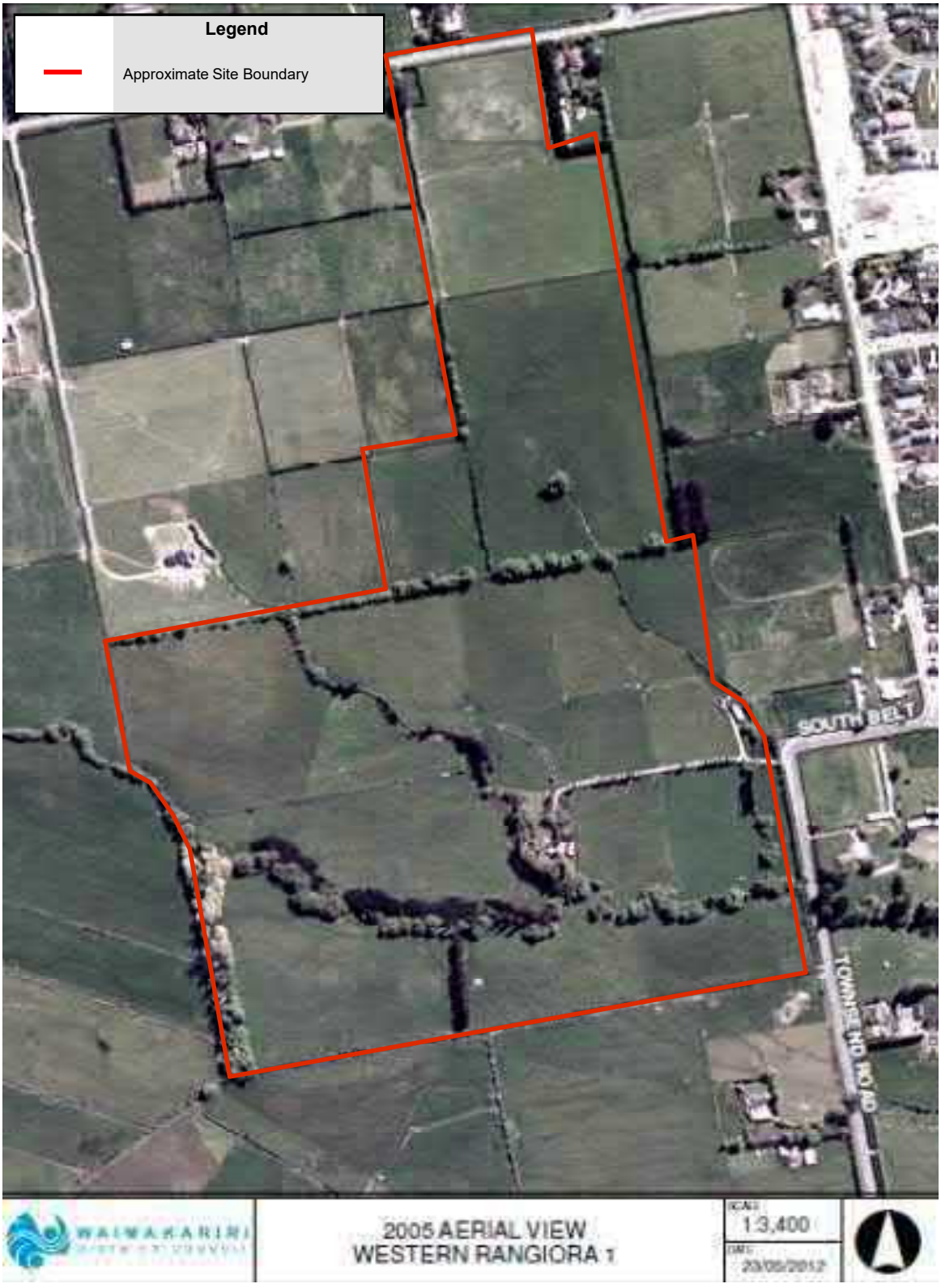

CLIENT: **Waimakariri District Council**		PROJECT:	51094AA	DESIGNED:	RJB
		DWG #:		DRAWN:	RJB
		REVISION:		STATUS:	FINAL
PROJECT TITLE: **Wakefield Block Subdivision**		SCALE:	NA		
		DATE:	31/05/12		

FIGURE TITLE: **Historical Photograph-2005**

FIGURE: 5

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Appendix A
Site Photographs

Preliminary Site Investigation
Ravenscar Park, Rangiora, Canterbury

Photograph 1: Photgraph showing extent of stockpiles.

Photograph 2: Approximate location of S04

CLIENT: Eliot Sinclair & Partners Ltd	PROJECT:	51094AA	DESIGNED:	DP	SITE PHOTOGRAPHS
	DWG #:	NA	DRAWN:	DP	
	REVISION:				
PROJECT TITLE: Wakefield Subdivision	SCALE:	NA	STATUS:	FINAL	
	DATE:	31.05.2012			

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Photograph 3: Approximate location of S03.

Photograph 4: Approximate location of S01. Sheep present.

CLIENT: Eliot Sinclair & Partners Ltd	PROJECT:	51094AA	DESIGNED:	DP	SITE PHOTOGRAPHS
	DWG #:	NA	DRAWN:	DP	
	REVISION:				
PROJECT TITLE: Wakefield Subdivision	SCALE:	NA	STATUS:	FINAL	
	DATE:	31.05.2012			

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Photograph 5: Approximate location of S05.

Photograph 6: Southern end of Wakefield Block showing location of S07 amongst similar environment evident throughout the property.

CLIENT: Eliot Sinclair & Partners Ltd	PROJECT:	51094AA	DESIGNED:	DP	SITE PHOTOGRAPHS
	DWG #:	NA	DRAWN:	DP	
	REVISION:		STATUS:	FINAL	
PROJECT TITLE: Wakefield Subdivision	SCALE:	NA			
	DATE:	31.05.2012			

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Appendix B
ECAN Contamination Enquiry and Results of New Zealand Fire Service Database Search

Preliminary Site Investigation
Ravenscar Park, Rangiora, Canterbury

Fires and Hazardous Substance Incidents Within a 50m Block of Pink Area Bordered by Johns Rd and Townsend Rd

Since 01/07/1998

					Incident Type					Quantity Leaked		Disposal Method						Total	Percentage	Estimated
CAD No.	Date/Time	Address No.	Street	Suburb	IT	Incident Type Name	Zone	UNSI	Trade Name	QL	QL Description	DM	DM Description	Occupant	Commonname	NZTME (X)	NZTMN (Y)	Area of Veg Damage	of Property Saved	Cost of Damage
Fires (excluding Chemical fires)																				
M009752	9/10/1998 14:29:26	39	PENTECOST	RANGIORA	1102	Structure fire with no damage	357601							G ORCHARD		1566280	5204047	0	91 - 100%	
M101682	17/06/2000 20:13:01	51	PENTECOST	RANGIORA	1308	Hedge, Shelterbelt fire	357601							UNKNOWN		1566271	5204111	5	Not Recorded	
M184117	22/05/2001 15:43:43		WEST BELT	RANGIORA URBAN	1101	Structure fire with damage	357601							GEOFF TAYLOR		1566049	5204367	0	0 - 10%	$9,360
M192746	25/06/2001 17:46:48		JOHNS	RANGIORA URBAN	1501	Outside rubbish fire	357601									1566049	5204367	0	Not Recorded	
M347898	1/06/2003 1:02:35		TOWNSEND	RANGIORA URBAN	1511	Outside fire: Material burnt has definable value	357603									1566233	5203466	0	Not Recorded	
M397529	31/12/2003 12:54:25		PENTECOST	RANGIORA URBAN	1311	Vegetation Fire (less than 20 sq. m)	357603									1566236	5203777	20	Not Recorded	
M611961	1/08/2006 15:16:37	140	JOHNS	RANGIORA RURAL	1308	Hedge, Shelterbelt fire	357603									1565870	5204359	0	Not Recorded	
M668310	25/03/2007 21:54:04		PENTECOST RD and CHARLES ST	RANGIORA	1311	Vegetation Fire (less than 20 sq. m)	357601									1566271	5204111	2	Not Recorded	
F0303946	6/12/2008 15:24:29	59	TOWNSEND	RANGIORA	1311	Vegetation Fire (less than 20 sq. m)	357603									1566183	5203204	10	Not Recorded	
F0408406	19/04/2009 19:10:05	131	JOHNS	RANGIORA	1104	Chimney fire	357603									1565994	5204326	0	91 - 100%	
F0488247	14/08/2009 21:38:07	140	JOHNS	RANGIORA	1511	Outside fire: Material burnt has definable value	357601									1565870	5204359	0	Not Recorded	
F0945455	1/04/2011 0:17:43		PENTECOST	RANGIORA	1308	Hedge, Shelterbelt fire	357603									1566267	5203909	0	Not Recorded	
F1095597	23/12/2011 15:25:14	4	WEST	RANGIORA	1101	Structure fire with damage	357601							Ivan Hayward		1566045	5204387	0	41 - 50%	$3,900

Note : No hazardous substance incidents found

Environment Canterbury
Regional Council
Kaunihera Taiao ki Waitaha

58 Kilmore Street
PO Box 345
Christchurch 8140

P. 03 365 3828
F. 03 365 3194
E. ecinfo@ecan.govt.nz

Customer Services
P. 03 353 9007 or 0800 324 636

www.ecan.govt.nz

31 May 2012

Attn: Ryan Buchanan
Level 11
7 City Road
Grafton
AUCKLAND 1010

Dear Ryan

Thank you for submitting your property enquiry. I have searched our Listed Land Use Register (LLUR) which holds information about sites that have been used, or are currently used for activities which have the potential to have caused contamination.

There are currently no LLUR sites located on the land parcel(s) you enquired about; however our records indicate that the land has recently been investigated. A report documenting the findings of this investigation is yet to be reviewed by Environment Canterbury.

Please note that if a property is not currently entered on the LLUR, it does not mean that an activity with the potential to cause contamination has never occurred, or is not currently occurring there. The LLUR is not complete, and new sites are regularly being added as we receive additional information and conduct our own investigations into current and historic land uses.

The LLUR does not contain all the information held by Environment Canterbury about a property, and other information relevant to potential contamination may be held in other files (for example consent and enforcement files).

If your enquiry relates to a farm property, please be aware that many current and past activities undertaken on farms (such as the storage, formulation and disposal of pesticides, offal pits, foot rot troughs, animal dips and underground or above ground fuel tanks) have the potential to cause contamination and these may not be listed on the LLUR.

Please note: Due to the Christchurch earthquake, Environment Canterbury has limited access to files. Even though we endeavour to keep our electronic files up to date, there may be more information on record that we are unable to provide at this time.

Yours sincerely

Jason McDonald
Advisory Officer

Davina McNickel
Team Leader Contaminated Sites

Encl:
Statement from Environment Canterbury's Listed Land Use Register
Listed Land Use Register Information Pamphlet

Our Ref: IN7C/4-
Your Ref: 11367

Statement from the Listed Land Use Register

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

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

Date: 29 May 2012

Land Parcels:

• Pt RS 569	Valuation No(s): 2159133400
• Lot 2 DP 80253	Valuation No(s): 2159133701
• Lot 1 DP 80253	Valuation No(s): 2159133700
• Pt RS 569	Valuation No(s): 2159133401
• Pt RS 474	Valuation No(s): 2159133500
• Pt RS 569	Valuation No(s): 2159133501
• Lot 1 DP 27779	Valuation No(s): 2159120100
• Lot 1 DP 434889	Valuation No(s):
• Lot 2 DP 434889	Valuation No(s):

Summary of sites:

There are no sites associated with the area of enquiry.

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

Information held about other investigations on the Listed Land Use Register

1 Apr 2005 **INV 3076: Assessment of Potential Chemical Contamination of Land Purchased in Rangiora for Residential Subdivision - Preliminary Site Investigation**
Landcare Research

Summary of above Investigations

Report(s) have not yet been audited.

For further information from Environment Canterbury, contact the Contaminated Sites Officer and refer to enquiry number 11367.

Appendix C
Field Forms

Preliminary Site Investigation
Ravenscar Park, Rangiora, Canterbury

Haotwist [illegible]
[illegible]

2:45 pm.

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FIELD REPORTING COVER SHEET

Project Name: Wakefield + Pentecoste Subdivision Date: 03/05/2012

Arrival Time: 12:30

Project Number: 51094

Field Personnel (Initials): RJB

Departure Time: 4:00 pm

Project Manager (initials): DP

Purpose of Visit (Tick Appropriate Box)

Drilling	☐	GW Sampling	☐	Soil Sampling	☑
Gauging	☐	Cable locating	☐	Other	☐
Site inspection	☐	Tank removal and validation	☐	Specify:	

Equipment Used (Provide ID Number)

FID: ______ LEL/O2/Toxic Gas Meter: ______

PID: ENV1 Water Quality Meter : ______

IP: ______ Other Meter: ______

Equipment calibrated prior to use, and/or equipment calibration records checked : ☑

Other Calibration Performed (if any): ______

Sampling

Sampling Conducted: Y ☑ N ☐ Matrix: Soil ☑ Water ☐ Other ☐

COC Completed and Samples Sent: Y ☑ N ☐ COC No(s): ______

Primary Lab: Hills Secondary Lab: ______

Description of Activities (e.g., What did you do – drilled 3 soil borings (i.e. SB1 – SB7), installed 3 MWs, etc.

Collected 7 soil samples and 1 QC sample

Attached Forms

Daily Field Summary: Y ☑ N ☐ Relevant Field Forms (list): ______

Site Map / Sketch: Y ☑ N ☐ Others (Specify): ______

Field Quality Control Log Y ☑ N ☐

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Project No.	5L094
Date:	03/05/2012
Page	___ of ___

DAILY FIELD SUMMARY

Project Name: Wakefield + Pentecost Subdivision

Field Personnel (Initials): RJB

Project Manager (Initials): DP

Time	Description of Tasks Undertaken: (Include details onsite, all personnel, standby, phone calls)
12:30.	Arrived on site.
12:45	Started sampling
2:30	Interviewed Farmer.
4:00	Left Site.

