OPUS

Whanganui District Council

Otamatea West Structure Plan

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1 Executive Summary

Following completion of the Residential Growth Study in 2015, Whanganui District Council identified a need to provide additional greenfield land for future residential development at Otamatea. It is predicted that 179 new dwellings will be required in greenfield areas, over and above the 455 new dwellings predicted within the existing Residential Zone at Otamatea.

This report investigates the potential for rezoning the Otamatea West study area to accommodate residential development and be rezoned to Residential and the consequential requirement to connect to urban reticulated services. These investigations have identified the following:

(a) The attenuation of stormwater and connection of the area to the existing reticulated water supply and wastewater disposal network is feasible with several options possible. It has been assumed that upgrades proposed in the GHD report to the wastewater system will be completed prior to implementation of the proposed Structure Plan.

(b) While there are site constraints for the study area, none of these represent a significant impediment to residential development.

(c) That it is appropriate to rezone the majority of the Structure Plan area to Residential, with the exception of the south western portions of the Quigley blocks, which are recommended to remain zoned as Rural Lifestyle.

(d) The Structure Plan layout and design provides for residential sections with a minimum area of 800m^2 per lot. This is a response to observed market demand specific to Otamatea.

(e) As a result, infrastructure services have been designed to accommodate this scenario, which defines 179 new lots, each with a minimum development density of 800m^2 total net site area.

(f) It is noted that concurrent research by Council's Senior Planner has confirmed that the projected demand for 455 infill dwellings can only be accommodated within the existing Residential Zone if a minimum development density of 400m^2 per new lot is reinstated for existing sites already zoned Residential.

(g) The purpose of the Otamatea Development Overlay in the District Plan was to restrict development density for all Residential zoned sites at Otamatea, until such time as the wastewater and stormwater reticulated network's capacity to service the area, was investigated and better understood. This information is now available, and the required works confirmed to satisfy the predicted demand for dwellings to 2065. For these reasons, it is understood that a Plan change will be introduced to remove the Otamatea Development Overlay from the District Plan.

(h) It is also noted that rezoning of suitable areas to Residential, within the Structure Plan area, will ensure that the existing District Plan earthworks rules will be triggered for land disturbance activities associated with such development. At present this is not the case, as the earthwork rules do not apply to land zoned Rural Lifestyle.

(i) Larger lifestyle blocks are anticipated within the lower lying areas below the wastewater pump stations. These sites would require a low pressure wastewater pumping system to discharge waste to the upstream reticulation. Septic tanks are not considered sustainable in this area due to the potential risk of contamination of the stormwater detention ponds to be located nearby.

(j) Council's aim is to maintain a selection of residential development areas of a scale and character that facilitates efficient and cost effective infrastructure provision. This current analysis has concluded that provision of residential development in this study area in accordance with the Structure Plan will be efficient and cost effective.

1.2 Recommendations

THAT:

1. The majority of the study area be rezoned to Residential via a change to the District Plan. Portions of the south western area of the Quigley property should remain zoned as Rural Lifestyle to retain lifestyle block sized lots due to the topography and proposed stormwater attenuation ponds proposed in this area. This site comprises significant areas of natural stormwater ponding.

2. Recorded archaeological sites be mapped in the District Plan to raise awareness of their existence, given their vulnerability being within a future development area. An archaeological alert over the entire study area should be imposed. Developers should be clearly directed that an Archaeological Authority will need to be obtained from Heritage New Zealand prior to any land disturbance within the Structure Plan area.

3. Te Runanga O Tupoho and Ngaa Rauru Kiitahi are iwi who identify this area as being within their respective rohe. Both iwi have identified that this area potentially has cultural significance for them. A cultural impact assessment will likely be required, either for individual blocks as they prepare to develop or for the entire study area. Developers should be clearly directed that an assessment of the cultural impact of any proposed development will need to be obtained; and the methodology and authors of this report should be determined in liaison with Te Runanga O Tupoho and Ngaa Rauru Kiitahi and completed and submitted to Council, prior to any land disturbance within the Structure Plan area.

3. Bennetts Pond should be upgraded in accordance with the GHD report “Churton Creek (Stage A) Stormwater System Improvements Report” September 2016, to improve the efficiency of the proposed stormwater system within the Structure Plan area.

4. That a recreation reserve area capable of accommodating a substantial children’s playground be provided within the Bristol property portion of the Structure Plan area. This could potentially be located within a portion of the eastern stormwater pond area or as a separate reserve area centred around one of the key heritage sites such as the Tayforth Homestead or various midden sites.

5. That the existing healthy and mature vegetation e.g. the walnut and exotic trees, be retained as far as practical due to their provision of scale and enclosure to the study area.

6. The following proposed policy (or similar) along with the Structure Plan in Figure 12 Proposed Otamatea West Structure Plan be included in the District Plan:

   a. That development of the Structure Plan area be undertaken in general accordance with the Structure Plan in Figure 12, which shows the recommended roading, three water infrastructure, historic heritage features, and landscaping.

   b. Variations to the Structure Plan layout in Figure 12 are encouraged provided the following key criteria to ensure quality urban design outcomes and efficient infrastructure provision are adhered to:

   - Create purposeful linkages for vehicles and for active modes of transport which are safe, pleasant and work with the natural landform. Establish linkages to existing residential development adjacent to the Structure Plan area and to maintain quality road linkages in all four directions as currently proposed.
   - Manage stormwater to ensure hydrologic neutrality for each development parcel within the Structure Plan area, thus ensuring neutral environmental effects beyond the Structure Plan area.
   - Ensure quality residential areas and infrastructure which are designed to work with the natural landscape as far as possible.
   - Avoid perpetuating the prevalence of private rights of way, as access to back sections and where possible redesign to remove existing private rights of way.

2 Introduction

2.1 Overview

Whanganui District Council has engaged Opus International Consultants Ltd to prepare a Structure Plan for the area presently zoned Rural Lifestyle and Residential and located directly behind and adjacent to Residential zoned land on the western side of Great North Road at Otamatea. The study area is bounded by 211 Great North Road to the north, residential properties abutting Turere Place to the east and Rural zoned land to the south. It is located approximately 4.5km northwest of the city centre.

Structure planning is an important tool in managing the orderly growth of the community to ensure that adequate public services are provided and important natural and cultural assets are protected. The Otamatea West Structure Plan (the Structure Plan) is an example of integrated management that brings together many of Council's functions into one plan for the area. The purpose of this Structure Plan is to provide guidance and direction to developers and the community regarding potential subdivision and development within this area and to facilitate the cost effective and efficient provision of appropriate infrastructure and the fair distribution of the costs associated with such development.

This report will provide the basis for consultation and discussion with landowners and the community as part of a Plan Change process, to enable adoption of a final Structure Plan that will in part, provide certainty that future residential development of this area can and will be appropriately managed.

This Structure Plan also provides a platform for medium term strategic planning to be employed by developers, the community and Council. It is Council's intention that the relevant parts of the document be incorporated into the Whanganui District Plan along with appropriate objectives, policies and rules.

Figure 1: *Location of Study Area*

This Structure Plan has adopted the population assumptions used in the Residential Growth Study (2015) which built on findings of the Draft Whanganui Growth Strategy 2008 and provides a growth context for the next 50 years. The Structure Plan will:

- Assist with the sustainable management of future development in the study area.
- Protect the natural landscape form and wetland areas where practicable.
- Address the requirements of infrastructure in the Structure Plan area.
- Provide an indicative roading layout and linkages for active transport modes.
- Indicate locations for new reserves and appropriate public access.

- Indicate locations of wastewater pump stations and consider alternative methods to conventional disposal.
- Indicate a preferred stormwater layout, including locations for ponding areas and swales.
- Provide the background for development of regulatory mechanisms to be included in the Whanganui District Plan to maintain the amenity and character of the environment.

2.2 What is a Structure Plan?

Structure Plans are proactive tools used to outline the requirements for future infrastructure, to provide for and compliment new subdivision and development within a defined geographic location. The Structure Plan itself and the provisions contained in the Plan, are indicative only and are intended to guide future action.

Structure Plans are non-statutory policy documents. They are not required or enforced by legislation, and the provisions in the Plan do not have statutory or legal status until they are incorporated into Council's statutory documents such as the Long Term Plan (LTP)[1], District Plan or Asset Management Plans. Council intends that the Structure Plan be incorporated into the District Plan, LTP and asset management plans. While not a legal document, a Structure Plan may be considered as an 'other matter' when assessing a resource consent application and also allow for consideration of matters wider than those covered in the Resource Management Act.

2.3 Strategic Framework

Council's existing plans and strategies provide general directives about use of best practice design, integration of transportation and growth expectations which set the scene for the Structure Plan. The Whanganui Leading Edge document contains outcomes that the Whanganui community aspires to achieve. The main statement in this document is "*We are confident leaders and influential trailblazers – operating comfortably on the cutting edge. We are a 'bit different', don't' follow the pack and are energised and dynamic. This sets the scene for the strategy and the types of innovative approaches that we will front-foot. It's about Whanganui being seen as progressive and exciting – a magnetic place of abundance and diverse appeal*"

This Structure Plan is proactively facilitating development in appropriate locations in a manner that will adhere to the best practice documents listed below and detailed in Section 4.2 of this report:

- NZS4404: 2010: Land Development and Subdivision Infrastructure;
- Whanganui District Council, Land Development and Subdivision Engineering Document 2016 (Whanganui Supplement Document to NZS4404:2010) January 2016.(to be referred to as the Engineering Document 2016)
- Crime Prevention through Environmental Design. (CPTED)
- Urban Design Protocol and Whanganui Urban Design Action Plan

These documents guide development to achieve well connected residential environments focused on people and the quality of the environment. The outcome of such a Structure Plan process will be to create a framework where safe, pleasant, well connected and valued places to live and raise families can be developed.

2.4 Statutory Consultation

The Structure Plan Concept and the Structure Plan Technical Report will be consulted with the community via the Plan Change 46 engagement process. This Structure Plan report is a technical report to inform the community and facilitate Whanganui District Council decisions. The inclusion of these Structure Plan provisions in the District Plan will guide developers about the community expectations for development within the Structure Plan area.

[1] LGA Amendment Act Dec 2010

Infrastructure projects required to support the first stages of implementation of this Structure Plan will be included in the next round for the Long Term Plan or Annual Plan as required.

Proposed Plan Change 46 to the District Plan will seek to incorporate this Structure Plan formally and engage with landowners to explore the options to rezone land to facilitate future residential development of this area.