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Project No.	51094
Date:	03/05/2012
Page	of

FIELD QUALITY CONTROL LOG

Project Name: Wakefield + Pentecost Subdivision

What Matrix is Being Sampled?

Field Personnel (Initials): RJB

Project Manager (Initials): DP

Soil ☑ Groundwater ☐

Other ☐ Surface Water ☐

Field QC Sample ID	Sampling Date/ Time	Description
(example) QC7	8/04/2006; 0900	Duplicate of SB1/4.0
QC01	03/05/2012	Duplicate of S07

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Project No.	51094 AA
Date:	03/05
Page	1 of 1

FIELD SOIL SCREENING (PID)

Project Name: Wakefield Subdivision

Field Personnel (Initials): RJB

Project Manager (Initials): DP

Equipment Type: PID 1 Equipment No:

Sample ID	Soil Description (soil type, moisture, colour etc)	Depth (m)	Staining/ Odour (descriptive)	PID (ppm)
S01	clayey SILT; Moist, Lt Br	0.2 - 0.4m	N	0.1
	Mot. Or + [redacted] Br.	"	[redacted]	[redacted]
	(Mixture of topsoil and	"	N	0.1
	clayey SILT)	"	N	0.1
S02	"	"	N	0.1
S03	SILT; DK Brown, Dry (Topsoil).	"	N	0.1
S04	[redacted] "	"	N	0.1
S05	Same as S01	"	N	0.1
S06	"	"	N	0.1
S07	"	"	N	0.1

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SPECIALISTS IN LIVING AND WORKING PLACES

Environmental Field Log - Test Pit

Excavation No.

Sheet of

Client:				Project No.	
Project:				Date started:	
Site Address:				Date completed:	
Equipment Type:		Pit Dimensions	m long m wide	Logged by:	Checked by:
GPS Co-ord:		GPS Datum:		R.L. surface (AHD):	Orientation:

Excavation Information						Material substance				Additional observations
Method	Support	Water	sample ID / type / tests	PID (ppm)	depth (m)	USCS	Material Description (secondary) PRIMARY soil name, primary component characteristics, colour, secondary component characteristics, minor components	moisture condition	consist. / density	Comments (including Evidence of Contamination, Structure, Geological Unit & Additional Observations)

Sketch

Plan View

Cross-Section View

Scale Scale

Initial water level: (after mins.) Standing water level: (after mins.)

Method
- N Natural Exposure
- X Existing Excavation
- BH Backhoe Bucket
- B Bulldozer Blade
- R Ripper
- E Excavator
- HT Hand Tools

Support
- T Timbering
- N Nil

Water
- ▶ inflow
- ◀ outflow
- ▽ initial water level (after excavation)
- ▼ standing water level @ time/date

Colour
- R red
- W white
- G grey
- P purple
- Y yellow
- Bl Black
- Br Brown
- O Orange
- G Green
- B Blue

Grainsize
- F fine
- M medium
- C coarse

Plasticity
- Lp low plasticity
- Mp medium plasticity
- Hp high plasticity

Grading
- Wg well graded
- Pg poorly graded
- Gg gap graded
- U uniform

Moisture
- D dry
- M moist
- W wet

Weathering Terms
- Fr Fresh
- SW Slightly Weathered
- MW Moderately Weathered
- HW Highly Weathered
- XW Extremely Weathered
- RS Residual Soil

Consistency
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable

Density
- VL very loose
- L loose
- MD med. dense
- D dense
- VD very dense

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SPECIALISTS IN LIVING AND WORKING PLACES

Environmental Field Log - Borehole

Borehole No.

Sheet of

Client:					Project No.		
Project:					Date started:		
Site Address:					Date completed:		
Drill model:		Drill mounting:		Hole dia (mm):	Logged by:	Checked by:	
GPS Co-ord:		GPS Datum:		R.L. surface (AHD):		Inclination:	

Drilling information							Material substance				Additional observations
Method	Support	Water	construction details	sample ID / type / tests	PID (ppm)	depth (m)	USCS	Material Description (secondary) PRIMARY soil name, primary component characteristics, colour, secondary component characteristics, minor components	moisture condition	consist. / density	Comments (including Evidence of Contamination, Structure, Geological Unit & Additional Observations)

Initial water level: (after mins.) Static water level: (after mins.)

Method
DT diatube
PT push tube
SS solid stem flight auger
HS hollow stem flight auger
V, T V bit, TC bit
AH air hammer
CP cable percussive
NMLC NMLC core
HA Hand auger
NDD Non-Destructive Digging

Support
C casing
DF drilling fluid
N none

Water
▶ inflow
◀ outflow
▽ Initial water level (after excavation)
▼ standing water level @ time/date

Grading
Wg well graded
Pg poorly graded
Gg gap graded
U uniform

Grainsize
F fine
M medium
C coarse

Plasticity
Lp low plasticity
Mp medium plasticity
Hp high plasticity

Weathering Terms
Fr Fresh
SW Slightly Weathered
MW Moderately Weathered
HW Highly Weathered
XW Extremely Weathered
RS Residual Soil

Moisture
D dry
M moist
W wet

Colour
R red
W white
G grey
P purple
Y yellow
Bl Black
Br Brown
O Orange
G Green
B Blue

Consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

Density
VL very loose
L loose
MD med. dense
D dense
VD very dense

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Project No.	5109H
Date:	03/05/2012
Page	____ of ____

PHOTOGRAPHY LOG AND SITE SKETCH

Project Name: Wakefield + Pentecost Subdivision

Field Personnel (Initials): RJB **Camera ID:** ____

Project Manager (Initials): DP **Where are the photos saved?** ____

Date	Photo No:	Photo Description
11-Aug	1	Photo of the northern portion of the site (EXAMPLE ONLY)
03/05	1	Photo of S01 (Next to CPT21 test location) see map
03/05	2	Photo of S02 (Next to CPT20 test location).
03/05	3	Photo of S03 + S04 on stockpiles.
03/05	4	Photo of S07 ~~next~~ to approx 20m West of
~~03/05~~	~~5~~	CPT3 test location.

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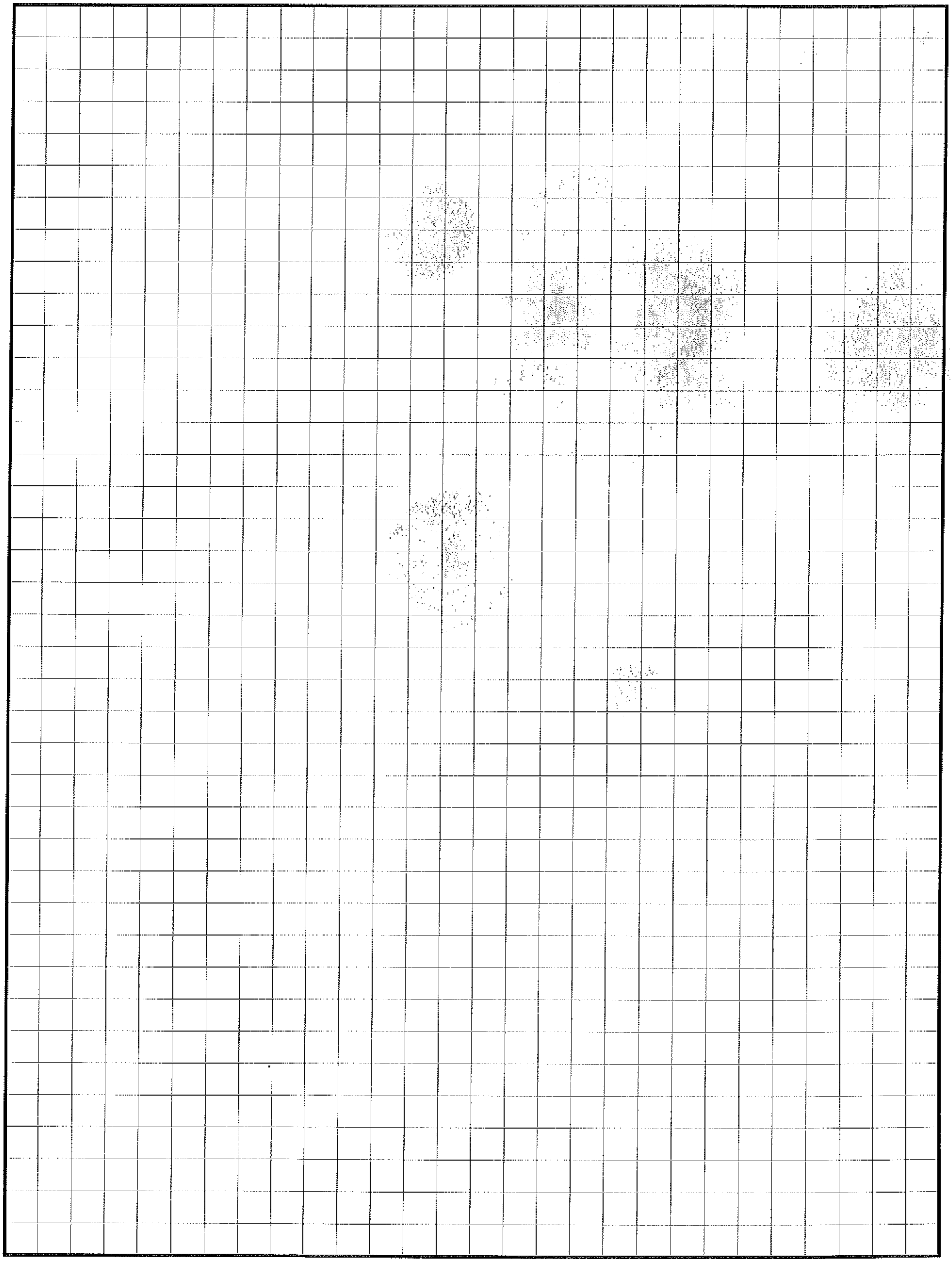
SITE SKETCH OF PHOTO LOCATIONS

(this plan must include a north arrow and an approximate scale (as a minimum)).



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SPECIALISTS IN ENVIRONMENTAL,
SOCIAL AND SAFETY PERFORMANCE

PRELIMINARY SITE INSPECTION CHECKLIST

Site Details (Name and Address):

Wakefield + Pentecost
Subdivision Blocks.

Prepared for (Client):

Elliot Sinclair Ltd +
Waimakariri District Council

Field Work Date: 03+04/05/2012

Project Ref: 51094AA + 51094AB.

Inspected By: Ryan Buchanan.

Coffey Geotechnics (NZ) Limited Trading as Coffey Environments
Level 11, 7 City Road, Grafton, Auckland 1010, New Zealand
PO Box 8261, Symonds Street, Auckland 1150, New Zealand
T (+64) (9) 379 9463 F (+64) (9) 307 2654 coffey.com

1.0 SITE DETAILS

1.1 Location and Legal Description

Site Name	Wakefield + Pentecost Blocks
Site Address (including street address)	Johns Road, Townsend Road, Pentecost Road.
Legal Description	
Site Zoning (if known)	Rural (current) → Residential Subdivision (Proposed)
Local Council	Waimakariri District Council.
Site Operator Name	
Operating Company name	
Facility Type (residential, commercial, etc)	Pastoral and residential.
Facility Size (Total / Active)	Approx 40Ha
Future Site Use (if known)	Residential
Reason for Investigation (Divestment, end of lease, refurbishment, etc)	Change of landuse → Past agricultural uses

1.2 General Characteristics

1.2.1 Site Activities

Prepare site sketch or record observations on a site plan.

Current Site Activities: Sheep/Cattle farming, 6 to 9 residential properties.

Previous Site Activities (if known): Farming (stock), Grain farming, potentially Hazardous Activities.

Site Appearance (any stressed vegetation, surface staining, spills/leaks, pavements cuts/marks, etc):

- No evidence of stressed vegetation
- Potential hazardous contaminants at 133 Pentecost Road at burnt shed site.
- Potential hazardous contaminants from foreign soils in stockpiles on Wakefield farm site.

Signs of previous investigations/remedial works at the site (presence of monitoring wells, abandoned boreholes, trenching, etc):

No remedial works evident, Geotechnical investigations only.

Evidence of petroleum storage onsite (if so, detail below):

No

Product (current/historical)	AST/ UST	Spill Cont.*	Location	Container (size/quantity/condition)	Staining Odors Other obs.

Draw locations of petroleum storage infrastructure (including bowser areas, vent lines, etc) on a site plan.

Oil-Water separator pit/waste oil systems:

Waste materials identified onsite (old building materials, waste, rubbish, containers, etc):

Waste Streams observed onsite (waste water, collection pits, etc):

No

Chemical/Drum storage (if so, detail below):

No

Drum storage area description (labeled, bunded, drainage, evidence of leaks/spills, etc):

No

Drum Substance/Product	Location	Container (type, size, quantity, condition)	Staining Odors Other obs.

Additional comments:

1.2.2 Topography and Hydrology

Prepare site sketch or record observations on a site plan.

Site Slope Direction: South East

Site Slope (approximate): < 10°

Surface water drainage (collected or ponding): Some areas at southern end of farm with saturated soils.

Is there a risk of flooding?: Yes → see above.

Surface water bodies/courses onsite: 3 minor streams onsite → flowing South East direction

Surface water bodies/courses flow direction:

Comments (size, lining, vegetation, etc): Minor,

Likely Groundwater depth:

Likely Groundwater flow direction:

Likely Groundwater discharge point:

Indication of filled/excavation areas, retaining walls, etc: No

Additional comments:

1.2.3 Physical Site Description

Prepare site sketch or record observations on a site plan.

Site Size and Shape: Flat, Approx 40Ha (combined)

% of Area Devoted to parking: Minor (residential only).

Number of Buildings/Structures Observed: Approx 8

Building/Structure Dimensions:

Building Materials:

Number of Storeys: Single

Basement present: No

Mould or asbestos observed in building: No

Flooring (type and condition, cracks, etc):

% Paved Areas: Minor.

% Unpaved: >90%

% Landscaped: Minor

Areas of trees/large vegetation onsite: Some areas on trees on Pentecost Road Properties, some hedged areas, majority exposed pasture

Adjacent Roadways:

Access/Egress from/to:

Fencing/Security:

Additional comments:

1.3 Services and Utilities

Prepare site sketch or record observations on a site plan.

Site utilities observed are summarized below: Refer to utilities figure.

- Electricity:
- Water:
- Sewer:
- Storm Sewer:
- Gas:
- Solid Waste:
- Heating/Cooling and fuel source:
- Telecom:
- Fibre Optic:

Any odours detected inside service pits:

Additional comments:

2.0 SURROUNDING AREA OBSERVATIONS

2.1 Current Uses of Adjoining Properties

Mark information on site sketch/map/google earth image if possible.

North: Residential

South: Rural → Farming.

East: Residential / Lifestyle blocks.

West: Rural Farming.

Additional comments:

Use additional sheets if necessary and identify other orientations with respect to the Site (e.g., NW).

2.2 General Landuse of Surrounding Area and Nearby Properties

Enter Residential, commercial/industrial, recreational, agricultural below. Include multiple entries if necessary in order of the predominant landuse. Mark information on site sketch/map/google earth image if possible.

North: Residential (Subdivisions)

South: Rural Farming

East: Residential (Subdivisions)

West: Rural Farming.

Additional comments:

Use additional sheets if necessary and identify other orientations with respect to the Site (e.g., NW).

2.3 Sensitive Receptors in the Vicinity of the Site

Mark information on site sketch/map/google earth image if possible.

North: Residential occupants.

South: 3 minor streams flowing offsite.

East: Residential occupants.

West:

Additional comments (Geothermal features, cultural heritage features, Coastal Marine Area?):

Use additional sheets if necessary and identify other orientations with respect to the Site (e.g., NW).

2.4 Potential Offsite Sources of Contamination in the Vicinity of the Site

Mark information on site sketch/map/google earth image if possible.

North:

South:

East:

West:

Additional comments:

3.0 INTERVIEW WITH SITE OWNER(S) / OPERATOR(S)

Provide an answer for each question, even if it is "unknown":

Name: Ian

Title: Farm Manager.

Association to site: Maintains farm

Years Associated with the Site: 10

What activities are currently conducted here on Site:

Cattle and sheep farming.

Have any other activities been conducted on Site while you've been here:

No

Do you know the history of the Site: (Yes) / No
If yes describe below and provide dates and names of entities.

Always used for farming, No hazardous cultivation took place, Old farm house is at 133 Portecost Road, Any storage of petroleum would have been above ground.

Has the Site ever been investigated by consultants, local, state or Federal agencies for environmental or geotechnical concerns: Yes / No. *If yes, describe below and inquire if any reports are available.*

Coffey Geotech

Are you aware of any historical chemical/petroleum use/storage (USTs or ASTs) at the Site:
Yes / (No) *If yes describe below, identify the location and request disposal documentation.*

Are you aware of any current chemical/petroleum use/storage (USTs or ASTs) at the Site: Yes / No
If yes describe below, identify the location and request disposal documentation.

Are you aware of any spills or leaks occurring at the Site: Yes / No
If yes describe below, identify location and request spill / leak documentation.

Are you aware of any recent or historical site works (building renovations, earthworks, services works, etc) at the Site:
Yes / No. *If yes describe below and provide dates.*

Are you aware of any previous environmental/contamination or geotechnical investigations undertaken at the site: Yes / No. *If yes, include dates, locations and request reports.*

Additional questions/comments/notes:

- Hazelnut orchard did not go ahead
- Was fenced for deer farming.
- No sheep dips present
- "If any areas that will hold hazardous ~~da~~ substances in the past would have been at the old farm yard at 133 Pentecost Road"
- Believes the hazelnut application for permit would have only been used for land legislation changes in the 1990's.

Appendix D
Laboratory Results and Chain of Custody

Preliminary Site Investigation
Ravenscar Park, Rangiora, Canterbury

Hill Laboratories
BETTER TESTING BETTER RESULTS

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ANALYSIS REPORT

Client:	Coffey Environments NZ Limited	**Lab No:**	1004622	SPv1
Contact:	Ryan Buchanan	**Date Registered:**	05-May-2012	
	C/- Coffey Environments NZ Limited	**Date Reported:**	29-May-2012	
	PO Box 8261	**Quote No:**	48823	
	Symmonds Street	**Order No:**		
	AUCKLAND 1150	**Client Reference:**	51094	
		Submitted By:	Ryan Buchanan	

Sample Type: Soil

Sample Name:		S03 04-May-2012	S04 04-May-2012	S07 04-May-2012	S08 04-May-2012	S10 04-May-2012
Lab Number:		1004622.3	1004622.4	1004622.7	1004622.8	1004622.10
Individual Tests						
Dry Matter	g/100g as rcvd	69	66	80	[redacted]	[redacted]
Total Recoverable Arsenic	mg/kg dry wt	10	8	5	[redacted]	[redacted]
Total Recoverable Copper	mg/kg dry wt	23	21	13	[redacted]	[redacted]
Total Recoverable Zinc	mg/kg dry wt	76	67	92	[redacted]	[redacted]
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
alpha-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
beta-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
delta-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
gamma-BHC (Lindane)	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
cis-Chlordane	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
trans-Chlordane	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	< 0.04	< 0.04	[redacted]	[redacted]
2,4'-DDD	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
4,4'-DDD	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
2,4'-DDE	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
4,4'-DDE	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
2,4'-DDT	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
4,4'-DDT	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Dieldrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Endosulfan I	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Endosulfan II	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Endosulfan sulphate	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Endrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Endrin Aldehyde	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Endrin ketone	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Heptachlor	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Heptachlor epoxide	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Hexachlorobenzene	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Methoxychlor	mg/kg dry wt	< 0.010	< 0.010	< 0.010	[redacted]	[redacted]
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Alachlor	mg/kg	< 0.05	< 0.05	< 0.05	[redacted]	[redacted]
Atrazine	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Atrazine-desethyl	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Atrazine-desisopropyl	mg/kg	< 0.14	< 0.15	< 0.12	[redacted]	[redacted]
Azaconazole	mg/kg	< 0.04	< 0.04	< 0.03	[redacted]	[redacted]

Sample Type: Soil						
Sample Name:		S03 04-May-2012	S04 04-May-2012	S07 04-May-2012	S08 04-May-2012	S10 04-May-2012
Lab Number:		1004622.3	1004622.4	1004622.7	1004622.8	1004622.10
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Azinphos-methyl	mg/kg	< 0.14	< 0.15	< 0.12	[redacted]	[redacted]
Benalaxyl	mg/kg	< 0.04	< 0.04	< 0.03	[redacted]	[redacted]
Bitertanol	mg/kg	< 0.14	< 0.15	< 0.12	[redacted]	[redacted]
Bromacil	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Bromopropylate	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Butachlor	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Captan	mg/kg	< 0.14	< 0.15	< 0.12	[redacted]	[redacted]
Carbaryl	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Carbofuran	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Chlorfluazuron	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Chlorothalonil	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Chlorpyrifos	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Chlorpyrifos-methyl	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Chlortoluron	mg/kg	< 0.14	< 0.15	< 0.12	[redacted]	[redacted]
Cyanazine	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Cyfluthrin	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Cyhalothrin	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Cypermethrin	mg/kg	< 0.14	< 0.15	< 0.12	[redacted]	[redacted]
Deltamethrin (Tralomethrin)	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Diazinon	mg/kg	< 0.04	< 0.04	< 0.03	[redacted]	[redacted]
Dichlofluanid	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Dichloran	mg/kg	< 0.2	< 0.2	< 0.2	[redacted]	[redacted]
Dichlorvos	mg/kg	< 0.09	< 0.09	< 0.09	[redacted]	[redacted]
Difenoconazole	mg/kg	< 0.10	< 0.11	< 0.09	[redacted]	[redacted]
Dimethoate	mg/kg	< 0.14	< 0.15	< 0.12	[redacted]	[redacted]
Diphenylamine	mg/kg	< 0.14	< 0.15	< 0.12	[redacted]	[redacted]
Diuron	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Fenpropimorph	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Fluazifop-butyl	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Fluometuron	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Flusilazole	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Fluvalinate	mg/kg	< 0.05	< 0.06	< 0.05	[redacted]	[redacted]
Furalaxyl	mg/kg	< 0.04	< 0.04	< 0.03	[redacted]	[redacted]
Haloxyfop-methyl	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Hexaconazole	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Hexazinone	mg/kg	< 0.04	< 0.04	< 0.03	[redacted]	[redacted]
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.4	< 0.4	< 0.3	[redacted]	[redacted]
Iprodione	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Kresoxim-methyl	mg/kg	< 0.04	< 0.04	< 0.03	[redacted]	[redacted]
Linuron	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Malathion	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Metalaxyl (Mefenoxam)	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Methamidophos	mg/kg	< 0.4	< 0.4	< 0.3	[redacted]	[redacted]
Metolachlor	mg/kg	< 0.05	< 0.05	< 0.05	[redacted]	[redacted]
Metribuzin	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Molinate	mg/kg	< 0.14	< 0.15	< 0.12	[redacted]	[redacted]
Myclobutanil	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Naled	mg/kg	< 0.4	< 0.4	< 0.3	[redacted]	[redacted]
Norflurazon	mg/kg	< 0.14	< 0.15	< 0.12	[redacted]	[redacted]
Oxadiazon	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Oxyfluorfen	mg/kg	< 0.04	< 0.04	< 0.03	[redacted]	[redacted]
Paclobutrazol	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Parathion-ethyl	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Parathion-methyl	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Pendimethalin	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]

Sample Type: Soil						
Sample Name:		S03 04-May-2012	S04 04-May-2012	S07 04-May-2012	S08 04-May-2012	S10 04-May-2012
Lab Number:		1004622.3	1004622.4	1004622.7	1004622.8	1004622.10
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Permethrin	mg/kg	< 0.02	< 0.03	< 0.02	[redacted]	[redacted]
Pirimicarb	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Pirimiphos-methyl	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Prochloraz	mg/kg	< 0.4	< 0.4	< 0.3	[redacted]	[redacted]
Procymidone	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Prometryn	mg/kg	< 0.04	< 0.04	< 0.03	[redacted]	[redacted]
Propachlor	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Propanil	mg/kg	< 0.2	< 0.2	< 0.2	[redacted]	[redacted]
Propazine	mg/kg	< 0.04	< 0.04	< 0.03	[redacted]	[redacted]
Propiconazole	mg/kg	< 0.05	< 0.06	< 0.05	[redacted]	[redacted]
Pyriproxyfen	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Quizalofop-ethyl	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Simazine	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Simetryn	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Sulfentrazone	mg/kg	< 0.4	< 0.4	< 0.3	[redacted]	[redacted]
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	< 0.14	< 0.15	< 0.12	[redacted]	[redacted]
Tebuconazole	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Terbacil	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Terbufos	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Terbumeton	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Terbuthylazine	mg/kg	< 0.04	< 0.04	< 0.03	[redacted]	[redacted]
Terbuthylazine-desethyl	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Terbutryn	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Thiabendazole	mg/kg	< 0.4	< 0.4	< 0.3	[redacted]	[redacted]
Thiobencarb	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Tolylfluanid	mg/kg	< 0.04	< 0.04	< 0.03	[redacted]	[redacted]
Triazophos	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Trifluralin	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]
Vinclozolin	mg/kg	< 0.07	< 0.08	< 0.06	[redacted]	[redacted]

Sample Name:		S11 04-May-2012	QC01 04-May-2012			
Lab Number:		1004622.11	1004622.13			
Individual Tests						
Dry Matter	g/100g as rcvd	[redacted]	81	-	-	-
Total Recoverable Arsenic	mg/kg dry wt	[redacted]	5	-	-	-
Total Recoverable Copper	mg/kg dry wt	[redacted]	13	-	-	-
Total Recoverable Zinc	mg/kg dry wt	[redacted]	96	-	-	-
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	[redacted]	< 0.011	-	-	-
alpha-BHC	mg/kg dry wt	[redacted]	< 0.011	-	-	-
beta-BHC	mg/kg dry wt	[redacted]	< 0.011	-	-	-
delta-BHC	mg/kg dry wt	[redacted]	< 0.011	-	-	-
gamma-BHC (Lindane)	mg/kg dry wt	[redacted]	< 0.011	-	-	-
cis-Chlordane	mg/kg dry wt	[redacted]	< 0.011	-	-	-
trans-Chlordane	mg/kg dry wt	[redacted]	< 0.011	-	-	-
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	[redacted]	< 0.04	-	-	-
2,4'-DDD	mg/kg dry wt	[redacted]	< 0.011	-	-	-
4,4'-DDD	mg/kg dry wt	[redacted]	< 0.011	-	-	-
2,4'-DDE	mg/kg dry wt	[redacted]	< 0.011	-	-	-
4,4'-DDE	mg/kg dry wt	[redacted]	< 0.011	-	-	-
2,4'-DDT	mg/kg dry wt	[redacted]	< 0.011	-	-	-
4,4'-DDT	mg/kg dry wt	[redacted]	< 0.011	-	-	-
Dieldrin	mg/kg dry wt	[redacted]	< 0.011	-	-	-
Endosulfan I	mg/kg dry wt	[redacted]	< 0.011	-	-	-