2.5 Structure Plan Methodology

The process of preparing this Structure Plan was essentially a desk top exercise involving:

- Revisions and update to development assumptions and pressures from the 2011 Structure Plan centred on the area around Tirimoana Place.
- A brief review of relevant national and regional policy statements, LTP 2015-2025, Council strategies and policy guidance documents, to ensure an integrated and consistent approach.
- A landscape and visual assessment of the study area using aerial plans and sites visits to identify key landscape constraints to and opportunities for development.
- Identification of key development areas to guide infrastructure locations. Consideration of the design and density of land uses.
- An assessment of the existing road pattern and the requirement for future transport needs, including the identification of transport linkages for motor vehicles and active transport modes.
- An assessment of existing open space provision and the need for additional open spaces.
- Identification of any known constraints to development arising from the design and capacity of the existing reticulated infrastructure services and external services such as power, gas and telecommunications.
- An assessment of the constraints, capacity and options for provision of three waters infrastructure along with cost estimates.
- A balancing of urban design and engineering principles in accordance with the requirements of NZS 4404:2010, Appendix I of the District Plan and the Urban Design Protocol.

2.6 Next Steps – Consultation and District Plan Provisions

This desktop exercise will inform Council processes, including development of District Plan provisions and consultation with affected landowners, neighbours, New Zealand Transport Agency and iwi.

Consultation for this report has been limited to preliminary interviews with non-Council infrastructure providers, and discussions with Council officers and limited discussion with some study area landowners.

Photo 1 – Tirimoana Place Residential Development Stage One

3 Objectives

3.1 Purpose

Council has initiated the Otamatea West Structure Plan as it understands development pressures already exist in this area and delay could see ad-hoc development of key sites compromise future opportunities to provide for quality integrated development of the wider area and efficient provision of infrastructure.

3.2 Key Objectives

This section details the design principles that have been applied in developing this Structure Plan. The overarching design principles are to:

- Create purposeful linkages for vehicles and for active modes of transport which are safe, pleasant and work with the natural landform. Establish linkages to existing residential development adjacent to the study area and to other community facilities.
- Identify suitable residential areas and design infrastructure which works with the natural landscape as far as possible.
- Avoid perpetuating the prevalence of private rights of way, as access to back sections, in the vicinity and where possible to mitigate existing situations.
- Manage stormwater to ensure neutral environmental effects within and beyond the study area.

4 Existing Site Context

4.1 Overview

4.1.1 Otamatea Structure Plan Area

The Otamatea West study area is approximately 58 hectares in area, refer to Figure 2 ‘Otamatea West Study Area and Key Landowners’. The boundary limit to the north is 211 Great North Road and to the east properties abounding Turere Place form the boundary. To the north east it is bounded by the existing residential area of Otamatea. The boundaries of the study area to the south and west incorporate Rural Lifestyle zoned land to the west of Great North Road, and some Residential zoned land, roughly as far south as Turere Place. It is located approximately 4.5km northwest of the town centre.

The study area landscape is gently rolling to flat in the north east and slopes away to the southwest becoming increasingly steeper to form a number of gullies incising the southern boundary.

4.2 Strategic Context

4.2.1 Residential Growth Study (2015)

In 2015 Council completed a review of economic trends, demographic and building consent data relevant to Whanganui, to establish residential growth projections out to 2065. The purpose of that study was to assist Council planning to facilitate quality residential development including to cost effectively meet infrastructure demands.

The study built on findings of the Draft Whanganui Growth Strategy 2008 and interviews with key stakeholders, which identified potential areas for future greenfield residential development. Provision of efficient and effective infrastructure continues to be identified as an important criteria.

Figure 2: Otamatea West Study Area and Key Landowners

In the period 1980 – 2014, approximately 67 dwellings were built on average per year, being a total of 2,278 dwellings in a 34 year period. Of those new dwellings built, 58% were in the Residential Zone and 11% in the Rural Lifestyle Zone, with the balance of 31% being in other rural zones. It is estimated that 20% (264) of those new dwellings within the Residential zone were built at Otamatea. For the same period, it is estimated that of the 251 dwellings built in the Rural Lifestyle Zone, 30% (75) were built at Otamatea.

Given the small annual demand for residential dwellings, infrastructure provision needs to be carefully managed. If too much land is zoned Residential, then small pockets of ad-hoc development will likely occur. This will increase the total cost of infrastructure installation and maintenance relative to a more structured potential development process. This is neither cost effective nor fiscally responsible. For this reason the location of future residential development needs to be managed so that infrastructure is provided in a relatively cost effective manner and without increasing the burden for ratepayers.

In 2015 a scenario for future residential development for both infill and greenfield development in the Whanganui urban area was established. Infill was deemed to be development within existing residential zoned areas, and greenfield being development within areas currently zoned Rural Lifestyle.

In relation to Otamatea the 2015 Residential Growth Study concluded that:

1. Based on historic trends and an assumed slow decline in the annual average number of dwellings per year, the study projected that 20 – 25% of infill development would occur at Otamatea out to 2065. This amounted to between 77 -106 dwellings per decade within the existing residential zoned area at Otamatea and a total of approximately 455 new dwellings by 2065.
2. Within the Residential and Rural Lifestyle zones at Otamatea there is sufficient available land to meet projected residential demand. No expansion of greenfield into the Rural General or Rural Production Zone is required at Otamatea. No additional land needs to be zoned Rural Lifestyle to meet lifestyle scale residential demand, as there is plenty of land not proposed or suitable for residential density within the existing zoned areas.
3. Similarly, the study projected that although greenfield development had accounted for an average of 30% of new dwellings between 1980- 2014, it was assumed that 40% of new dwellings would occur in this area out to 2035 at which time it would potentially drop back to between10 – 20% of new dwellings out to 2065. This amounted to between 11 – 78 dwellings per decade within the existing Rural Lifestyle zoned area at Otamatea and a total of approximately 179 new dwellings by 2065. Across Otamatea there was a projected shortfall of around 67 dwelling sites out to 2065.

Infrastructure Modelling of Otamatea Growth

The projected infill and greenfield growth for Otamatea were modelled to determine the implications for the Council's three water reticulated networks. This work generally confirmed the 2015 Growth Study conclusions about the potential suitability of this area to accommodate future residential development. For details of the modelling refer to two reports by GHD consultants Ltd[2].

Otamatea West was confirmed as an area where significant greenfield development could be accommodated to meet demand out to 2065 and beyond. The modelling investigations concluded that further intensification of Otamatea East being land to the north east of State Highway 3 was not appropriate. This is principally due to the existing density of residential development and the prevalence of iron sands which have created significant closed catchment stormwater issues for Council to date.

[2] WDC Whanganui City-Wide Growth Wastewater Bulk Supply Investigation(Revisited), March 2016 GHD, & WDC Churton Creek (Stage A) Stormwater System Improvements Report, Sept 2016, GHD

Relevant Conclusions

Since the 2015 Growth Study and modelling of infrastructure was completed in 2016, the Council Infrastructure team have determined, based on information now available, that no further infill development should be provided for at Otamatea East. The effect of this constraint is to reduce the potential infill to be accommodated within the existing Residential zone. Although it is noted that the majority of readily developable Residential zoned land is located at Otamatea West.

Much of the Rural Lifestyle zoned area identified as 'Otamatea' in 2015 comprises land that is not likely to be feasible for development due to identified topographic and drainage issues. However there is also sufficient easier land within this modelled area, to meet demand and achieve higher quality development where infrastructure provision is cost effective and sustainable for the long term. Refer to Figure 3 for a map of the modelled areas.

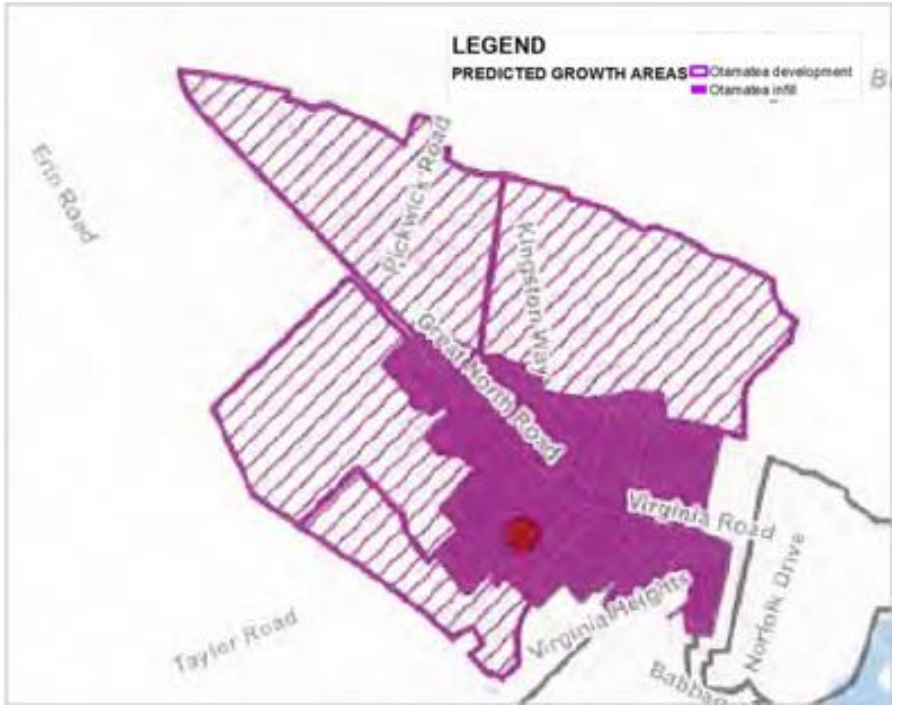

Figure 3 Modelled Areas for Growth (Source Whanganui City Wide Growth, Wastwater Bulk Supply Investigationl,, prepared by GHD March 2016)

Given that Otamatea is a desirable residential location, it is likely that the projected total sites for new dwellings in the area will be required by 2065and potentially some small additional areas of greenfield development area may be required to meet the projected demand. Such additional land is available within this Structure Plan area. It is likely that development may well be accelerated in Otamatea and other areas, if clear guidance is provided by Council in terms of preferred development locations, development parameters, developer contributions to off-site infrastructure costs and urban design planning requirements via the Council's Engineering Document 2016 and the District Plan via structure planning and other methods.

Greenfield land is often easier to develop than brownfield infill development. A risk, for the community is that the greenfield land identified for future residential development is developed and the projected infill does not occur but rather pressure is applied to have more greenfield land made available to meet demand. Careful consideration of the timing of greenfield rezoning is required.

4.2.2 Whanganui District Plan

The Operative Whanganui District Plan sets out how Whanganui's natural and physical resources are to be managed. It identifies the zoning of all areas and provides objectives, policies and rules with respect to these zones. Further detail on the specific zoning and overlays associated with the subject site is set out in section 4.3.4 below.

4.2.3 Whanganui District Council 10-Year Plan 2015-2025 (LTP)

The Local Government Act 2002 requires councils to review its activities and services every three years and set out what it plans to do, how it will be done, and how it will be paid for, for the coming decade. While general infrastructure upgrades and costs are set out in the 10 year LTP, there are no specific references to the Otamatea study area in this LTP. The LTP is relevant to this Structure Plan, as any upgrades or additional infrastructure required beyond those paid for by developers or those required prior to subdivision will need to be considered and added into future LTPs.

4.2.4 National Policy Statement on Urban Development Capacity 2016 (NPS-UDC)

The NPS-UDC directs local authorities to provide sufficient development capacity in their resource management plans for housing and business growth to meet demand. The NPS contains objectives and policies which seek to ensure that urban environments have sufficient opportunities for the development of housing and business land to meet demand. This Structure Plan will give effect to the NPS-UDC by assessing the Otamatea West Study area for suitability for residential development that will provide Whanganui with land for residential housing purposes into the future. This work combined with a series of other structure plans being prepared will give effect to this national policy statement.

4.2.5 Whanganui: Leading Edge

On 28 October 2014, the Council adopted its new vision, which replaced the previous "family friendly" strategy. The new vision states:

"Whanganui Leading Edge – Deeply united, globally connected, powered by creative smarts, flowing with richness, works for everyone. We are confident leaders and influential trailblazers – operating comfortably on the cutting edge. We are a 'bit different', don't follow the pack and are energised and dynamic. This sets the scene for the strategy and the types of innovative approaches that we will front-foot. It's about Whanganui being seen as progressive and exciting – a magnetic place of abundance and diverse appeal".

This Structure Plan seeks to implement the Whanganui Leading Edge vision by front footing the assessment and strategic provision additional areas for residential development to meet future demand.

4.2.6 NZS4404:2010 – Land Development and Subdivision Infrastructure and Whanganui District Plan Appendix I (Engineering Document 2016)

This document serves as a basis for technical compliance for subdivision and development of land where these are subject to the Resource Management Act 1991. Standards New Zealand states:

The Standard encourages sustainable development and modern design, and is applicable to greenfield and infill development, and brownfield redevelopment projects. Some of the key changes and improvements from the NZS:4404:2004 include requirements for earthworks and geotechnical needs, roads, stormwater, wastewater, water supply, landscape, and network utility services. The Standard incorporates up to date design principles such as low impact design (LID) solutions to stormwater management, and urban design principles that encourages more sustainable places, spaces, and networks in towns and cities.

The purpose of NZS4404:2010 is to provide standards for the implementation of well-designed land development and subdivision infrastructure projects. The Standard provides best practice land development and subdivision infrastructure techniques in low impact design, climate change and urban design.

This standard is recommended for adoption by territorial authorities and Whanganui District Council has adopted NZS4404:2010 as their base document together with Appendix I to the District Plan (Engineering Document 2016) which is a local supplement to amend certain criteria contained within NZS 4404:2010 in recognition of local priorities and preferred best practice methods

4.2.7 Urban Transportation Strategy 2011

The Urban Transportation Strategy 2011 seeks to create a transport system that supports a sustainable healthy and prosperous family friendly Wanganui. The Structure Plan will facilitate implementation of the objectives of this Strategy by:

- Advocating that local streets are designed to be safe with slower vehicles speeds.
- Identifying alternative walking and cycling routes within the study area connecting to Springvale and Otamatea.
- Promoting walking and cycling routes that are safe, pleasant and direct, maximising passive surveillance and avoiding major traffic routes where possible.

4.2.8 Climate Change

Climate change is likely to increase the magnitude of some hazards. Within the study area this may include erosion and flooding. Therefore it is important to incorporate risk management in the design of infrastructure supporting new developments to maintain the same level of service throughout the design lifetime. The design of infrastructure for this Structure Plan needs to specifically provide for the impact of increased frequency of extreme weather events.

4.2.9 Urban Design Protocol

Whanganui District Council is a signatory to the Urban Design Protocol. The Protocol is a voluntary commitment to specific urban design initiatives by signatory organisations which include central and local government, the property sector, design professionals, professional institutes and other groups.

The Protocol aims to make our towns and cities more successful by using quality urban design to help them become:

- Competitive places that thrive economically and facilitate creativity and innovation.
- Liveable places that provide a choice of housing, work and lifestyle options.
- A healthy environment that sustains people and nature.
- Inclusive places that offer opportunities for all citizens.
- Distinctive places that have a strong identity and sense of place.
- Well-governed places that have a shared vision and sense of direction.

This Structure Plan proposes to create places that are more liveable, with a healthier environment. Development will work with and reflect the natural physical character of the area, providing quality transport links within and to the surrounding area. Design will be environmentally sustainable, safe and healthy.

4.2.10 Crime Prevention through Environmental Design

The design of buildings and the arrangement of streets, parks and other outdoor spaces can influence the opportunity for crime and the level of fear of crime.

Careful environmental design can help make places less susceptible to crime and enable people to feel more comfortable outdoors.

It is this fear of crime, particularly of attacks associated with theft or sexual motives, which inhibits the mobility of community members. Women and the elderly, for example, suffer disproportionately from the fear of crime.

An improvement in the quality of life, by reducing crime and the fear of crime, is essential and a basic right for everyone. Crime Prevention through Environmental Design ("CPTED") is one important strategy for achieving this.

At the Structure Plan level this safer community can be facilitated by ensuring that there are clear sight lines along routes such as roads, walkways or public spaces, by:

- Avoiding sudden corners or blind bends along pedestrian or cyclist routes.
- Ensuring that planting does not grow to obscure the view or provide hiding places for offenders.
- Providing good standards of lighting by choosing lighting that illuminates pedestrian areas as well as roads, without blinding pedestrians and that will not conflict with planting, create large areas of shadow or adversely affect residential amenity.
- Encouraging plenty of activity on the street by designing pedestrian/cycling routes to be convenient and less likely to become isolated and unsafe.

4.3 Site Description and Land Use

4.3.1 Surrounding Area

The study area is located adjacent to the northern edge of the Whanganui urban area on State Highway 3. Residential development in the vicinity is typically on larger sections, ranging in size from 800m^2 – 7700m^2, with a predominance of cul-de-sac street layouts or long multiple accesses or Rights of Way extending off Great North Road. Attempts to link up existing cul-de-sacs on the opposite side of Great North Road (State Highway 3) have been resisted by both residents and developers.

In 2013 the Otamatea census area had a population of 1,284 people and contained a range of residential, lifestyle and rural land uses.

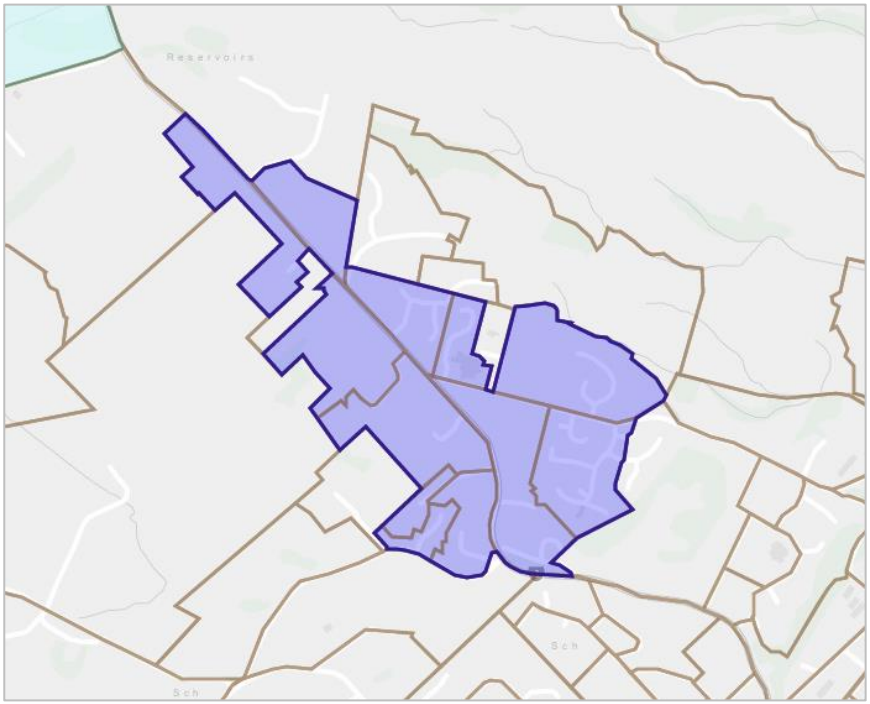

Figure 4: *Otamatea Census Area Unit*

4.3.2 Geology and Geomorphology

Geological maps of the area indicate it is covered by recent (Holocene-aged) fixed sand dunes. The dunes overlie and obscure marine terraces, which are prominent in the coastal plains to the west of Whanganui. The marine terraces consist of a wave cut platform overlain with marine sediments which grade up into non-marine sediments (Pillians, 1990) [3].

[3] *Reference: Pillans, B, 1990. New Zealand Geological Survey Miscellaneous Series Map 18 – Late Quaternary Marine Terraces South Taranaki – Wanganui. Lower Hutt: Department of Scientific and Industrial Research.*

The area immediately to the south-west of Great North Road appears to be on the Ngarino Marine Terrace surface. Undeveloped land in this area generally appears to be covered with low fixed dunes, and the land form has a hummocky appearance. These features obscure the marine terrace surface.

Further to the south west in the study area the ground drops moderately down to a lower level. A main drainage channel flows from the north-west to the south east across the site, with secondary channels joining into it. The elevation change from the northeast boundary to the stream channel near the south-west boundary of the study area is about 25m vertical on the Bristol land, and 50m vertical for the balance of the study area.

A farm dam reservoir or pond is located on the higher terrace surface, about 200m from Great North Road.

4.3.2.1 Site Walkover

A brief site walkover was undertaken during the 2011 Tirimoana Place Study and again recently with respect to the addition of the Bristol property to the study area by a geotechnical engineer. Obvious features at the site were noted and mapped. No investigations were undertaken during the site visit.