Sample Type: Soil							
Sample Name:		S11 04-May-2012	QC01 04-May-2012				
Lab Number:		1004622.11	1004622.13				
Organochlorine Pesticides Screening in Soil							
Endosulfan II	mg/kg dry wt	[redacted]	< 0.011	-	-	-	
Endosulfan sulphate	mg/kg dry wt	[redacted]	< 0.011	-	-	-	
Endrin	mg/kg dry wt	[redacted]	< 0.011	-	-	-	
Endrin Aldehyde	mg/kg dry wt	[redacted]	< 0.011	-	-	-	
Endrin ketone	mg/kg dry wt	[redacted]	< 0.011	-	-	-	
Heptachlor	mg/kg dry wt	[redacted]	< 0.011	-	-	-	
Heptachlor epoxide	mg/kg dry wt	[redacted]	< 0.011	-	-	-	
Hexachlorobenzene	mg/kg dry wt	[redacted]	< 0.011	-	-	-	
Methoxychlor	mg/kg dry wt	[redacted]	< 0.011	-	-	-	
Organonitro&phosphorus Pesticides Screen in Soil by GCMS							
Acetochlor	mg/kg	[redacted]	< 0.06	-	-	-	
Alachlor	mg/kg	[redacted]	< 0.05	-	-	-	
Atrazine	mg/kg	[redacted]	< 0.06	-	-	-	
Atrazine-desethyl	mg/kg	[redacted]	< 0.06	-	-	-	
Atrazine-desisopropyl	mg/kg	[redacted]	< 0.12	-	-	-	
Azaconazole	mg/kg	[redacted]	< 0.03	-	-	-	
Azinphos-methyl	mg/kg	[redacted]	< 0.12	-	-	-	
Benalaxyl	mg/kg	[redacted]	< 0.03	-	-	-	
Bitertanol	mg/kg	[redacted]	< 0.12	-	-	-	
Bromacil	mg/kg	[redacted]	< 0.06	-	-	-	
Bromopropylate	mg/kg	[redacted]	< 0.06	-	-	-	
Butachlor	mg/kg	[redacted]	< 0.06	-	-	-	
Captan	mg/kg	[redacted]	< 0.12	-	-	-	
Carbaryl	mg/kg	[redacted]	< 0.06	-	-	-	
Carbofuran	mg/kg	[redacted]	< 0.06	-	-	-	
Chlorfluazuron	mg/kg	[redacted]	< 0.06	-	-	-	
Chlorothalonil	mg/kg	[redacted]	< 0.06	-	-	-	
Chlorpyrifos	mg/kg	[redacted]	< 0.06	-	-	-	
Chlorpyrifos-methyl	mg/kg	[redacted]	< 0.06	-	-	-	
Chlortoluron	mg/kg	[redacted]	< 0.12	-	-	-	
Cyanazine	mg/kg	[redacted]	< 0.06	-	-	-	
Cyfluthrin	mg/kg	[redacted]	< 0.06	-	-	-	
Cyhalothrin	mg/kg	[redacted]	< 0.06	-	-	-	
Cypermethrin	mg/kg	[redacted]	< 0.12	-	-	-	
Deltamethrin (Tralomethrin)	mg/kg	[redacted]	< 0.06	-	-	-	
Diazinon	mg/kg	[redacted]	< 0.03	-	-	-	
Dichlofluanid	mg/kg	[redacted]	< 0.06	-	-	-	
Dichloran	mg/kg	[redacted]	< 0.2	-	-	-	
Dichlorvos	mg/kg	[redacted]	< 0.09	-	-	-	
Difenoconazole	mg/kg	[redacted]	< 0.09	-	-	-	
Dimethoate	mg/kg	[redacted]	< 0.12	-	-	-	
Diphenylamine	mg/kg	[redacted]	< 0.12	-	-	-	
Diuron	mg/kg	[redacted]	< 0.06	-	-	-	
Fenpropimorph	mg/kg	[redacted]	< 0.06	-	-	-	
Fluazifop-butyl	mg/kg	[redacted]	< 0.06	-	-	-	
Fluometuron	mg/kg	[redacted]	< 0.06	-	-	-	
Flusilazole	mg/kg	[redacted]	< 0.06	-	-	-	
Fluvalinate	mg/kg	[redacted]	< 0.05	-	-	-	
Furalaxyl	mg/kg	[redacted]	< 0.03	-	-	-	
Haloxyfop-methyl	mg/kg	[redacted]	< 0.06	-	-	-	
Hexaconazole	mg/kg	[redacted]	< 0.06	-	-	-	
Hexazinone	mg/kg	[redacted]	< 0.03	-	-	-	
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	[redacted]	< 0.3	-	-	-	
Iprodione	mg/kg	[redacted]	< 0.06	-	-	-	

Sample Type: Soil							
Sample Name:		S11 04-May-2012	QC01 04-May-2012				
Lab Number:		1004622.11	1004622.13				
Organonitro&phosphorus Pesticides Screen in Soil by GCMS							
Kresoxim-methyl	mg/kg	[redacted]	< 0.03	-	-	-	
Linuron	mg/kg	[redacted]	< 0.06	-	-	-	
Malathion	mg/kg	[redacted]	< 0.06	-	-	-	
Metalaxyl (Mefenoxam)	mg/kg	[redacted]	< 0.06	-	-	-	
Methamidophos	mg/kg	[redacted]	< 0.3	-	-	-	
Metolachlor	mg/kg	[redacted]	< 0.05	-	-	-	
Metribuzin	mg/kg	[redacted]	< 0.06	-	-	-	
Molinate	mg/kg	[redacted]	< 0.12	-	-	-	
Myclobutanil	mg/kg	[redacted]	< 0.06	-	-	-	
Naled	mg/kg	[redacted]	< 0.3	-	-	-	
Norflurazon	mg/kg	[redacted]	< 0.12	-	-	-	
Oxadiazon	mg/kg	[redacted]	< 0.06	-	-	-	
Oxyfluorfen	mg/kg	[redacted]	< 0.03	-	-	-	
Paclobutrazol	mg/kg	[redacted]	< 0.06	-	-	-	
Parathion-ethyl	mg/kg	[redacted]	< 0.06	-	-	-	
Parathion-methyl	mg/kg	[redacted]	< 0.06	-	-	-	
Pendimethalin	mg/kg	[redacted]	< 0.06	-	-	-	
Permethrin	mg/kg	[redacted]	< 0.02	-	-	-	
Pirimicarb	mg/kg	[redacted]	< 0.06	-	-	-	
Pirimiphos-methyl	mg/kg	[redacted]	< 0.06	-	-	-	
Prochloraz	mg/kg	[redacted]	< 0.3	-	-	-	
Procymidone	mg/kg	[redacted]	< 0.06	-	-	-	
Prometryn	mg/kg	[redacted]	< 0.03	-	-	-	
Propachlor	mg/kg	[redacted]	< 0.06	-	-	-	
Propanil	mg/kg	[redacted]	< 0.2	-	-	-	
Propazine	mg/kg	[redacted]	< 0.03	-	-	-	
Propiconazole	mg/kg	[redacted]	< 0.05	-	-	-	
Pyriproxyfen	mg/kg	[redacted]	< 0.06	-	-	-	
Quizalofop-ethyl	mg/kg	[redacted]	< 0.06	-	-	-	
Simazine	mg/kg	[redacted]	< 0.06	-	-	-	
Simetryn	mg/kg	[redacted]	< 0.06	-	-	-	
Sulfentrazone	mg/kg	[redacted]	< 0.3	-	-	-	
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	[redacted]	< 0.12	-	-	-	
Tebuconazole	mg/kg	[redacted]	< 0.06	-	-	-	
Terbacil	mg/kg	[redacted]	< 0.06	-	-	-	
Terbufos	mg/kg	[redacted]	< 0.06	-	-	-	
Terbumeton	mg/kg	[redacted]	< 0.06	-	-	-	
Terbuthylazine	mg/kg	[redacted]	< 0.03	-	-	-	
Terbuthylazine-desethyl	mg/kg	[redacted]	< 0.06	-	-	-	
Terbutryn	mg/kg	[redacted]	< 0.06	-	-	-	
Thiabendazole	mg/kg	[redacted]	< 0.3	-	-	-	
Thiobencarb	mg/kg	[redacted]	< 0.06	-	-	-	
Tolylfluanid	mg/kg	[redacted]	< 0.03	-	-	-	
Triazophos	mg/kg	[redacted]	< 0.06	-	-	-	
Trifluralin	mg/kg	[redacted]	< 0.06	-	-	-	
Vinclozolin	mg/kg	[redacted]	< 0.06	-	-	-	

SUMMARY OF METHODS

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

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Samples**
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation. May contain a residual moisture content of 2-5%.	-	3-4, 7-8, 10-11, 13

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Samples**
Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS	Sonication extraction, Dilution cleanup, GC-MS analysis. Tested on as received sample	-	3-4, 7-8, 10-11, 13
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. US EPA 3550. (Free water removed before analysis).	0.10 g/100g as rcvd	3-4, 7-8, 10-11, 13
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	3-4, 7-8, 10-11, 13
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	3-4, 7-8, 10-11, 13
Total Recoverable Copper	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	3-4, 7-8, 10-11, 13
Total Recoverable Zinc	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	4 mg/kg dry wt	3-4, 7-8, 10-11, 13

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

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

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

Hill Laboratories
BETTER TESTING BETTER RESULTS

R J Hill Laboratories Limited
1 Clyde Street
Private Bag 3205
Hamilton 3240, New Zealand

Time Received: 04-May-2012 2:13:48 pm
Job No: 1004622
No of Samples: 0 No of Fractions: 0
3110046222

ANALYSIS

Client

Name: Coffey Environments - Ryan Buchanan
Address: 7, level 11 City Rd, Grafton, Auckland
Phone: 021 546 047 Fax:
Client Reference: 51094
Quote No: Order Number:

Primary Contact Ryan Buchanan
Submitted By "
Charge To Coffey Environments

Results To ☑ Mail Client ☐ Mail Submitter
☐ Fax Results
☐ Email Results

Office use only Job No:

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories
Date & Time:
Name:
☐ Please tick if you require COC to be faxed back
Signature:

Received at Hill Laboratories
Date & Time: 02 MY 2012 [illegible]
Name:
Signature:

Condition ☐ Room Temp ☑ Chilled ☐ Frozen Temp 13.1
☐ Sample Analysis details checked
Signature:

ADDITIONAL INFORMATION

~~Tested~~ 13 Samples (Soil), please hold cold.

Priority
☐ Low ☑ Normal ☐ High
☐ Urgent (ASAP, extra charge applies, please contact the lab first)

Requested Reporting Date:

Sample Types

Waters	E	Effluent	G	Geothermal	Pot1	Potable Water (LAS/EU)	Pot2	Potable Water (NZDWS)
	GW	Ground Water	L	Leachate	☐	Audit Monitoring	Pot3	Potable Water (other)
	SW	Surface Water	S	Saline	☐	Check Monitoring	Pool	Swimming/Spa Pool
	TW	Trade Waste						
Solids	ES	Soil	SE	Sediment	SL	Sludge	PL	Plant
Other	O	Oil	M	Miscellaneous	FS	Fish/shellfish/biota	BM	BM Biological Material

No.	Sample Name	Sample Date & Time	Sample Type	Tests Required
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Continued on next page

Hill Laboratories
BETTER TESTING BETTER RESULTS

R J Hill Laboratories Limited
1 Clyde Street
Private Bag 3205
Hamilton 3240, New Zealand

Tel +64 7 858 2000
Fax +64 7 858 2001
Email mail@hill-labs.co.nz
Web www.hill-labs.co.nz

Job Information Summary

Client:	Coffey Environments NZ Limited	**Lab No:**	1004622
Contact:	Ryan Buchanan	**Date Registered:**	05-May-2012 9:25:59 am
	C/- Coffey Environments NZ Limited	**Priority:**	Normal
	PO Box 8261	**Quote No:**	48823
	Symmonds Street	**Order No:**	
	AUCKLAND 1150	**Client Reference:**	51094
		Add. Client Ref:	
		Submitted By:	Ryan Buchanan
		Charge To:	Coffey Geotechnics (NZ) Ltd

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	S01 04-May-2012	Soil	cGSoil	Hold Cold
2	S02 04-May-2012	Soil	GSoil300	Hold Cold
3	S03 04-May-2012	Soil	GSoil300	Total Recoverable Arsenic; Total Recoverable Copper; Total Recoverable Zinc; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
4	S04 04-May-2012	Soil	GSoil300	Total Recoverable Arsenic; Total Recoverable Copper; Total Recoverable Zinc; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
5	S05 04-May-2012	Soil	GSoil300	Hold Cold
6	S06 04-May-2012	Soil	GSoil300	Hold Cold
7	S07 04-May-2012	Soil	GSoil300	Total Recoverable Arsenic; Total Recoverable Copper; Total Recoverable Zinc; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
8	S08 04-May-2012	Soil	GSoil300	Total Recoverable Arsenic; Total Recoverable Copper; Total Recoverable Zinc; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
9	S09 04-May-2012	Soil	GSoil300	Hold Cold
10	S10 04-May-2012	Soil	GSoil300	Total Recoverable Arsenic; Total Recoverable Copper; Total Recoverable Zinc; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
11	S11 04-May-2012	Soil	GSoil300	Total Recoverable Arsenic; Total Recoverable Copper; Total Recoverable Zinc; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS
12	S12 04-May-2012	Soil	GSoil300	Hold Cold
13	QC01 04-May-2012	Soil	GSoil300	Total Recoverable Arsenic; Total Recoverable Copper; Total Recoverable Zinc; Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS

SUMMARY OF METHODS

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Sample Type: Soil			
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Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	3-4, 7-8, 10-11, 13
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	3-4, 7-8, 10-11, 13
Total Recoverable Copper	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	3-4, 7-8, 10-11, 13
Total Recoverable Zinc	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	4 mg/kg dry wt	3-4, 7-8, 10-11, 13

Appendix E
Important Information About Your Coffey Environmental Report

Preliminary Site Investigation
Ravenscar Park, Rangiora, Canterbury

coffey environments
SPECIALISTS IN LIVING AND WORKING PLACES

Important information about your **Coffey** Environmental Report

Uncertainties as to what lies below the ground on potentially contaminated sites can lead to remediation costs blow outs, reduction in the value of the land and to delays in the redevelopment of land. These uncertainties are an inherent part of dealing with land contamination. The following notes have been prepared by Coffey to help you interpret and understand the limitations of your report.

Your report has been written for a specific purpose

Your report has been developed on the basis of a specific purpose as understood by Coffey and applies only to the site or area investigated. For example, the purpose of your report may be:

- To assess the environmental effects of an on-going operation.
- To provide due diligence on behalf of a property vendor.
- To provide due diligence on behalf of a property purchaser.
- To provide information related to redevelopment of the site due to a proposed change in use, for example, industrial use to a residential use.
- To assess the existing baseline environmental, and sometimes geological and hydrological conditions or constraints of a site prior to an activity which may alter the sites environmental, geological or hydrological condition.

For each purpose, a specific approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible, quantify risks that both recognised and unrecognised contamination pose to the proposed activity. Such risks may be both financial (for example, clean up costs or limitations to the site use) and physical (for example, potential health risks to users of the site or the general public).

Scope of Investigations

The work was conducted, and the report has been prepared, in response to specific instructions from the client to whom this report is addressed, within practical time and budgetary constraints, and in reliance on certain data and information made available to Coffey. The analyses, evaluations, opinions and conclusions presented in this report are based on those instructions, requirements, data or information, and they could change if such instructions etc. are in fact inaccurate or incomplete.

Subsurface conditions can change

Subsurface conditions are created by natural processes and the activity of man and may change with time. For example, groundwater levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of the subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Coffey to be advised how time may have impacted on the project and/or on the property.

Interpretation of factual data

Environmental site assessments identify actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from indirect field measurements and sometimes other reports on the site are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how well qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of Coffey through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other problems encountered on site.

coffey environments
SPECIALISTS IN LIVING AND WORKING PLACES

Important information about your **Coffey** Environmental Report

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered with redevelopment or on-going use of the site. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. In particular, a due diligence report for a property vendor may not be suitable for satisfying the needs of a purchaser. Your report should not be applied for any purpose other than that originally specified at the time the report was issued.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other professionals who are affected by the report. Have Coffey explain the report implications to professionals affected by them and then review plans and specifications produced to see how they have incorporated the report findings.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel), field testing and laboratory evaluation of field samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Contact Coffey for additional assistance

Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to land development and land use. It is common that not all approaches will be necessarily dealt with in your environmental site assessment report due to concepts proposed at that time. As a project progresses through planning and design toward construction and/or maintenance, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

Responsibility

Environmental reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents. Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.

72510 / 07-06

Appendix 4: Assessment of Proposed Waimakariri District Plan Objectives and Policies

113-117 Townsend Road Re-zone Submission

Objective/Policy	Assessment
SD-O2 Urban development Urban development and infrastructure that: 1. is consolidated and integrated with the urban environment; 2. that recognises existing character, amenity values, and is attractive and functional to residents, businesses and visitors; 3. utilises the District Council's reticulated wastewater system, and potable water supply and stormwater infrastructure where available; 4. provides a range of housing opportunities, focusing new residential activity within existing towns, and identified development areas in Rangiora and Kaiapoi, in order to achieve the housing bottom lines in UFD-O1; 5. supports a hierarchy of urban centres, with the District's main centres in Rangiora, Kaiapoi, Oxford and Woodend being: a. the primary centres for community facilities; b. the primary focus for retail, office and other commercial activity; and c. the focus around which residential development and intensification can occur. 6. provides opportunities for business activities to establish and prosper within a network of business and industrial areas zoned appropriate to their type and scale of activity and which support district self-sufficiency;	The Site is on the southern-western edge of Rangiora, and provides a compact form to the town and responds to the on-going demand for houses and building lots in Rangiora. It will be integrated to the urban environment through the West Rangiora Development Area (DEV-WR) plan which is an identified development area in the PWDP. The proposal is intended to connect to full urban reticulation for three waters. Rangiora's role as the District's main town centre will continue as it is planned to be several scales larger in size and function than Kaiapoi, Oxford and Pegasus. The Site immediately adjoins the South Brook Esplanade reserve providing convenient access to recreation space; it's within walking distance of Southbrook Park. Matawai Park and Dudley Park. The esplanade reserve is also identified as SASM-024. The proposal is consistent with the Objective.

7. provides people with access to a network of spaces within urban environments for open space and recreation; 8. supports the transition of the Special Purpose Zone (Kāinga Nohoanga) to a unique mixture of urban and rural activities reflecting the aspirations of Te Ngāi Tūāhuriri Rūnanga; 9. provides limited opportunities for Large Lot Residential development in identified areas, subject to adequate infrastructure; and 10. recognise and support Ngāi Tūāhuriri cultural values through the protection of sites and areas of significance to Māori identified in SASM-SCHED1.	
SD-O3 Energy and infrastructure Across the District: 1. improved accessibility and multi-modal connectivity is provided through a safe and efficient transport network that is able to respond to technology changes and contributes to the well-being and liveability of people and communities; 2. infrastructure, including strategic infrastructure, critical infrastructure and regionally significant infrastructure: a. is able to operate efficiently and effectively; and b. is enabled, while: i. managing adverse effects on the surrounding environment, having regard to the social, cultural and economic benefit, functional need and operational need of the infrastructure; and	The Site is part of the DEV-WR, and is part of the SW Rangiora ODP; as such it is planned and anticipated urban development for which the Council had to have considered servicing capacities and efficiencies. The Site is well positioned in relation to network roading and cycling/ walking options. Objectives 3 and 4 will be addressed at subdivision stage. The proposal helps achieve the Objective.

ii. managing the adverse effects of other activities on infrastructure, including managing reverse sensitivity; 3. the nature, timing and sequencing of new development and new infrastructure is integrated and coordinated; and 4. encourage more environmentally sustainable outcomes as part of subdivision and development, including though the use of energy efficient buildings, green infrastructure and renewable electricity generation.	
SD-O4 Rural land Outside of identified residential development areas and the Special Purpose Zone (Kāinga Nohoanga), rural land is managed to ensure that it remains available for productive rural activities by: 1. providing for rural production activities, activities that directly support rural production activities and activities reliant on the natural resources of Rural Zones and limit other activities; and 2. ensuring that within rural areas the establishment and operation of rural production activities are not limited by new incompatible sensitive activities.	N/A Part of DEV-WR area an identified residential development area.
SD-O5 Ngāi Tahu mana whenua/Te Ngāi Tūāhuriri Rūnanga Te Ngāi Tūāhuriri Rūnanga's role in the management of natural and physical resources is recognised, so that: 1. Ngāi Tūāhuriri's historic and contemporary connections, and cultural and spiritual values, associated with the land, water and other taonga are recognised and provided for; 2. the values of identified sites and areas of significance to Ngāi Tūāhuriri are protected;	The Adjoining esplanade reserve is identified in the PWDP as SASM-024 recognising Ngai Tūāhuriri's interest in and association with the South Brook. Consistent with the Objective.

3. Ngāi Tūāhuriri can retain, and enhance access to sites of cultural significance; 4. Māori land is able to be occupied and used by Ngāi Tūāhuriri for its intended purposes and to maintain their relationship with their ancestral land; 5. recognised customary rights are protected; 6. Ngāi Tūāhuriri are able to carry out customary activities in accordance with tikanga; and 7. Te Ngāi Tūāhuriri Rūnanga are able to actively participate in decision-making and exercise kaitiakitanga.	
SD-O6 Natural hazards and resilience The District responds to natural hazard risk, including increased risk as a result of climate change, through: 1. avoiding subdivision, use and development where the risk is unacceptable; and 2. mitigating other natural hazard risks.	The Site is mapped as part of a Non-urban Flood Assessment Area. A flood assessment has been undertaken by Reeftide (**Appendix 2**) which concludes that with appropriate mitigation the Site is suitable for residential development. Usual subdivision designs are to construct preferential flood flow paths through the Site based on the road network with detailed design at the subdivision stage. The risks of natural hazards to people, property and infrastructure are appropriately mitigated by compliance with PWDP rules about floor heights and other methods outlined in the Reeftide report. Climate Change effects are unlikely at an inland site that is remote from the coast and any flood risks associated with nearly rivers can be mitigated. The proposal is consistent with the Policy.
UFD-O1 Feasible development capacity for residential activities Sufficient feasible development capacity for residential activity to meet specified housing bottom lines and a changing demographic profile of the District as follows:	The proposal for about 100 lots contributes to ensuring there is sufficient feasible development capacity for residential activity to meet specified housing bottom lines in the short and medium term. Consistent with the Objective.

Term	Short to Medium Term (2018-2028)	Long Term (2028-2048)	30 Year Time frame (2018-2048)	
Housing Bottom Lines (Development Capacity)	6,300 Residential Units	7,100 Residential Units	13,400 Residential Units	
UFD-P1 Density of residential development In relation to the density of residential development: 1. provide for intensification in urban environments through provision for minor residential units, retirement villages, papakāinga or suitable up-zoning of Residential Zones where it is consistent with the anticipated built form and purpose of the zone; 2. locate any Medium Density Residential Zone so it: a. supports, and has ready access to, existing Commercial and Mixed Use Zones, schools, public transport and open space; b. supports well connected walkable communities; c. avoids or mitigates natural hazard risk in any high hazard area within existing urban areas; and d. located away from any Heavy Industrial Zone.				
UFD-P2 Identification/location of new Residential Development Areas In relation to the identification/location of residential development areas: 1. residential development in the new Residential Development Areas at Kaiapoi, North East Rangiora, South East Rangiora and West Rangiora is located to implement the urban form identified in the Future Development Strategy;				The Site achieves the Policy as it is part of the DEV-WR area signalled in the WDDS 2018. N/A with respect to P2.2 as it is an identified site.

2. for new Residential Development Areas, other than those identified by (1) above, avoid residential development unless located so that they: a.	
UFD-P6 Mechanism to release Residential Development Areas The release of land within the identified new development areas of Kaiapoi, North East Rangiora and South East Rangiora occurs in an efficient and timely manner via a certification process to enable residential activity to meet short to medium-term feasible development capacity and achievement of housing bottom lines.	The Policy does not reference West Rangiora but this seems an oversight. Subject to the submission opposing the certification process, the site will qualify for certification under this Policy.
UFD-P10 Managing reverse sensitivity effects from new development Within Residential Zones and new development areas in Rangiora and Kaiapoi: 1. avoid residential activity that has the potential to limit the efficient and effective operation and upgrade of critical infrastructure, strategic infrastructure, and regionally significant infrastructure, including avoiding noise sensitive activities within the Christchurch Airport Noise Contour, unless within an existing Residential Zone; 2. minimise reverse sensitivity effects on primary production from activities within new development areas through setbacks and screening, without compromising the efficient delivery of new development areas.	The Site does not trigger application of UFD-P10.1 For UFD-P10.2 the Site is well separated from Rural Lifestyle land to the south beyond the South Brook where an average of 40m is contained in the esplanade reserve. The western edge of the Site is proposed to be a Stormwater Management Area (SW Rangiora ODP) and this provides a strong buffer and separation to the RLZ land to the west of the Site. It is noted that the DEV-WR does not match the ODP in that regard. The proposal will be consistent with the Policy.
EI-O1 Provision of energy and infrastructure	For consideration at subdivision and engineering design stage.

Across the District: 1. efficient, effective, resilient, safe and sustainable energy and infrastructure, including critical infrastructure, strategic infrastructure and regionally significant infrastructure, is developed and maintained to benefit the social, economic, cultural and environmental well-being of the District, including in response to future needs such as increased sustainability, and changing techniques and technology; 2. there is increased renewable energy for national, regional and local use; and 3. there is greater renewable electricity generation, including small scale or community scale renewable electricity generation, with generation surplus able to be supplied to the electricity distribution network.	
EI-P1 Recognising the benefits of, and providing for, energy and infrastructure Recognise the local, regional or national benefits of energy and infrastructure through: 5. providing for the effective, reliable and future-proofed communication networks and services; 6. providing for the effective, resilient, efficient and safe water supply, wastewater system and stormwater infrastructure; and community scale irrigation/stockwater; 10. the provision of an adequate supply of water for firefighting in accordance with SNZ PAS 4509:2008 New Zealand Fire Service	The proposal is for a full urban quality development with full reticulation as required by conditions of subdivision consent and to the applicable Council Engineering Standards including provision for firefighting. Complies with the Policy.