The undeveloped higher land near the end of Tirimoana Place is covered by low (less than 2 metre) fixed sand dunes. The dunes are well-vegetated and no areas of active erosion were observed in the study area. Some un-vegetated areas could be observed to the west outside the study area where active erosion was occurring. The undeveloped higher land at the northern end of the study area, from Great North Road to about 450m to the south-west, is a near-level terrace surface cover by fixed sand dunes, well-covered with pasture.

A large (100m by 20m) reservoir pond has been formed near the middle of the higher terrace surface on the Bristol property to the north west of the study area. An outlet channel flows to the west. Adjacent to the pond to the north, an area of fill was highlighted by the landowner. Material from road works was deposited into this area at some stage in the past. The area is currently level and grassed. Some more recent hardfill deposits, comprising a small amount of road pavement and surfacing materials had been deposited on the fill area. It is thought the fill consists of clean fill from roading activities, but this would need to be confirmed by investigations.

Obvious areas of ponding were identified during the walkover for the previous Tirimoana Place study area. Although there was no significant standing water in these areas (south of the Bristol property) during the walkover, the presence of reeds in these low-lying areas indicate they are poorly drained and could be defined as wetlands under the Resource Management Act 1991.

There were a number of small closed catchments in the south-west sector of the site, where the advance of sand dunes had cut across drainage paths. Soakage into the ground was the only way collected surface water would drain from these catchments.

Soil creep, affecting the surficial soils, was observed on the steeper dune slopes. In general the dunes form well-established and stable pasture land. Some small bare sand dune slopes were observed on the western side of the lower area. These did not appear to be particularly active areas or erosion.

In the south-east of the study area, steep to very steep slopes dropped down from the higher terrace surface to an incised gully below. These slopes the immediate area at the top and the area at the base all present geotechnical hazards to any development in this area. From the upper terrace surface of the Bristol property to the north of the study area, the ground slopes moderately gently to a lower level, about 25m lower than the upper terrace surface. A number of formed drains have been installed in the SW of the study area.

A number of farm dams had been formed across the study area. These dams collect water from springs that occur at various locations within the study area.

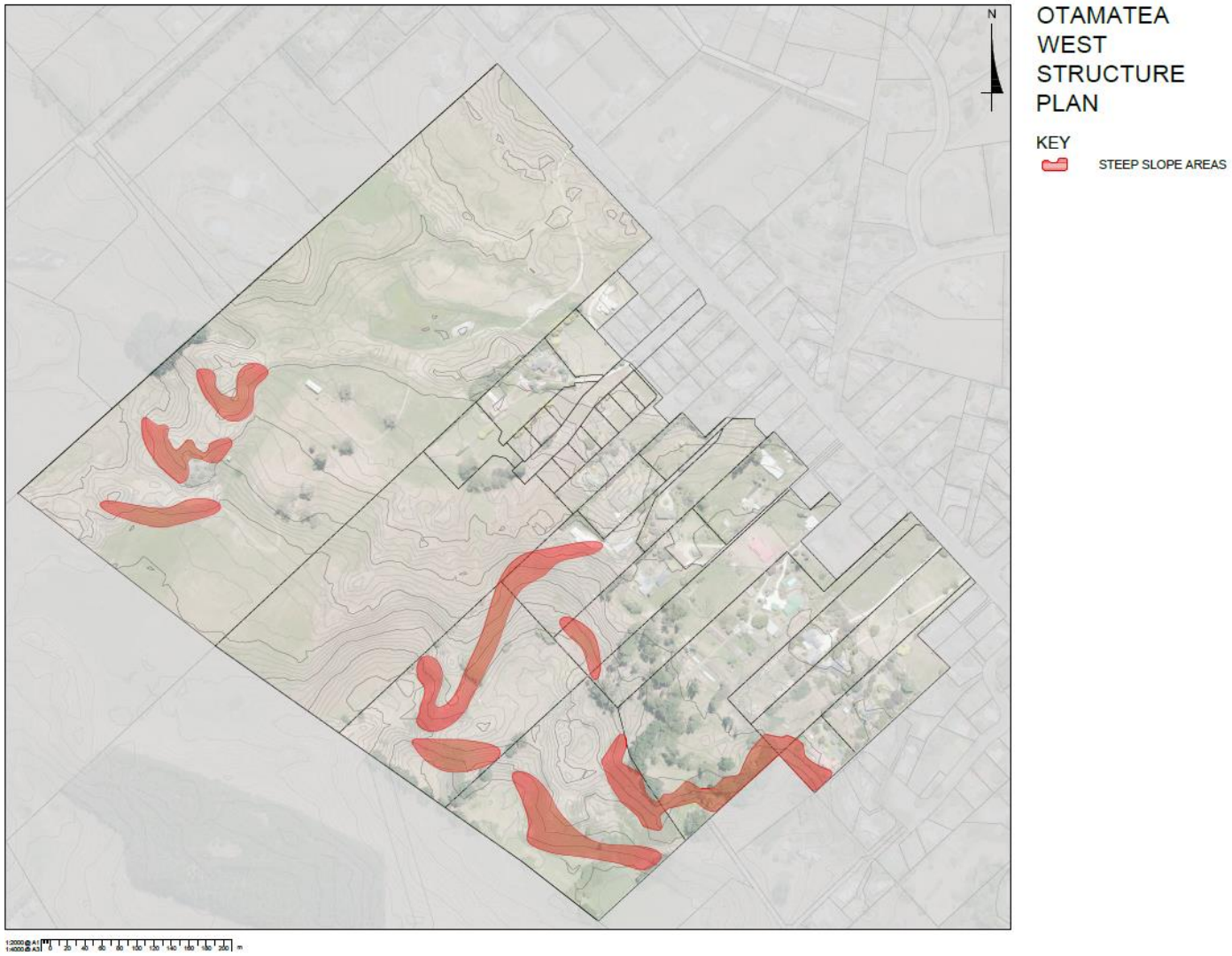

Figure 5 Geological Assessment – Steep Slope Areas

4.3.2.2 Geotechnical Appraisal

The study area does not exhibit any inherent slope instability, which is due to the generally gentle to moderate slopes and the soil type.

Areas showing signs of soil creep, which occurs in localised steep areas should be avoided during any development. These areas are readily observed on-site and from aerial photography.

The steep to very steep slopes in the south-east of the study area present a geotechnical hazard to any development in this area. The terrace surface area at the top and the run-out zone at the base of the slopes should also be avoided.

Generally the low lying drainage gully near the south west boundary of the study area appears to be unsuitable for residential development, due to ponding issues, poor drainage, high ground water, and likely poor ground conditions. Further investigation would be required to address these issues.

The sand covering the elevated parts of the site in the north of the study zone should generally provide good ground conditions for lightweight building foundations and for forming roads. Areas of organic inter-dunal deposits may be encountered in lower lying areas however, and these deposits would not be suitable for development works and should be removed.

Cut batters formed in sand should be formed at a flat batter angle of 25° or less to ensure long-term stability. These batters should be re-vegetated as soon as possible after they are formed to prevent wind erosion.

There is likely to be no susceptibility to liquefaction on the higher terrace surface of the study area. There is likely to be a moderate susceptibility to liquefaction in the lower lying areas along the south-west boundary, due to soil types and a high groundwater table.

Elevated areas are likely to be well drained or excessively drained. In lower lying areas poor drainage is highly likely, due in part to the formation of iron pans in the underlying sand. Bacteria in the iron sands may cause issues with on-site soakage and effluent lines. Again this is more likely to be an issue in the lower lying, poorly drained areas.

Further investigations will be required to determine the extent of the non-engineered fill on the upper terrace surface on the new Bristol property to the north of the study area. The area is not suitable for residential development or roads and services without remedial works or removal.

4.3.3 District Plan – Zoning and Restrictions

The study area is zoned a mixture of Rural Lifestyle and Residential zones. It is surrounded by Residential zoned land to the east and northeast. The Rural Lifestyle zone continues to the southeast of the study area. To the south and west of the study area the land is zoned Rural, refer to Figure 6 District Plan Zones.

On the southern side of Great North Road, the Residential zone extends to sites fronting Great North Road, and includes sites in Tirimoana Place and Turere Place, as well as back sections with access onto Great North Road. These sites are generally developed for residential lifestyle rural living purposes. Although large sections remain spread throughout the area.

The Rural Lifestyle zone is applied to rural sites adjacent to the Residential zone, and acts as a partial buffer for the Rural Production zone which borders the study area to the west. The Whanganui District Plan states:

“The purpose of the Rural Lifestyle zone is identify large areas of rural land adjacent to or surrounding the urban area, where lifestyle development is actively encouraged.”

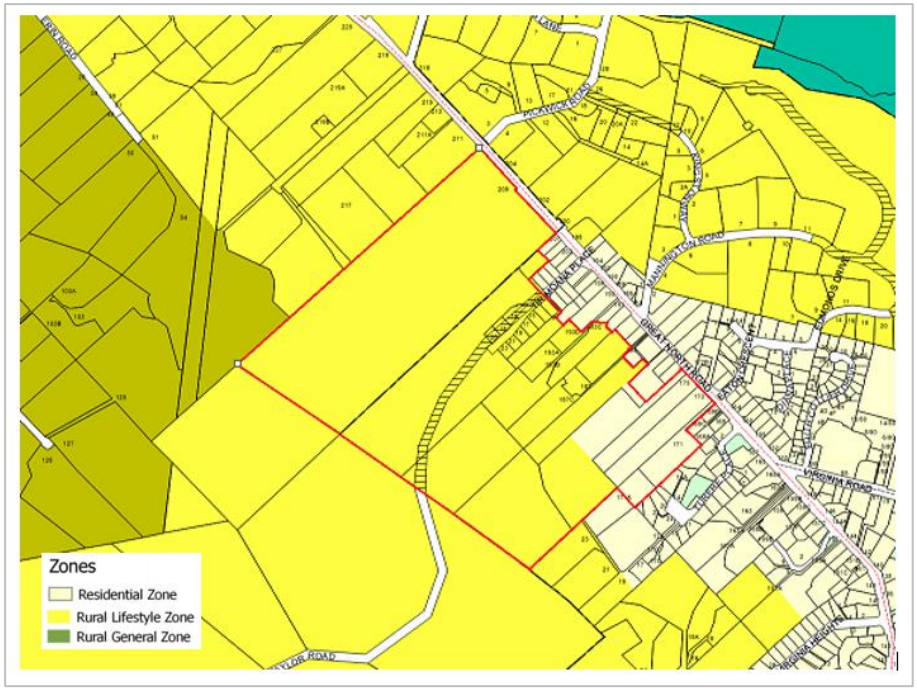

Figure 6: *District Plan Zones*

Rule 17.5.2 of the District Plan sets out the performance standards for noise sensitive activities, including dwellings. The rule states that noise sensitive activities shall not be located within 20 metres of Great North Road (State Highway 3), and any dwellings located within 80 metres of Great North Road will required specific acoustic insulation. This will constrain development of a portion of the study area.

Rules 14.5.1 and 14.5.2 of the District Plan set out performance standards for earthworks. This includes maximum cut and fill heights for the Residential Zone and restricts retaining walls to no greater than 1.5m in height.

The Otamatea Development Overlay was inserted into the District Plan as part of Plan Change 26 in 2014, to" *allow more specific and better informed management of subdivision, including minimum lot sizes*". It restricted minimum lots sizes to 1000m^2 due to uncertainty about the wastewater reticulated network capacity to service additional development.

At present a large portion of the study area is zoned Rural Lifestyle. A small portion of the study area, to the east and directly adjacent to Great North Road is already zoned Residential, and therefore no rezoning of these lots will be required.

A Plan change would be required to accommodate future residential infill and greenfield development at Otamatea.

4.3.4 Reserves and Open Spaces

Provision of public open space and reserves are relatively limited in the immediate area, although the relatively large (3.5 hectares) Otamatea Reserve is located approximately one kilometre from the study area. This reserve is located between Virginia and Great North Roads and is commonly known as the Dog Park. The Reserve comprises no playground equipment or other facilities except for dog recreational purposes.

Two small reserves are located in Turere Place, principally set aside as floodwater ponding areas. The first gazetted recreation reserve comprising 1629m^2 area, is located at the entrance to Turere Place and is sprinkled with mature exotic trees. The second Reserve is also gazetted as recreation reserve. It comprises 2902m^2 area and is located at the end of Turere Place. There is a public tennis court and an informal grassed area containing a pump station which serves the Turere Place properties.

4.3.5 Social and Community Facilities

The study area falls within the enrolment zones of two local primary schools, St John's Hill School and Westmere School. St John's Hill Primary School is located in Parkes Road, St John's Hill and is approximately two kilometres from the study area.

Westmere Primary School is located in the small settlement near Westmere Lake. It is approximately two and a half kilometres from the study area.

Discussions with the Ministry of Education in Wanganui identified that both Westmere and St Johns Hill schools have enrolment schemes and both have the capacity to reduce the size of their respective schemes and/or manage the in-take of out of zone students through the enrolment scheme application and ballot process. The Ministry confirmed that the development would not cause capacity concerns for the Ministry and that local children will be able to attend local schools.

A third school Mosston Road Primary School is located approximately three kilometres from the study area.

All Whanganui secondary schools with the exception of Whanganui High School operate on a city wide catchment and will not be directly affected by establishment of small growth areas around the urban fringe of Whanganui. The structure plan area is outside of the Whanganui High School zone.

4.3.6 Landscape Character

The study area comprises approximately 58 hectares and is characterised by the following:

- Topography is gently rolling to flat on its north eastern portion and slopes away to the southwest becoming increasingly steeper to form a number of gullies incising the south and southwest boundary.
- Great North Road (SH3) extends the suburban pattern from Whanganui out into a predominantly pastoral undulating landscape, transitioning through lifestyle blocks past the northern boundary of the subject area.
- Existing land contours are such that the flat land towards Great North Road (SH3) provides unimpeded views across expanses of rolling agricultural land towards the sweeping west coast and the ocean beyond.
- Land use consists of light agricultural activities on light friable sandy soils. Most of the area is grazed. This is a highly modified landscape, being either subdivided, and built up closer to the highway, or agricultural with very little in the way of native vegetation.
- Existing residences tend to be surrounding by combinations of hedges/fence/shelterbelts where views out over to the landscape to the south west are not possible. Where views are possible, residences are generally open to the south west and screened in other directions.
- There is little to no evidence of native remnants or any introduced native plantings in the study area.
- Views to this area from around the Mosston and Springvale areas show a distinct transition between farmland and the residential margin. Tirimoana Place extends south from SH3. This is effectively the current outer limit of suburban residential sized lots and housing. The underlying topography at this portion of the site is relatively flat. Past Tirimoana Place the current lots are larger, the landscape more open and pastoral, and the topography rolling and undulated, getting steeper towards the south, the land generally sloping away towards the sea.
- The landscape character is consistent over the wider site.

4.3.6.1 Visual Assessment – Potential Effects

An assessment of the potential effects looked at the visual catchment groups against the location and direction of vistas. It identifies the viewing audiences being permanent and transient audiences.

Development of this study area for residential purposes will create a landscape view similar to that which presently exists, given the distinct transition from rural to residential vista will be retained although the boundaries will be altered.

The existing landform, topography and vegetation provide a closed pastoral landscape with a range of visual elements that will help buffer any visual effects. Given the nature of the land and the fact that development is likely to be relatively low rise residential development it is unlikely that the skyline will be significantly altered.

The existing landform provides little opportunity for excessive straight line development.

This study area has a relatively large visual catchment from permanent audiences, such as neighbouring properties in mid and far distant viewpoints. The immediate and mid distant neighbours have intervening

pastoral land between them and the study area which provides amenity as well as a visual buffer. Existing land contours and intervening vegetation effectively block views into the study area from the surrounding road network. There will only be a small catchment of transient audiences with limited distant glimpses, due to the orientation of the site and its distances from Great North Road and secondary roads.

Visual amenity for the smaller residential properties closer to Great North Road will be unaffected, as these properties are generally self-contained and surrounded by visual screening. Views will not be obscured to more than a low extent, and therefore the visual amenity is not likely to experience adverse visual effects.

Given that the landscape generally slopes away from Great North Road and is undulating to gullied, and that the proposed activity is similar to the existing, it is unlikely that the proposed activity will visually dominate important views or detract from existing viewing experiences.

With respect to privacy, there is potential to work with the topography and existing landscape vegetation patterns such as shelter belts and hedges to reduce potential privacy issues.

Development of the study area is an extension of the residential margins from a distance this will merely appear to be ‘more of the same’.

4.3.7 Land Use Capability

To enable an assessment of the versatility of the land for sustained production, and the total degree of physical limitation, soils are grouped into land use capability classes (LUC). The classes range from classes I to VIII. By way of explanation, this means that limitation is nil or negligible in Class I where soils are very productive, moving through to the extreme limitation in Class VIII.

The soils of the study area are of two main types being predominately the reasonably productive LUC IV with about a quarter of the study area falling into the relatively unproductive LUC VII.

LUC IV applies to land with moderate limitations for arable use, but suitable for occasional cropping, pasture or forestry. Gently rolling to strongly rolling land on sandy soils within the study area is identified as LUC IV.

LUC VII applies to non-arable land with severe limitations to use under perennial vegetation such as pasture or forest. The steep terrain and wetland areas of the study area correspond to LUC VII being unsuitable for cropping with some of this area given over to gorse.

4.3.8 Cultural Impacts and Heritage Values

Archaeology North Ltd has conducted a preliminary walk over of the majority of the study area, excluding areas located within fenced residential house sections or in dense undergrowth such as gorse. The Structure Plan shows the identified areas of heritage significance.

A number of sites have been identified; these are mainly groups of pits which are generally associated with Maori gardening and living. Features indicative of other prehistoric activity have also been located i.e. exposed midden and fire cracked rocks in a charcoal blacked soil horizon below the topsoil.

A historic house site known as the Tayforth Homestead is located within the Bristol property. There are also two old water pipelines from the 1870s, one of which runs through the centre of the Bristol property. Evidence of historical gardening was also found.

Generally, the north-western half of the study area seems to have the majority of the visible sites and the other half has had greater modification, with housing and some intensive small farming.

The landscape is predominantly dune formations which currently have a grass cover, but some areas have been mobile in the past. This means that the surface is visually soft and the extent of intact remains which may be present below ground is therefore hard to determine without further investigation.

The general area was farmed in the late 1800's and there was some evidence of remains of old drains and potentially ditch and bank fences. No specific historic research was undertaken of the site, due to the timeframes

for the project. The former County sections including this study area, were surveyed by Brees in 1842 and further subdivision and land sales were in full swing in the 1880's.

The entire Structure Plan area is identified as potentially being an archaeological site. A general Archaeological Authority will need to be obtained from Heritage New Zealand, prior to commencement of any land disturbance.

Te Runanga O Tupoho and Ngaa Rauru Kiitahi are iwi who identify this area as being within their respective rohe. Both iwi have identified that this area potentially has cultural significance for them. A cultural impact assessment will likely be required, either for individual blocks as they prepare to develop or for the entire study area. Developers should be clearly directed that an assessment of the cultural impact of any proposed development will need to be obtained; and the methodology and authors of this report should be determined in liaison with Te Runanga O Tupoho and Ngaa Rauru Kiitahi and completed and submitted to Council, prior to any land disturbance within the Structure Plan area.

4.4 Surrounding Context

4.4.1 Existing Road Network

Figure 7 - Existing Transport Network, identifies the facilities available within the vicinity of the study area. Access to the study area is presently available at the end of Tirimoana Place to the north. Access to the middle sections is available via direct frontage, dog leg access strips or private rights of way onto Great North Road. Access to the Bristol property is currently via a vehicle crossing to a farm track from Great North Road.

Tirimoana Place and Turere Place are both public roads, formed and sealed to Council standards. Tirimoana Place is 18 metres wide and Turere Place is 15 metres.

There is an existing 15 metre access strip that runs along the eastern boundary of the Hodson property adjacent to Great North Road. This access strip is not formed or utilised for access at present and is located on relatively easy to flat terrain.

The District Plan identifies an unformed paper road extension to Taylor Road, which starts at Tayforth Road and abuts the south-western boundary of the study area. The brief for the Structure Plan includes a requirement to provide for an indicative road link from Taylor Road through the study area.

Great North Road (State Highway 3) is a strategic arterial route and carries a mix of through and local traffic. The speed limit is 70km/hr for the majority of the extent of State Highway 3 in the vicinity of the study area, with the southern portion being 50km/hr or the limit being 100km/hr adjacent to the Bristol land.

This section of State Highway 3 carries approximately 8000 vehicles per day which is well within its capacity of 20,000 vehicles, although it may still experience some congestion issues at times. Ad hoc development has resulted in a number of right of ways coming off State Highway 3 that serve multiple properties, some of which accommodate non-residential activities. This type of development has the potential to cause safety issues for vehicles travelling along State Highway 3.

The Limited Access Road (LAR) portion of State Highway 3 in the vicinity ceases as traffic approaches Whanganui from Kai Iwi at the 100km/hr/ 70km/hr boundary. State Highway 3 is not LAR at the intersection with Tirimoana Place, however it is a LAR for a portion of the northern section of the study area.