Firefighting Water Supplies Code of Practice.	
EI-P2 Availability, provision and adequacy of, and connection to, energy and infrastructure Across the District: 1. to benefit the social, economic, cultural and environmental well-being of the District: a. ensure land use and development is coordinated with, and to the extent considered reasonably practicable, connected to and adequately serviced by energy and infrastructure, if available, including electricity, water supply, wastewater system and stormwater infrastructure; and b. ensure that connectivity to communications infrastructure can be achieved; and 2. where a public reticulated water supply or wastewater system is not available, adequate on site systems shall be installed consistent with maintaining public health and avoiding or mitigating adverse effects on the environment, while discouraging small scale stand alone systems.	As above Complies with the Policy.
CL-O1 Contaminated land The subdivision, use and development of contaminated land does not adversely affect people, property, and the environment.	The Site has been used for a long time for low intensity rural land uses. The likelihood of areas of contaminated land is considered to be low but will be investigated as a PSI exercise for evidence to any hearing, or at subdivision stage. Consistent with the Policy.
CL-P1 Identify contaminated sites	The Coffey PSI (**Appendix 3**) confirms that the Site has only been used for general pasture and arable land, and that the site

Identify sites potentially containing contaminated land, including sites with contamination from current and historical land uses and activities, by using the Regional Council's LLUR and coordinating with the Regional Council in the recording and management of contaminated land.	investigation has not revealed contamination issues that should prevent subdivision and subsequent development of the Site. Complies with the Policy.
CL-P2 Best practice management of contaminated land Require applications for subdivision, use or development of contaminated land, or potentially contaminated land, to include an investigation of the risks and to remediate the contamination, or manage activities on contaminated land, to protect the health of people and the environment. The remediation or mitigation works for contaminated land shall be undertaken in such a way to not pose further risk to human health or the environment than if remediation had not occurred.	The PSI confirms that there is no contaminated land on site. Complies with the Policy.
NH-O1 Risk from natural hazards New subdivision, land use and development: 1. manages natural hazard risk, including coastal hazards, in the existing urban environment to ensure that any increased risk to people and property is low; 2. is avoided in the Ashley Fault Avoidance Overlay and high hazard areas for flooding outside of the urban environment where the risk to life and property are unacceptable; and 3. outside of the urban environment, is undertaken to ensure natural hazard risk, including coastal hazard risk, to people and property is avoided or mitigated and the ability of communities to recover from natural hazard events is not reduced.	The Site is within the Non-Urban Flood Assessment Area. A flood assessment has been undertaken by Reeftide (**Appendix 2**) which concludes that with appropriate mitigation the Site is suitable for residential development. Usual subdivision designs are to construct preferential flood flow paths through the Site based on the road network with detailed design at the subdivision stage. The risks of natural hazards to people, property and infrastructure are appropriately mitigated by compliance with PWDP rules about floor heights and other methods e.g. raised floor heights for dwellings outlined in the Reeftide report. Complies with the Policy.

NH-P3 Activities in high hazard areas for flooding outside of urban areas Avoid subdivision, use and development for natural hazard sensitive activities outside urban environments in high flood hazard and high coastal flood hazard urban environments unless: 1. the activity incorporates mitigation measures so that the risk to life, and building damage is low; 2. the risk from flooding to surrounding properties is not significantly increased; 3. the conveyance of flood waters is not impeded; and 4. the activity does not require new or upgraded community scale natural hazard mitigation works.	For consideration at subdivision and building consent stage. The DEV-WR shows a flow path through the Site presumably on the line of the tributary to the South Brook. This needs to be designed and engineered in any development or alternatives proposed and provided for in any ODP. Complies with the Policy.
NH-P4 Activities outside of high hazard areas for flooding Provide for subdivision, use and development associated with natural hazard sensitive activities outside of high flood hazard and high coastal flood hazard urban environments where it can be demonstrated that: 1. the nature of the activity means the risk to life and potential for building damage from flooding is low; or 2. minimum floor levels are incorporated into the design of development to ensure building floor levels are located above the flood level so that the risk to life and potential for building damage from flooding is avoided; and 3. the risk from flooding to surrounding properties is not significantly increased and the net flood storage capacity is not reduced; and 4. the ability for the conveyancing of flood waters is not impeded.	As above Natural hazard sensitive activity is defined in the PWDP as *means buildings which:* *a. contain one or more habitable rooms; and/or* *b. contain one or more employees (of at least one full time equivalent); and/or* *c. is a place of assembly;* *except that this shall not apply to:* *i. regionally significant infrastructure;* *ii. any attached garage or detached garage to a residential unit or minor residential unit that is not a habitable room;* *iii. any building with a footprint of less than 25m^2; or* *iv. any building addition in any continuous 10-year period that has a footprint of less than 25m^2.*

NH-P5 Activities within the Fault Awareness Overlay and Ashley Fault Avoidance Overlay For activities within fault overlays: 1. only allow subdivision, use and development for natural hazard sensitive activities in the Ashley Fault Avoidance Overlay where the risk to life or property is low; and 2. manage subdivision in the Fault Awareness Overlay so that the risk to life and property is low.	N/A Not in a fault overlay.
NH-P6 Subdivision within the Liquefaction Hazard Overlay Manage subdivision within the Liquefaction Hazard Overlay to ensure that the risk to life and property is low.	N/A Not in a liquefaction overlay.
NH-P8 Subdivision, use and development other than for any natural hazard sensitive activities Allow for subdivision, use and development associated with activities that are not natural hazard sensitive activities within all natural hazard overlays as there is a low risk to life and property.	N/A The proposal is for residential development only.
NH-P18 Fire and ice risks Manage wildfire and vehicle crash risk on roads affected by ice hazard through restrictions on the planting of woodlots and shelterbelts.	N/A In an urban environment with restricted speed limits and domestic plantings.
NH-P19 Other natural hazards Encourage the consideration of other natural hazards as part of subdivision, use and development.	No other natural hazards identified within a future urban environment.
SASM-O1 Ngā tūtohu whenua The historic and contemporary cultural significance for Ngāi Tūāhuriri mana whenua, of and their relationship with ancestral lands, water, sites, wāhi tapu, wāhi taonga and coastal environment is recognised and provided for.	Adjoining the Site, but not part of the Site, is SASM-024 relating to the South Brook. The ODP for the development will specifically address the esplanade settings and purpose in suggesting setback and mitigations.

	This recognises Ngai Tuahuriri associations with the waterway.
SASM-P1 Integrated management of land and water Adopt an integrated approach that reflects ki uta ki tai (from the mountains to the sea), by recognising the relationship between land use, ecosystems, natural processes and water.	As a full urban development the Site will be fully reticulated to Council designed and managed systems. These will provide an integrated approach to collection, treatment and disposal of sewage and stormwater. Complies with the Policy.
SASM-P2 Urupā Protect urupā from disturbance, except for activities associated with the cultural use, identification and protection of such sites which are undertaken by Te Ngāi Tūāhuriri Rūnanga or their authorised agent.	N/A None identified on the Site.
SASM-P3 Wāhi tapu and wāhi taonga Protect wāhi tapu and wāhi taonga sites from development, disturbance, damage or destruction that would adversely affect the sites and their values and provide for enhancement of cultural and ecological values.	SASM-024 identifies a site adjoining the Site and by being included in Schedule 1recognises its values including cultural and ecological values. Complies with the Policy.
SASM-P4 Ngā tūranga tūpuna Recognise the historic and contemporary relationship of Ngāi Tūāhuriri with the areas and landscapes identified as ngā tūranga tūpuna and:...1-8	To be addressed at subdivision stage.
SASM-P5 Ngā Wai Recognise the cultural significance of the waterbodies, repo/wetlands and those parts of the coastal environment identified as Ngā Wai, and manage the effects of land uses, and activities on the surface of water, to: 1. protect the health of these waterbodies and associated coastal waters, including by maintaining their natural character where it is high and enabling enhancement where it is degraded,	As a full urban development the Site will be fully reticulated to Council designed and managed systems. These will provide an integrated approach to collection, treatment and disposal of sewage and stormwater. The location/ design and management of Council systems will have regard to the cultural significance of Ngā Wai.

including through the reinstatement of original water courses where practicable; 2. recognise historic and contemporary Ngāi Tūāhuriri customary uses and values associated with these waterbodies and coastal waters and enhance opportunities for customary use and access; 3. ensure any land uses adjoining these sites, or structures and activities on the surface of water do not adversely affect taonga species or Ngāi Tūāhuriri customary uses in these areas; 4. ensure new land uses do not create an additional demand for the discharge of sewage or stormwater directly into Ngā Wai, and where the opportunity arises, reduce the need for existing land usesto discharge untreated wastewater or stormwa ter into these areas; 5. protect the health, natural functions and processes of riparian margins and the coastal environment from the adverse effects of adjoining land use activities; and 6. provide for opportunities for the recognition of cultural values within the design, location and installation of infrastructure, while enabling their safe, secure and efficient installation.	
ECO-O1 Ecosystems and indigenous biodiversity Overall, there is an increase in indigenous biodiversity throughout the District, comprising: 1. protected and restored SNAs; and 2. other areas of indigenous vegetation and habitat of indigenous fauna that are maintained or enhanced.	N/a No SNA identified. The presence or otherwise of indigenous fauna to be determined at subdivision stage or in consultation with WDC in regard to the design of the flow path traversing the Site. Consistent with the Policy.

ECO-P4 Maintenance and enhancement of other indigenous vegetation and habitats Maintain and enhance indigenous vegetation and habitats of indigenous fauna that do not meet the significance criteria in ECO-APP1 by: 1. continuing to assess the current state of indigenous biodiversity across the District; 2. restricting indigenous vegetation clearance or modification of habitat of indigenous fauna, by recognising that indigenous vegetation within: a. the Lower Plains Ecological District and High Plains Ecological District has been widely destroyed, fragmented and degraded by land use and pests and therefore clearance of any remaining indigenous vegetation needs to be restricted in order to protect what remains; and b. the Oxford Ecological District, Torlesse Ecological District and Ashley Ecological District, has a larger proportion of indigenous vegetation remaining and therefore some clearance of indigenous vegetation may be acceptable; 3. recognising that the District contains species that are threatened, at risk, or reach their national or regional distribution limits in the District, and naturally uncommon ecosystems, and limiting their clearance; 4. providing information, advice and advocacy to the landowner and occupier; 5. supporting and promoting the use of covenants, reserves, management plans and community initiatives; and	For consideration at subdivision stage in identifying if any qualifying areas of indigenous vegetation and habitat of indigenous fauna are present on the Site and require protection.

6. working with and supporting landowners the Regional Council, the Crown, the QEII National Trust, NZ Landcare Trust and advocacy groups.	
ECO-P6 Cultural heritage and customary rights Ngāi Tūāhuriri cultural heritage values associated with indigenous biodiversity will be maintained and enhanced through: 1. providing for the customary harvesting of taonga species by Ngāi Tūāhuriri, while ensuring such harvesting will maintain the indigenous biodiversity of the site; 2. providing for the planting of indigenous vegetation for the purpose of customary harvesting; and 3. encouraging the protection of the values of indigenous species that are taonga to Ngāi Tūāhuriri.	As above.
ECO-P8 Waterbodies Recognising Te Mana o te Wai, maintain the ecological integrity of waterbodies by avoiding indigenous vegetation clearance near them.	For consideration at subdivision stage in identifying if any qualifying areas of indigenous vegetation and habitat of indigenous fauna are present on the Site and require protection.
NATC-O1 Preservation of natural character The preservation of the natural character of the surface freshwater environment, its wetlands, and lakes and rivers and their margins.	The South Brook has existing protection by its esplanade reserve. The tributary is shown as a flow path in DEV-WR so specific investigation and design is required at subdivision stage to determine the extent to which the natural character of the surface freshwater environment can be maintained.
NATC-O2 Restoration of natural character Restoration of the natural character of surface freshwater bodies and their margins where degradation has occurred.	As above.
NATC-O3 Use of freshwater body margins The use of wetlands, and lakes and rivers and their margins are managed to preserve their natural character.	As above.

NATC-P4 Preservation of natural character values Preserve the natural character values of wetlands, and lakes and rivers and their margins, and protect those values by: 1. ensuring that the location, intensity, scale and form of subdivision, use and development of land takes into account the natural character values of the surface freshwater bodies; 2. minimising indigenous vegetation clearance and modification, including where associated with ground disturbance and the location of structures, near wetlands, and lakes and rivers and their margins; 3. requiring setbacks of activities from wetlands, and lakes and rivers and their margins, including buildings, structures, impervious surfaces, plantation forestry, woodlots and shelterbelts; and 4. promoting opportunities to restore and rehabilitate the natural character of surface freshwater bodies and their margins, such as the removal of plant and animal pests, and supporting initiatives for the regeneration of indigenous biodiversity values, and spiritual, cultural and heritage values.	For consideration at subdivision stage.
EW-O1 Earthworks Earthworks are undertaken in a way that minimises adverse effects on amenity values, cultural values, property, infrastructure and the health and safety of people and the environment.	Earthworks will comply with plan standards or be subject to any necessary regional or district resource consents. Consistent with Policy.
EW-P1 Enabling earthworks Enable earthworks where they:	Part of land development for urban purposes involves engineered earthworks which are usually managed through an earthworks and sediment control plan at subdivision stage or though conditions of

1. are compatible with the character, values and qualities of the location and surrounding environment; 2. avoid, remedy or mitigate any adverse effects on any sites or areas identified as ONL, ONF, SAL, Coastal Environment Overlay, SNA, sites and areas of significance to Māori, Natural Open Space Zone, surface freshwater bodies and their margins, or any notable tree, historic heritage or heritage setting; 3. minimise erosion and avoid adverse effects from stormwater or sediment discharge from the site; 4. avoid increasing the risk to people or property from natural hazards; 5. maintain the stability of land including adjoining land, infrastructure, buildings and structures; 6. minimise the modification or disturbance of land, including any associated retaining structures, on the visual amenity values of the surrounding area; and 7. minimise adverse dust, vibration and visual effects beyond the site.	consent for management of sediment discharge, air discharge consent for dust, and other nuisance. Construction and land development effects are temporary. The Site is effectively flat so no land stability questions will arise. Consistent with policy.
EW-P2 Earthworks within Flood Assessment Overlays Allow earthworks within the Urban Flood Assessment Overlay and Non-Urban Flood Assessment Overlay where: 1. the earthworks do not increase the flooding risk to the site or neighbouring sites through the displacement of flood waters; 2. the earthworks associated with proposed subdivision, development or use do not increase the risk to life or property; and	Earthworks to enable urban development will be engineered and designed in part to manage flood risk from changes in ground levels that affect overland flow paths and to ensure effective control of flood waters to stormwater management areas or outfalls to natural waterways. Complies with the Policy.