NZTA advised in 2011, when they signed off on Stage 1 of the extension to Tirimoana Place, that any further development of sections or extension of the road would require an upgrade to the intersection with State Highway 3, including a right hand turn lane. Stage 2 of the Tirimoana Place subdivision will see the intersection upgraded. NZTA note that it would be timely to consider the upgrade to also accommodate future development in line with this Structure Plan.

NZTA also stated that it would be beneficial to consider the potential to widen Tirimoana Place. They note that a potential road to the Bristol property following the farm track would be on the LAR section of SH3. NZTA would prefer any new road intersection to be located as far north as practical

from the existing farm track accesspoint. While there is plenty of precedent for such access, this would require right hand turning bays and an intersection design of a high standard.

Figure 7 Existing Transport Network

4.4.2 Public Transport Network

At present the St John's Hill bus service comes up Great North Road as far as Virginia Road and does a loop back to town. The current bus service operates between 8.40am and 2.50pm on weekdays with four trips a day. The closest bus stops are located on Virginia Road near the Great North Road intersection and outside 157C Great North Road. A bus shelter is located on Great North Road at the corner of Tirimoana Place, which likely serves the rural school bus service.

4.4.3 Pedestrian and Cycle Network

Council's Shared Pathways Strategy 2012 and Draft Active Transport Strategy 2017 both prioritise expanding and improving cycling facilities within the Whanganui urban area. The Draft Active Transport Strategy identifies that the cycleway along Great North Road will be an on road facility as there is sufficient width to construct cycle lanes on this stretch of the State Highway network without removing car parking spaces. The cycle lane will extend along Great North Road as far as Edmonds Drive. The timing for completion of this portion of the cycle network is not indicated in the Plan as it comes under the jurisdiction of the New Zealand Transport Agency.

At present a footpath extends to Tirimoana Place on the southern side of Great North Road and along the left side of Tirimoana Place. There are no known formal or informal walking routes through the study area between Springvale and Otamatea.

4.5 Existing Services

4.5.1 Stormwater

There are two catchments in the study area with the majority of the stormwater ultimately draining naturally to Sandcroft Drive and Bennett's pond, with some water retained in ponds and wetland areas on site. These catchments are identified in Figure 8 (Catchments and Floodwater Flowpaths).

The first catchment, at the top nearest Great North Road, has overland flowpaths from the Tirimoana Place area across the rural lifestyle properties down to Turere Place. There is very limited stormwater infrastructure, with the area generally draining towards Sandcroft Drive with some localised ponding on site. The existing properties bounding Great North Road, and also a number of potential residential lots, drain towards Turere Place where there is a small detention pond and a piped stormwater system which runs to Virginia Road. A reticulated stormwater network to Virginia Road takes the majority of the storm flows from this area, however there is a small

detention pond near the entrance to Turere Place which accommodates the overflow.

The second catchment covers the majority of the study area, with flows generally from the high northern end to the low lying south western corner to Bennett's Pond at Sandcroft Drive. There is no outlet from Bennett's pond, although it has significant holding capacity. This capacity has been recommended to be enhanced in a GHD Report "Churton Creek (Stage A) Stormwater System Improvements Report" September 2016.

There is an existing piped system from Sandcroft Drive, which joins the Montgomery Road network and eventually empties into Churton Creek. This system has existing capacity issues notably at Montgomery Road.

Figure 8 identifies numerous sub catchments which generally drain to the south and southwest. There are numerous small closed ponding areas created by windblown sand closing off the flow of water around low lying areas. The direction of stormwater flows is generally towards the south east of the site and into Bennett's Pond, located at the top of Sandcroft Drive. It is uncertain to what extent routine drainage from the area contributes to flows into Bennett's Pond.

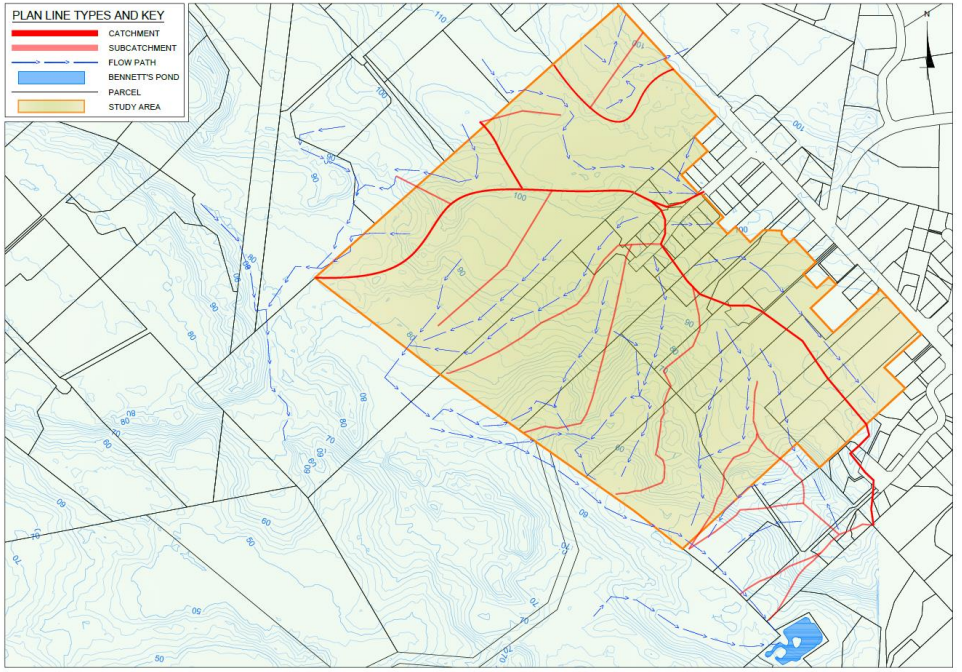

Figure 8: Catchments and Floodwater Flowpaths

4.5.2 Wastewater

The Otamatea wastewater scheme was installed by the Wanganui County Council in the mid 1980's. This network falls from Tirimoana Place to Turere Place and generally runs parallel to Great North Road past Turere Place. Wastewater from properties on Turere Place is collected in a pumping station adjacent to the tennis court reserve and pumped to Great North Road. The entire Otamatea system is then gravity fed along Great North Road towards Montgomery Road, via Virginia Heights and Sandcroft Drive to connect with the city network.

A rural lifestyle subdivision, of the Jonker property, off the extended right of way at Turere Place has full urban reticulated services. Each site has a wastewater storage tank and a low pressure pumped sewerage disposal

system which discharges to the existing Turere Place pump station and then out to Great North Road.

Recent development off Tirimoana Place have utilised the same type of low pressure wastewater pumping systems, with each property having its own grinder pump and storage chamber, to discharge waste to the Council network in Great North Road. Discharge to the receiving network is undertaken at off peak hours to minimise the impact of the development.

There is an existing gravity wastewater reticulation serving the ribbon development along Great North Road between Tirimoana Place and Turere Place, where waste discharges into a pump station before it enters the gravity network. The original housing stock in Tirimoana Place have gravity wastewater connections to Great North Road.

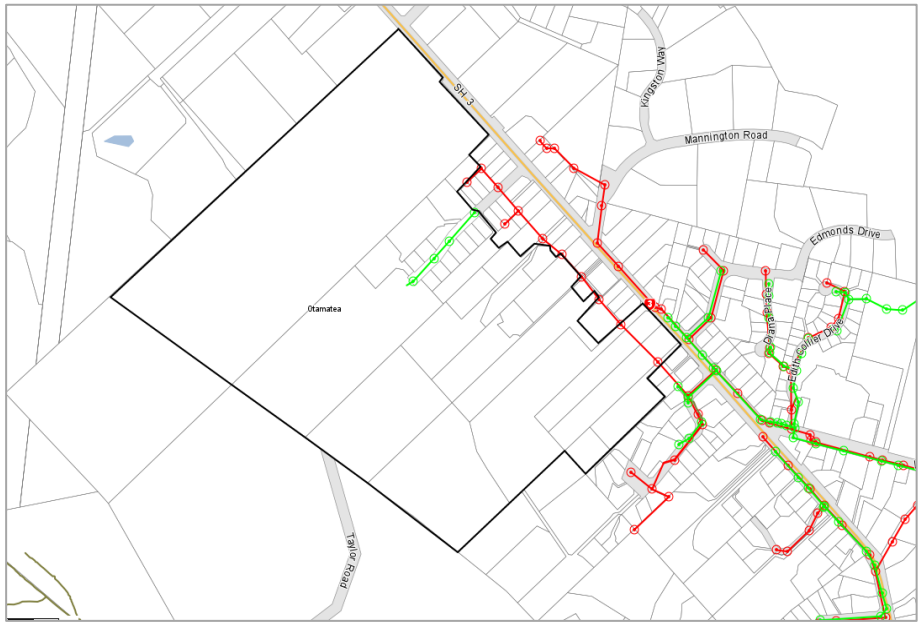

Figure 9: Existing Wastewater and Stormwater Infrastructure (Wastewater – Red, Stormwater Green) – Source Whanganui District Council Intramaps

4.5.3 Water

Trunk water mains run from the reservoirs at Westmere, to supply water to the city via Great North Road along the frontage to the study area. Due to the low height difference between the reservoirs and the study area water pressure in the vicinity is low hence a direct connection to these mains is not practical.

A pump station in Mannington Road supplies water to a small staging reservoir on Mt Russell, with this providing head for a low pressure supply to properties in this area. Recently the Mannington Road pump station has been upgraded and now makes the small reservoir redundant. A pressurised system now provides water to properties on both sides of Great North Road between Turere Place and Tirimoana Place.