3. the ability to convey flood waters is not impeded as a result of the earthworks.	
EW-P3 Archaeological sites, and sites and areas of significance to Māori Earthworks avoid, remedy or mitigate adverse effects on archaeological sites and sites and areas of significance to Māori, by having regard to: 1. the particular cultural or historical values of the site and the extent to which these values may be affected; 2. any consultation with mana whenua, in particular any identified mitigation measures or the incorporation of mātauranga Māori into the scale and extent of the earthworks; and 3. any consultation with HNZPT.	The PWDP does not identify any specific archaeological sites and engagement with Ngai Tuahuriri will establish any interest in the Site. Consistent with the Polciy.
EW-P4 Scale of earthworks within or adjacent to urban environments Minimise adverse effects related to the scale of earthworks on character, and amenity values within or adjacent to urban environments by: 1. encouraging the integrated design and management of earthworks associated with subdivision, development and use; 2. minimising any off-site effects of earthworks by controlling the duration and sequencing of earthworks; and 3. avoiding quarry, landfill, cleanfill area, mining, or dam activities within or adjacent to urban environments.	Part of land development for urban purposes involves engineered earthworks which are usually managed through an earthworks and sediment control plan at subdivision stage or though conditions of consent for management of sediment discharge, air discharge consent for dust, and other nuisance. A traffic management plan will address vehicle movements to and from the site during Site development at subdivision. Complies with the Policy.
EW-P5 Rehabilitation Require site rehabilitation during or immediately following the completion of earthworks activity to:	As above

1. minimise adverse effects on amenity values, natural values, cultural values, quality of the surrounding environment and the future use of the site, and 2. encourage rehabilitation that incorporates ecological enhancement and habitat for indigenous fauna and the use of locally sourced indigenous vegetation.	
EW-P6 Water resources Avoid adverse effects of earthworks on ground and surface water bodies that could result in water contamination and adverse effects on mahinga kai.	As above.
NOISE-O1 Adverse noise effects Noise does not adversely affect human health, communities, natural values and the anticipated amenity values of the receiving environment.	As above
NOISE-P1 Minimising adverse noise effects Minimise adverse noise effects by: 1. limiting the noise level, location, duration, time, intensity and any special characteristics of noise generating activities, to reflect the function, character and amenity values of each zone; 2. requiring lower noise levels during night hours compared to day time noise levels to protect human health, natural values and amenity values of sensitive environments; and 3. requiring sound insulation, or limiting the location of noise sensitive activities where they may be exposed to noise from existing activities.	As above for subdivision earthworks.
NOISE-P2 Limited duration noise generating activities Enable specific noise generating activities of limited duration that are:	As above for subdivision earthworks.

1. required for anticipated activities within zones or the District, including construction noise…	
NOISE-P3 Rail and roads Protect the operation of rail and road infrastructure by identifying locations where acoustic mitigation measures for any new noise sensitive activities are required.	N/A The Site is internal to the strategic road network and is serviced by local roads whose primary purpose is property access not traffic distribution.
NOISE-P5 Rangiora Airfield Avoid the development of noise sensitive activities in the Rural Lifestyle Zone within the 55dBA Ldn Noise Contour for Rangiora Airfield and prohibit noise sensitive activities within the 65 dBA Ldn Noise Contour for Rangiora Airfield.	NA Not near Rangiora Airfield nor within noise contours.
RESZ-O1 Residential growth, location and timing Sustainable residential growth that: 1. provides more housing in appropriate locations in a timely manner according to growth needs; 2. is responsive to community and district needs; and 3. enables new development, as well as redevelopment of existing Residential Zones.	The Site sits within DEV-WR and SW Rangiora ODP so is in a planned and appropriate location and enables new development in an urban design that integrates with existing urban development. Complies with objective.
RESZ-O2 Residential sustainability Efficient and sustainable use of residential land and infrastructure is provided through appropriate location of development and its design.	As above
RESZ-O3 Residential form, scale, design and amenity values A form, scale and design of development that: 1. achieves a good quality residential environment that is attractive and functional;	The 100 lot development will comply with PWDP activity and subdivision standards that will ensure a good quality residential environment that is attractive and functional. DEV-WR and the SW Rangiora ODP provide appropriate responses to adjoining land noting that the South Brook Esplanade Reserve

2. supports community health, safety and well-being; 3. maintains differences between zones; and 4. manages adverse effects on the surrounding environment.	adjoins but is not part of the Site but provides a significant landscape and amenity buffer to adjoining LRZ land. Achieves the Objective.
RESZ-O5 Housing choice Residential Zones provide for the needs of the community through: 1. a range of residential unit types; and 2. a variety of residential unit densities.	The proposal will achieve a minimum of 12 hh/ha through a mix of lot sizes Consistent with the Objective.
RESZ-P8 Housing choice Enable a range of residential unit types, sizes and densities where: 1. good urban design outcomes are achieved; and 2. development integrates with surrounding residential areas and infrastructure.	As for RESZ-P3 above.
RESZ-P10 Retirement villages Provide for the development of retirement villages in all Residential Zones, other than the Large Lot Residential Zone, where: 1. consistent with good urban design, including external design; and 2. integration with any adjacent residential activity, the transport system, roads and parking is achieved.	N/A No retirement village proposed.
RESZ-P12 Outline development plans Use and development of land subject to an ODP shall:	The Site development will comply with the SW Rangiora ODP. Complies with the Policy.

1. be in accordance with the development requirements and fixed and flexible elements in the relevant ODP, or otherwise delivers equivalent or better outcomes while achieving an efficient, effective and consolidated urban form, except relation to any interim use and development addressed in (3); 2. ensure that development: a. contributes to a strong sense of place, and a coherent, functional and safe neighbourhood; b. contributes to residential areas that comprise a diversity of housing types; c. retains and supports the relationship to, and where possible enhances, recreational, historic heritage and ecological features and values; and d. achieves a high level of visual and landscape amenity; 3. interim use and development of land subject to an ODP shall not compromise the timely implementation of, or outcomes sought by, the ODP **RESZ-P13 Location of higher density development** Locate higher density housing to support and have ready access to: 1. commercial business areas, community facilities and open space; and 2. public transport and well-connected walkable communities.	
RESZ-P14 Development density Development densities for new Development Areas and Large Lot Residential Zone Overlays shall be as follows:	With some medium density development as proposed should enable the Site to deliver between 12-15 hh/ha.

1. in new Development Areas, achieve a minimum net density of 15 households per ha averaged across the whole of the residential Development Area within the relevant ODP, unless there are demonstrated constraints then no less than 12 households per ha. 2. in new Large Lot Residential Zone Overlays, achieve a net density of 1 to 2 households per ha.	
GRZ-O1 General Residential Zone A general suburban residential zone with a range of larger site sizes providing for predominantly residential use.	The Site is proposed to be zoned GRZ and MRDZ. Achieves the Objective.
GRZ-P1 Residential character and amenity values Provide for activities and structures that support and maintain the character and amenity values anticipated for the zone which: 1. provides for suburban character on larger sites primarily with detached residential units; 2. provides for a pleasant residential environment, in particular minimising the adverse effects of night time noise, glare and light spill, and limited signs; 3. provides opportunities for multi-unit residential development on larger sites; 4. has sites generally dominated by landscaped areas, with open spacious streetscapes; 5. through careful design provides a range of higher density living choices to be developed within the zone; and	The site will be developed on the basis of PWDP GRZ and MRDZ activity, development and subdivision standards. This will ensure the maintenance of the character and amenity values anticipated for the Zone. Achieves the Policy.

6. provides for small scale commercial activity that services the local community, and home businesses at a scale consistent with surrounding residential character and amenity values.	
GRZ-P2 General Residential Zone Overlay For any General Residential Zone Overlay, ensure an ODP is developed in accordance with SUB-P6 and incorporated into the District Plan.	The Site is already subject to the SW Rangiora ODP and the DEV-WR development Area Outline Development Plan. Complies with the Policy.
DEV-WR-O1 Development area West Rangiora Development Area contributes to achieving feasible development capacity for residential activities.	The Site is part of DEV-WR. Complies.
DEV-WR-P1 Future urban development Provide for future urban development in a Development Area (in accordance with DEV-WR-APP1 - West Rangiora Outline Development Plan) through a certification process by the District Council's Chief Executive Officer or their delegate when: 1. the development will provide additional residential capacity to help achieve or exceed the projected total residential demand as identified in UFD-O1 (for the medium term); 2. water supply, wastewater system and stormwater infrastructure capacity is sufficient to support the proposed development; and 3. an agreement is in place between the District Council and the developer on the method, timing and funding of any necessary water supply, wastewater system and stormwater infrastructure, open space and recreation land and transport infrastructure.	The submission opposes the Certification process and for the Council to rezone the Site consistent with its status as a Greenfield Priority Area. Given the Site's location its development should meet the certification requirements if this method for releasing land is retained. The alternative consenting pathway is by resource consent.

DEV-WR-P2 Subdivision and activities Only allow subdivision and activities where: 1. after certification by the District Council's Chief Executive Officer or their delegate, it is in accordance with the objectives, policies and rules of the General Residential Zone, Local Centre Zone and the relevant District wide provisions; and 2. prior to certification by the District Council's Chief Executive Officer or their delegate, it will not undermine or inhibit the future development of the Development Area as per the West Rangiora Outline Development Plan.	

Appendix 5: Section 32 RMA Assessment for Proposed District Plan Submission

Townsends Road

Introduction and RMA requirements

1. The submitter is lodging a submission on the Proposed Waimakariri District Plan **(PWDP)** to change the zoning of the application site from Rural Lifestyle Zone **(RLZ)** to General Residential (8.4 ha) Zone **(GRZ).**
2. The submission has outlined the background to and reasons for the requested submission.
3. The amendments to the Proposed Plan are outlined in the submission. No adverse environmental effects are anticipated by the change of zoning, however the potential environmental effects of implementation of the submission have been described in the relevant sections of the submission.
4. Any change to a plan needs to be evaluated in accordance with section 32 of the Resource Management Act. Waimakariri District Council has also required submitters for re-zoning submissions to prepare a section 32 assessment in support of the submission.
5. Section 32 states:

> *Requirements for preparing and publishing evaluation reports*
> *(1) An evaluation report required under this Act must—*
> *(a) examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act; and*
> *(b) examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by—*
> *(i) identifying other reasonably practicable options for achieving the objectives; and*
> *(ii) assessing the efficiency and effectiveness of the provisions in achieving the objectives; and*
> *(iii) summarising the reasons for deciding on the provisions; and*
> *(c) contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.*
> *(2) An assessment under subsection (1)(b)(ii) must—*
>
> *(a) identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for—*
> *(i) economic growth that are anticipated to be provided or reduced; and*

(ii) employment that are anticipated to be provided or reduced; and

(b) if practicable, quantify the benefits and costs referred to in paragraph (a); and (c) assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.

(3) If the proposal (an amending proposal) will amend a standard, statement, national planning standard, regulation, plan, or change that is already proposed or that already exists (an existing proposal), the examination under subsection (1)(b) must relate to—

(a) the provisions and objectives of the amending proposal; and

(b) the objectives of the existing proposal to the extent that those objectives—

(i) are relevant to the objectives of the amending proposal; and

(ii) would remain if the amending proposal were to take effect.

5. The Guidance Note on section 32 analysis on the Quality Planning website makes the following statement:

   Appropriateness - means the suitability of any particular option in achieving the purpose of the RMA. To assist in determining whether the option (whether a policy, rule or other method) is appropriate the effectiveness and efficiency of the option should be considered:

   • Effectiveness - means how successful a particular option is in addressing the issues in terms of achieving the desired environmental outcome.

   • Efficiency - means the measuring by comparison of the benefits to costs (environmental benefits minus environmental costs compared to social and economic costs minus their benefits).

6. In this case it is the appropriateness of rezoning rural land for General Residential that needs to be examined.

Objective of the Submission to the Proposed District Plan

6. The objective of the submission is to change the zoning of the application site in the Proposed Waimakariri District Plan from Rural Lifestyle Zone **(LRZ)** to General Residential Zone **(GRZ)** and Medium Density Residential Zone (**MDRZ**) in a controlled and managed way through an Outline Development Plan and by adopting, as far as possible, proposed planning zones and subdivision, activity and development standards.
7. Accepting the submission will:
   a) Provide for short term additional housing and residential land choice in Rangiora at General Residential standards that achieve the target of 12-15 households/ha. Such densities will complement the immediately adjoining residential land without compromising the character or amenity of that land;
   b) Provide for urban development that will square off the southern edge of the existing township in a manner that enables efficient use of existing and future infrastructure and current land resources.

Environmental Outcomes – District Plan Objectives and Policies

8. The Proposed Waimakariri District Plan **(PWDP)** objectives give effect to the purpose of the Resource Management Act and the PWDP policies in turn give effect to the PWDP objectives. The objectives are the end goals or end states (including environmental outcomes) to be strived for and the policies are the broad strategies to achieve the objectives.[1]
9. The proposed residential rezoning has been assessed against the relevant proposed District Plan objectives and policies. It concludes that the requested rezoning is entirely consistent with and meets the outcomes sought by the objectives and policies, but not for urban/township growth and new residential areas.
10. The Site is identified on the PWDP planning maps within the West Rangiora Future Development Area Overlay (DEV-WR); it is identified within a FDA in Map A of the Canterbury Regional Policy Statement as amended by Change 1 and is within the Projected Infrastructure Boundary. It is within the growth direction proposed by the Waimakariri District Development Strategy 2018 **(WDDS).**
11. The most efficient use of the Site is for full urban development, given the continuing high demand land for housing at Rangiora, and the Site's location within a logical urban growth path for Rangiora as shown in the Waimakariri District Development Strategy 2018.

Identification of options

12. In determining the most appropriate means to achieve the objectives of the submission, a number of alternative planning options are assessed below.
13. These options are:
    a) Option 1: status quo/do nothing: Do not rezone the Site (Rural Lifestyle)
    b) Option 2: submission to rezone the whole site for urban residential use (GRZ and MDRZ).
    c) Option 3: submission to rezone the whole site as Large Lot Residential (LLRZ).
    d) Option 4: resource consent: ad hoc land use and subdivision consent for subdivision through non-complying subdivision and land use consents for residential use.