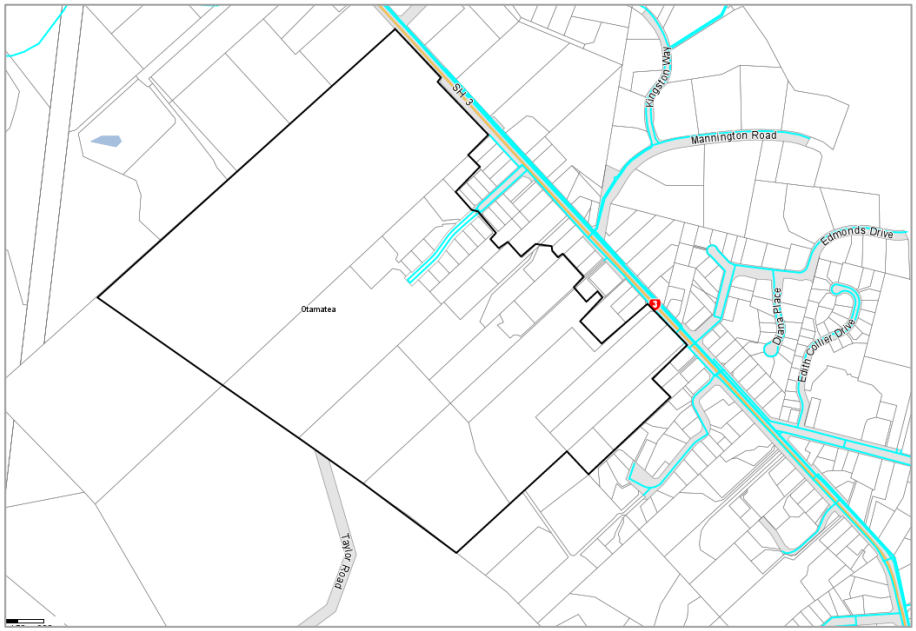

Figure 10 - Existing Water Infrastructure – Source Whanganui District Council Intramaps

4.5.4 Telecommunications, Power and Gas

There is capacity for telecommunication development in the vicinity of Tirimoana Place, however the network will require extension. There is an existing duct line passing the location, which would be utilised to haul cables when required.

Powerco have advised that electricity reticulation in this area is supplied from the existing 11kV cable in Tirimoana Place and the overhead lines on State Highway 3. New reticulation in this area would be designed and built as each stage is developed.

Comment was sought from GasNet, who confirmed that the existing GasNet gas reticulation network in the Great North Road area has adequate capacity for development of the study area. The gas network in the area is currently operating at 210kPag which is ideally suited to further extension allowing small diameter pipes to be utilised providing low cost network development and allowing consumers a greater choice of gas appliance types.

The existing gas network on Great North Road was designed for large industrial (CNG) load and as that load has become non-existent, network capacity is available.

5 Constraints and Opportunities

This section details the constraints and opportunities for development identified within the study area. These are depicted in various figures referenced below and the structure plan.

5.1 Landscape Form

The nature of the terrain provides a range of options for building platforms allowing for visual screening thereby creating an increased perception of physical and visual separation. The upper land allows for higher residential density with the sloped land providing an opportunity for lifestyle blocks that will allow for a softer rural/residential interface.

Land topography and orientation allows for views to the coast and the city from the majority of building platforms.

The stormwater catchment and low lying gullies allow for native plantings that will further intercept water flows and provide opportunities for increasing biodiversity. These natural watercourses and topography may provide opportunity for informal pathways and linkages.

The existing mature walnut and exotic trees species provide scale and enclosure to the study area and should be retained as far as possible. Natural contours provide opportunity for planting clusters of trees to further improve visual integration.

5.2 Historic Heritage

The newly identified sites will be recorded with the NZ Archaeological Association and a full assessment and an Archaeological Authority under the Heritage New Zealand Pouhere Taonga Act 2014 would be necessary if the locations are to be modified, damaged or destroyed in the future.

Further testing of the areas of probable prehistoric habitation/gardening, under an Authority may be necessary and would be a way of determining the extent of the remains indicated from the visual inspection.

An archaeological alert over the entire study area is recommended given the Tayforth Homestead, water pipelines and various sites identified throughout the area.

Given that this area is identified as likely to have been an area of temporary or occasional Maori habitation, a cultural impact assessment to establish the implications for cultural values in the area will also be required. This will also be required to satisfy the existing earthworks rules in the District Plan and as a partial requirement for an archaeological authority.

A number of the identified archaeological sites are middens, and engagement with local iwi is required as part of the process for application for an Authority. Preliminary discussions with Te Runanga o Tupoho and Ngaa Rauru Kiitahi are understood to have been initiated by Council planners.

It is not anticipated that these requirements would prevent residential development, however consideration of these requirements and monitoring of earthworks by an archaeologist and local iwi will likely be required.

5.3 Hydrological and Geotechnical Considerations

Areas likely to be less suited to residential development due to signs of instability and steepness are mapped. Refer to Figure 5. Further geotechnical investigation of these areas prior to residential development will be required.

After assessment of the natural and heritage constraints of the study area, those areas that were potentially suited for residential development or rural lifestyle development, were identified.

A linkage to the south eastern portion of the study area could be provided through the Underwood property which will provide access to the southern portion of the study area from Great North Road. A second road access could potentially be provided further north towards Tirimoana Place, although existing dwellings make this access unlikely to be formed in the short term.

A planted landscape area in the northern portion of the Bristol property, immediately adjacent to Great North Road is proposed. This aligns with avoiding development and subsequently stormwater discharge to the Great North Road area. Proposed landscaping would potentially reduce current stormwater flows to Otamatea East.

A key principle and opportunity for the design of stormwater systems for this area will be to ensure any future development of the study area has a neutral impact on external drainage patterns. This will require an appropriate balance between use of soft low impact stormwater management and hard engineered solutions.

5.4 Open Space Areas

A number of Council's have adopted a standard of walkability to open space or recreational areas as an indicator of appropriate levels of service for provision of open space within their community. Much of the study area is located further than 400m from the nearby reserves at Turere Place. The ability and quality of the existing reserves to meet the needs of local residents is limited. Neither of these reserves nor the Otamatea Reserve has any children's play equipment. The closest park with children's play equipment is at Virginia Lake. This is approximately 1.17kms from the closest part of the study area, and approximately 2.92km from the furthest part of the study area, along a portion of state highway with a 70km/hr posted speed limit.

If future residential development is to occur there will be a number of households that will not be within easy walking distance to an area of public open space. It would be approximately one kilometre to Otamatea Reserve, located on the other side of a 70km/hour speed area of State Highway 3 and a further 700metres to an area with play equipment for children.

Provision of a recreation reserve area capable of accommodating a substantial children's playground is recommended within the Bristol portion of the Structure Plan, This could be accommodated potentially within a

portion of the eastern stormwater pond area or as a separate reserve area centred around one of the key heritage sites such as the Tayforth Homestead site.

5.5 Infrastructure Provision

5.5.1 Low Impact Design Stormwater Infrastructure

NZ4404:2010 states that:

"Low Impact Design (LID) is both a design approach and a range of structural techniques that can be applied to urban development and stormwater management. As a design approach, LID provides an opportunity to identify and recognise natural features and integrate these into the design of development layouts in order to minimise environmental impacts or enhance natural features. The integration of natural processes in the design stage of a development can result in more attractive, multifunctional landscapes with greater social, environmental, cultural and transport outcomes."

NZS4404:2010 goes on to state that LID solutions that use natural processes and add value to urban environments are the preferred approach.

This Structure Plan has been designed to take advantage of the natural existing stormwater drainage patterns across the site. These will be enhanced with compatible planting to increase evaporation and also to provide a buffer between wetlands and residential development. Where necessary these natural wetlands or ponds will be expanded to increase their capacity to absorb and process any increased stormwater generated by residential development to ensure a neutral off site effect.

It is likely however that a combination of piped and open swale systems will be required to achieve a neutral off site outcome.

The proposed roading network has been designed taking account of the natural contours of the land. This will reduce the need for cut and fill earthworks. Road widths leading from Great North Road are constrained by existing development, but this provides opportunities to facilitate a 'living streets' people focused environment, with slower traffic speeds.

Due to the proposed layout, development is likely to proceed in various stages, which are not all dependent on each other. In the Bristol property, development in the area to the south west will be reliant on development of the Tirimoana Place linkage road or road linkage from the section of the Bristol property closest to Great North Road. The Structure Plan identifies a series of additional linkages between the properties to create a connected network, and avoiding use of rights of way access from Great North Road, as has been the practice.

The linked road network will facilitate cycling and walking within the study area and potentially reduce the need to utilise Great North Road for local trips.

5.5.2 Stormwater

Due to the limited capacity of the existing stormwater network, development in the study area will be required to attenuate stormwater discharge to pre-development levels to achieve hydrologic neutrality.

The Bristol property is the only site that currently has some of its area falling towards Great North Road and which discharges surface flow in this direction. Water ponds in the existing swale close to Great North Road, hence no residential development is proposed in this area and planting is recommended to reduce surface flow and the existing swale enlarged.

Photo 2 - Bristol Property from SH3 Driveway

An existing stormwater pond within the Bristol property will be retained and enhanced to provide retention of stormwater for the mid portion of this block. This pond currently discharges to an existing network in Tirimoana Place and ultimately flows down through the Tirimoana Development Ltd development and will end up in the stormwater pond to be created at the end of this lot. This Bristol pond will be extended to provide additional storage capacity and a throttled outlet be installed to limit the flow into the Tirimoana Development Ltd block to pre development levels.

There are several other small ponds within the overall Bristol property but outside of the study area which the landowner commented have water in them but generally soak away without discharging into the overall catchment. The landowners experience is that a lot of the surface water will soak away due to the sandy nature of the soils.

A new detention pond is proposed to be constructed at the south western end of the Bristol property to capture stormwater flows from the back third of the site. Again this pond will have a throttled discharge and the stormwater will run off through a diffuser pipe along the line of the secondary flow path, identified on the Council's website, to flow into Tirimoana Development Ltd pond.

Similarly detention ponds are proposed for the development of the adjacent Amon, Quigley and Hodson Blocks. They will also have throttled discharges to limit outflow to the Council's identified secondary flowpath at a rate comparable to pre-development levels.

It has been assumed that each block would have its own detention pond with sufficient capacity to detain the additional stormwater discharge generated from development works. If development of adjoining blocks was concurrent there may be an opportunity to provide a communal stormwater detention facility with costs being shared by the respective developments.

The majority of the study area falls in a south westerly direction ending up ultimately at Bennett's Pond off Sandcroft Drive.

The detention ponds upstream will ultimately result in more flow of stormwater into the Bennett's pond, even though the water from the development will be attenuated on site. This is due to the increased runoff from hard surfaces which will result in higher volumes, albeit being discharged slower over longer periods.

Bennett's pond is a closed system with no suitable secondary flow path. More water cannot just continue to be added, even at slower rates without upgrading this system. The Sandcroft/Montgomery Road is effectively a closed catchment with no outlet stormwater disposal and is totally reliant on soakage, hence the regular ponding of water in this area.

GHD have prepared a report "Churton Creek (Stage A) Stormwater System Improvements Report" September 2016 which identifies works for upgrading Bennett's Pond. They envisage approximately 29,000m^3 of earthworks to increase the capacity of the pond and the installation of 210m of 150mm pipes as a throttled out to Montgomery Road.