[1] [1] See PWDP Part 1, HPW Plan Structure

S32 Matter	Option 1: Do nothing: Rural Lifestyle Zone	Option 2: General & Medium Density Residential Zone (8 ha)	Option 3: Large lot Residential	Option 4: Consents
Cost	None for submitters. On-going costs for landowners with rural activities managing effects of adjoining residential land uses.	Time and money cost to submitter submission processes and technical reports. Different servicing costs for respective development densities. Development contributions for Council services Contributes some potential commuter traffic to Greater Christchurch from a portion of the anticipated appx. 100 additional households. (but site is very accessible to public transport services)	Time and money cost to submitter for submission processes and technical reports. Large lot densities are a less efficient use of the scarce resource of land so close to an existing, growing urban centre i.e. this is now a key urban growth path for Rangiora filling in to the logical southern township boundary. Additional consenting and servicing cost for any future relevant densities, if further zoning approved (development can be 'future proofed' for future urban densities). Contributes some traffic potential commuter traffic to Greater Christchurch from a portion of the households (but site is readily accessible to public transport services)	Time and money cost to Applicant to seek one-off noncomplying land use and subdivision consents. Consents unlikely to be approved as exceed the permitted RLZ zone dwelling density standards. Community cost and uncertainty in responding to ad hoc applications and not seeing the full scale of possible development at any time.
S32 Matter	**Option 1: Do nothing: Rural Lifestyle Zone**	**Option 2: General & Medium Density Residential Zone (8 ha)**	**Option 3: Large lot Residential**	**Option 4: Consents**
Benefit	Ongoing low output rural production on some of the Site. Retains existing rural character and amenity	Additional housing stock with greater choice in typology than currently available, contributing to the growth of Rangiora. Contributes additional supply of housing to	Lesser volume of housing stock contributing to the growth of Rangiora. ODP provides overall plan of integrated	No rezoning required. Benefit to individuals that succeed (but successful

		market where there is very strong demand. Adds competition to the land/housing market in Rangiora. ODP provides overall plan of integrated land development. Implements NPS-UD. Provides more households to support township services/amenities and facilities.	land development for smaller site. Can be future proofed for urban rezoning. Provides more households to support township services/amenities and facilities.	applications unlikely)
S32 Matter	**Do nothing: Rural Lifestyle Zone**	**Option 2: General & Medium Density Residential Zone (8 ha)**	**Option 3: Large lot Residential**	**Option 4: Consents**
Efficiency/ Effectiveness	Application site remains low productivity rural lifestyle land bounded by urban land use. Rangiora's housing needs may not be met. Not consistent with WDDS 2018.	Utility services can be most efficiently provided by the Council. Effective as it utilises low productivity rural land in a location undergoing rapid urbanisation. Effective in providing for the needs and well-being of landowners according to respective aspirations. Comprehensively provides for extension of the township as planned for. Effective in meeting Rangiora housing needs in an appropriate location, and implements the NPS-UD	Utility services can be most efficiently provided by the Council. Less effective and efficient than Option 2 because cannot achieve the same residential yield to meet Rangiora's housing needs, and if 'future proofed' for future urban development, the yield will be less because there will be more 'interim' larger lots containing dwellings approved under the Large Lot Residential zoning.	Least effective and efficient as outcomes from consent processes are uncertain, and potentially un-coordinated and lack proper planned integration with the township utilities.

Risks of Acting or Not Acting

14. The Council's strategic intentions for Rangiora are contained in the WDDS 2018. The staging and implementation proposals in this document are given effect to in the proposed four development areas in the PWDP.
15. Zoning under the Proposed District Plan has to be robust enough to last the statutory life of the Plan (10 years), and the NPS-UD 2020 also requires that at the end of 10 years the Council is assured that there will be a sufficient supply of appropriately zoned land beyond that point. The risk of not acting in 2021 to re-zone sufficient urban zoned land, and to provide security of land supply over that timeframe, is that, Rangiora will experience the present day issues of uncatered for demand, undersupply of serviced land and a lurch in land and house prices.
16. The risk is that if necessary decisions are not taken today then the sustainable growth and development of Rangiora over the foreseeable planning period is uncertain. The PWDP sets out the feasible development capacity that exists, and forecasts the needs for the medium and long term in UFD-O1. Not re-zoning sufficient land that can support appropriate housing typologies to meet the needs of a range of household needs is not meeting the purpose of the Act, nor meeting the Council's obligations to sustainably manage the natural and physical resources of the Waimakariri District for present and future generations, or the requirements of the NPS-UD 2020.
17. Not rezoning land as a matter of urgency to meet the significant shortage of land for housing at Rangiora will result in a continued escalation and land and housing prices, continuing the trend of the last 12 months, which has seen prices approximately double (see **Appendix 7** Ray White advice).
18. An issue arises with the PWDP proposal to release land for development through a novel and untested certification process that is not clearly derived from RMA statutory powers, nor Local Government Act 2002 **(LGA)** authority. That process is claimed to be more responsive, timely and cost-effective than a conventional private plan change approach.
19. What the s32 in support of this approach does not do is test the efficiency and effectiveness of certification against the opportunity presented by the notification of the PWDP for the Council to just zone the land for the purposes signalled by the Site's inclusion in the DEV-WR and the SW Rangiora ODP. The certification process has the effect of transferring the costs of re-zoning largely on the private sector applicant, and not engaging the public funded costs that go with the RMA duty to provide for planned and sustainable approach to the management of district resources for the life of the district plan.

20. There is a risk that applicants may shy away from certification because of the uncertainties associated with it as it is presently set out in the PWDP. Those uncertainties are described in the submission. The process is hugely discretionary, does not provide conventional rights to an applicant (eg right of objection/appeal) meaning decisions cannot be challenged, and it is not apparent that the process will be appropriately documented with a transparent record of the decision-making within the certification process.
21. A potential effect of the certification process not being taken up is that the statutory duty of the Council to meet the requirements of the NPS-UD are simply not met, that its s31 RMA duties are not fulfilled; that the PWDP does not provide plan-enabled land; and seems to fly in the face of a sound, structured strategic planning process to date (the WDDS) not being implemented. All the ground work seems to have been done, but the Council seems to have become gun shy in fronting the costs and the process of just re-zoning in the PWDP (only the second district plan under the RMA).
22. There is a risk arising from the Council not acting now as is its RMA and LGA duty to provide a co-ordinated, staged and funded approach to land development over the four development areas from a land use viewpoint (the PWDP) and for servicing (Asset Plans, 10 year financial strategy and LTP under the LGA).
23. West Rangiora is a significant area of land with potentially multiple landowners and developers who now have to negotiate and manage the staging, funding and building of key infrastructure when the submitter's Site sits at the bottom of the west Rangiora catchment.
24. There is a risk that the GRZ and MDRZ land supply is controlled by a limited number of large developers, who will act out of self-interest in either land-banking or staging release of land to maximise returns and creating pressure on other developers around access to and agreements on servicing. Allowing smaller proposals such as this 100 lot proposal provides competition to the housing/land supply market but that competition may fail to arise through the certification process. That will not be giving effect to an element of the NPS-UD 2020.
25. The submitters have commissioned/sourced a number of technical reports (stormwater and flooding, PSI) and will commission others as required (geotechnical, ITA, and servicing) to inform and shape the development proposal either as evidence to any hearing, or at subdivision stage.
26. There is no risk that a decision will be made in an absence of expert advice and appropriate technical solutions for servicing and design and there is the subdivision and detailed design stage to be passed.

27. All these inputs to the proposal mean there is little, if any, uncertain or missing information in relation to this proposal.
28. It is therefore considered that there are no significant risks of acting to adopt or accept the submission.

Summary of s32 evaluation

S32 Evaluation	Option 1: Do nothing: Rural Lifestyle Zone	Option 2: General & Medium Density Residential Zone (8 ha)	Option 3: Large lot Residential	Option 4: Consents
Objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act	±	+	±	×
Whether the provisions in the proposal are the most appropriate way to achieve the objectives	×	+	±	×
Benefits	+	+	+	×
Costs	×	++	++	±
Risks	+	×	×	++

×: does not achieve the matter, negative effect

+: does achieve the matter; positive effect

++: significant effect

±: neutral in relation to the matter

Overall Assessment

29. Based on the above assessment, it is concluded that the submission to re-zone the Site from Rural Lifestyle Zone to General Residential and Medium Density Residential is the most appropriate method for achieving the objectives of the proposal, than the other alternatives also considered above.
30. Option 2 is consistent with a range of District Plan policies including that it does not sit square with the implementation signalled in WDDS 2018.
31. Option 2 to re-zone the Site GRZ is the most appropriate given:

a) The proposals adopt a Proposed District Plan zone, and development and activity standards. This ensures continuity of District Plan anticipated environmental outcomes and urban amenity for Rangiora;
b) Will be consistent with and give effect to the relevant proposed District Plan objectives and policies;
c) It is a logical extension to the developed and developing residential land adjoining the Site while achieving a compact, efficient urban form that removes pressure on isolated rural land elsewhere in the Rural Lifestyle Zone;
d) There is no additional cost to the Council in re-zoning the Site land in this proposal as there is capacity in the public utilities and the existing road network, including planned upgrades, will accommodate the traffic effects of about 100 households;
e) The proposed ODP provides certainty of the final form and disposition of the re-zoned area including its proposals for reserves, roading, future linkages for pedestrian and vehicular traffic.

32. The inclusion of the General and Medium Density Residential Zone in the proposal is considered to be appropriate to achieve the long term sustainable growth and development of Rangiora.
33. The economic, social and environmental benefits of the proposal outweigh the potential costs.
34. The overall efficiency and effectiveness of the proposal is high, in comparison the alternative options which are low (Options One and Four) or low to moderate (Option Three).
35. The proposal is considered to be the most appropriate, efficient and effective means of achieving the purpose of the Resource Management Act 1991.

Appendix 6: Record of Consultation Meeting - Broughton

File: 20202104

File Note of Meeting

Date of meeting: 16 September 2020

Time: 1.00pm

Location: Waimakariri District Council

Present:

Trevor Ellis: WDC

Coral and John Broughton, landowners

Hamish Frizzell, SURVUS

Richard Johnson, Aston Consultants

Subject: 113-117 Townsend Road Rangiora development issues

1. There was discussion about the subdivision history of the site and the present access arrangement off Angus Place (urban standard to serve a max of 6 lots) and its fundamental unsuitability for farming use of the site which is still zoned Rural.
2. We noted the present RPS position of the site being identified within Map A as part of future development and within the infrastructure boundary of land potentially capable of being serviced.
3. TE noted that ECAN is pursuing a Streamlined Planning process with the Minister for the Environment to include all land within the infrastructure boundary as developable land. This will happen ahead of the review of the RPS (2023?)
4. TE advised that notification of District Plan review is still Q1/Q2 2021.
5. TE advised that Waimakariri
    a) Is working on new structure plans (OFDP) for all land within the infrastructure boundary (east and west Rangiora). This work will feed in to the review of the District Plan.
    b) WDC will be engaging with all landowners soon about this (there has been some engagement previously that the Broughton's have engaged with).
    c) New flood maps will be available imminently (this week?) and that shows some change in the flood hazard status of the site (no longer high hazard). High hazard land is confined to the main watercourses.
    d) TE advised that there are parties who may still prefer to see the site as difficult to develop/undesirable to develop/ subject to unacceptable risk.
    e) Proposal is to re-zone the site as Residential 2 (General Res in the new National Planning standards)
    f) Discussions still required with WDC services staff especially 3 waters for sewerage/water capacity etc
6. Site access:

a) Some discussion around the impracticality of the existing RoW off Angus Place for either farming uses or for future development.
b) Provision for an access off the proposed road to the north of the site; requires bridging.
c) Alternative is to negotiate with Townsend Fields for purchase of an access in a more convenient position but that will still require a bridge, and would be a difficult negotiation and probably a costly option.

7. Discussion around development options for the site
   a) As Res 2 the site still able to have a number of development options
   b) TE encouraged exploring options to assist with ODP development and to inform any submission on the District Plan review
   c) JB wanting to explore a comprehensive" development option with a number of features such as
      - Wetlands
      - Open space
      - Large RuRes lots against stream boundaries
      - Clusters of more intense development
      - Other building platforms

Action:

- Hamish to get LIDAR data for site (WDC??)
- Hamish to sketch up outline proposals to give effect to development options

8. RJ Noted that the Broughtons have no need to make provision for esplanade reserve against the south Brook as that was taken at the original subdivision creating the two lots of the site.
9. JB identified an issue with street numbering now the site no longer has physical access to Townsend Road. It is now 44 Angus Place so needs to be recorded as such by WDC.

Action: TE to email relevant WC staff about the issue

10. These discussions may assist in setting road locations.

Actions:

1. RJ/HF to make a note of meeting and actions and circulate including to WDC.
2. RJ/HF to seek involvement in development of ODP/structure plan for West Rangiora
3. JB to share WDC advice of flood hazards

Meeting closed: 1.50pm

Appendix 7: Real Estate Advice – Broughton Submission

From: Stuart Morris <stuart.morris@raywhite.com>
Sent: Friday, 19 November 2021 4:18 PM
To: John Broughton <john@projectgroup.co.nz>
Subject: Rangiora Residential Sections

Hi John

I'm pleased to hear you are putting forward a proposal to have your land rezoned because in my opinion the town is in desperate need of more residential land to build on.

As we all know the market is short of supply of stock which is causing some huge upwards pressure on pricing. This has been evidenced in "2nd hand" property sales, brand new builds and bare land alike.

12 months ago sections in Townsend Fields, the development adjacent to your block, were selling for 210k - 230k. In more recent times the sections that have been sold on the open market have fetched between 400k and 437k

In Woodend there has been over 20 sections sold by Auction for 410 - 520k

The best thing that could happen for the district is more land being rezoned and made available to help with the lack of supply.

I wish you luck in your efforts

Warm regards

Stuart

Stuart Morris
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