Kerb and channel in accordance with NZS 4404 is proposed for the carriageway, however it is suggested that a concrete nib and grassed swales may be a suitable alternatives for some of the study area. The Bristol property would suit this kind of softer stormwater treatment. This type of approach has been used in the Tirimoana Place development to date, to reduce the volume of stormwater from the paved carriageways discharged directly to the stormwater reticulation. The sandy soils in this area tend to have good soakage which helps minimise stormwater discharge.

5.5.3 Wastewater

A further stage to the Tirimoana Development Ltd development to extend Tirimoana Place is in the planning stages and wastewater disposal will be similar to the previous stage except that pumping will not need to be limited to off peak hours.

GHD were commissioned by Whanganui District Council to prepare a model of the wastewater network and to look at the impact of projected growth on the reticulation. They considered the provision of both gravity options and also low pressure pumping (LPS) options as have been installed in the Tirimoana Place development.

Council officers have indicated a preference for gravity sewers and pump stations for the study area hence the main focus has been on this type of installation. Offsite upgrades for the study area, and also other affected areas of the wider urban network, have been identified and costed by GHD and are not included in this document.

Generally land within the study area is falling to the west away from Great North Road so gravity sewers would flow in this direction, predominately along road corridors or walkways and enter pump stations at the lower end of the Bristol and Hodson/Quigley properties. A pump station (approximate cost of $180,000) would be installed for the Bristol property which would then pump towards Great North Road and then enter a proposed new gravity receiving network to run down the road to the vicinity of Turere Place where it would discharge into the existing network in Great North Road above Virginia Road.

Similarly the Quigley/Hodson blocks are falling to the west and a second pump station would be installed at the lower end of the site for the gravity wastewater network to discharge to the new receiving network in Great North Road. Development in and around the Quigley block would gravitate to the west and then discharge in a southerly direction to the Quigley/Hodson pump station, with an approximate cost of $160,000.

An alternative option would be to run a gravity line from the rear of the Bristol block to the proposed pump station in the Hodson block. The pump station at Hodson's would need to be larger to cater for the additional load and an easement would be required across the intervening properties. This option does also not lend itself to staging of the overall development.

A wastewater link between the Tirimoana Development Ltd development and the Bristol wastewater pump station has been included. It has been assumed that the low pressure pumping system used in Stage 1 of the Tirimoana Place development will be used for future stages. As this development will be constructed well before any development on the Bristol property, it is not considered practical to show the two areas interlinking.

The proposed new 150mm diameter receiving network in Great North Road will have sufficient capacity to cater for all of the additional lots created (NZS 4404 – 150mm main can accommodate 250 properties). It has been assumed that upgrading of the existing network in this area identified within the GHD report will have been undertaken. The required network upgrading in the area outside of the study area is included on costings provided to Council by GHD.

At all of the above sites there is quite a drop in level at the rear of the sites and it is envisaged there will be larger lots in these areas which would have LPS systems which would pump to the respective pump stations or gravity network. This will reduce the head the large communal pump stations will have to pump against to discharge to a receiving network, thus reducing the capital and operational costs. The cost of the infrastructure on the lot would likely be borne by the property owner, with the boundary kit and pipeline cost to the reticulated network to be borne by the developer.

Larger lifestyle blocks in the lower lying areas below the wastewater pump stations are envisioned. They would have low pressure wastewater pumping

system to discharge waste to the upstream reticulation. Septic tanks are not considered sustainable in this area due to the potential risk of contamination of the stormwater detention ponds to be located nearby. Onsite wastewater disposal would also trigger consideration of the One Plan rules and potential for consenting requirements from Horizons Regional Council.

An overall plan showing the extent of the proposed wastewater reticulation works is shown on the Structure Plan. Refer to Figure12

Indicative costs for this infrastructure includes a total cost of $800/m for 150mm mains inclusive of 100mm property connections and installation of manholes. This figure is based on recent contract pricing on similar works. This cost will be borne by the developer at each development stage within the study area.

The wastewater pump station required to serve the Hodson and Quigley blocks and sites in the vicinity would cost approximately $160,000 and the bigger station to serve the Bristol block would be more expensive at approximately $180,000.

5.5.4 Water

As noted above the study area is served by a pressure main boosted by pumps in the Mannington Road pump station. There are pumps in series on a common manifold with provision to add more pumps when the demand increases.

To service the study area additional pumps will be required as the existing system will not be able to cater for the additional load as the area develops. The supplementary pumps with variable speed drives will need to match the existing pumps for operational and maintenance purposes. They can be added progressively, as the area is developed and demand for water grows. Two additional pumps will be required and will cost approximately $40,000 each.

The supply main from the pump station will need to be duplicated down Mannington Road and in Great North Road along the frontage of the study area. It is envisaged that duplicate main will be a combination of 200mm and 150mm diameter pipelines. If additional development to the north beyond the Bristol property was to be accommodated there would likely be a need to upsize some of the proposed 150mm mains to 200mm diameter. NZS 4404 recommends a 150mm main to service up to 160 residential lots with a 200 main being able to supply 400 lots.

Within the development areas, a principal main will be installed on one side of the road with a smaller diameter rider main being on the other side of the road. This results in no service pipes being within the carriageway and also provides better flow to consumers.

Water mains within the respective areas to be developed would ultimately be interconnected to provide a ring main network which will improve the flow characteristics and reduce the possibility of stale water accumulating that can occur in dead end networks.

Principal mains will have a nominal diameter of 150mm or 100mm with rider mains being smaller at 50mm diameter. Pipe materials would be in accordance with the Council's Approved Products list contained within the Engineering Document 2016.

Fire hydrants would be installed on the principal main at a maximum of 135m nominal centres as required by SNZ PAS 4509:2003 for residential areas.

An overall plan showing the extent of the proposed watermain works is shown in the Structure Plan refer to Figure 12.

5.5.5 Roading Network

The present form of development within the vicinity of the study area is not well planned. Ad hoc development of dwellings fronting Great North Road have prevented efficient design of vehicular access to the sites now developed to the rear. A series of private dog leg access strips and ROWs have resulted.

The study area and residential zoned land in the vicinity was previously part of the Waitotara County, where residential development was not promoted and over time occurred in an ad-hoc manner.

The roading infrastructure design for this Structure Plan is based on NZS 4404:2010 Land Development and Subdivision Infrastructure, the Engineering Document 2016 and Austroads: Guide to Road Design Part 3 – Geometric Design.

Under NZS 4404:2010 Land Development and Subdivision Infrastructure, the proposed roading layout for this subdivision can be categorised as 'Live and Play – Urban' which identifies minimum road reserve widths, minimum movement land widths, maximum vertical profile grades and target operating speeds for vehicles with land developments catering for up to 200 dwellings.

The horizontal alignment consists of a main alignment intersecting at Great North Road, through the Bristol property, and having future connection to the existing Taylor Road easement.

From this main alignment, cul de sac roads and one loop road then make up the remaining roading network. Refer to the Structure Plan at Figure 12 which shows the proposed roading layout.

Proposed connecting roads have also been designed from the Bristol property to access the Tirimoana Development Ltd property to the south east, and also to connect to the adjacent Harding property to the North West.

The following roading design parameters have been adopted from NZS 4404:2010 for this proposed subdivision:

- 15.0m road reserve width
- 7.0m new seal width
- New kerb and channel both sides of carriageway
- 1.5m wide footpaths both sides of carriageway
- Potential on street parking
- Roading vertical profiles have a maximum grade of 5.5%
- All cul de sac heads have 9.5m radii
- Lighting design as per AS/NZS 1158

Council required that a route be identified and retained to link the paper road extension of Taylor Road, which abuts the study area to the south west. The proposed layout of this road extends beyond the study area and links into the site at the Bristol property.

As noted the entire Structure Plan area is considered to be an archaeological site and will require a general Archaeological Authority. It is recognised that this road may be a long term option and closer archaeological investigation of the area may require amendments to any road layout. It is assumed that a road could be negotiated without compromise to archaeological sites. The likely market demand for connectivity here is questionable, as other links via the Structure Plan as well as existing routes are available for cross traffic i.e. Mosston/Montgomery Roads, Tayforth/Francis/Rapanui Roads or Watt-Livingston Road.

Access to the southern end of the study area (the Quigley and Hodson properties) is proposed via a new road connecting to Great North Road. This road will also provide access to the Quigley property which is proposed to consist of largely lifestyle blocks. As second road connecting Great North Road to the multiply owned infill area between Hodson land and Tirimoana Place is also included in the Structure Plan as a potential longer term route to improve connections within the area.

5.5.6 Public Transport

With expansion of residential development an opportunity could be created to extend the existing bus service to travel a loop via Tirimoana Place through the Structure Plan area and out via the proposed road through the Bristol property. This would be possible once all the proposed road links are established.

Photo -3 Rural Bus Stop at Tirimoana Place

5.5.7 Shared Pathways

Opportunities exist to extend the cycle lanes along Great North Road to Tirimoana Place, especially if the speed limit is further reduced in this area as development progresses. There may also be options to provide for cyclists to utilise the proposed walkway linkages within the Structure Plan area.

Potential walkway linkages are proposed to integrate all areas within the Structure Plan area and should follow the natural contours and internal roads. Opportunities exist for walking along riparian margins with increased biodiversity created with proposed planting adjacent to detention ponds, swales and on local roads.

Possible rest spots could be established at a number of nodes and near water bodies. The proposed walkways will provide a green corridor and enable connection to other such corridors.

5.5.8 Indicative Costs for Roading/Shared Pathway Infrastructure

<u>State Highway Intersection with Bristol property access and associated roading:</u>

- Proposed 80m length of roading in Bristol property, including new kerb and channel on both sides, 7.0m new seal width, new 400mm thick pavement, new 1.5m wide footpaths on both sides and all associated earthworks.
    - $1,050 per metre
- State Highway 3 intersection constructed to NZTA standards.
    - Total construction $110,000

<u>Shared pathway construction cost</u>

- 3.0m wide, 100mm thick concrete, 665 mesh, 100mm base course
    - $200 per metre

<u>Tirimoana Place/State Highway 3 Intersection Upgrade</u>

This may require upgrading from the current arrangement. The main upgrade could be to existing kerb returns, signage, paint marking and lighting improvements.

- Total construction cost $50,000

Hodson/State Highway 3 Intersection Upgrade

This access is currently a residential vehicle crossing. It will need upgrading to conform to NZTA standards by installing appropriate kerb and channel radii, stormwater drainage, paint markings, signage and lighting improvements.

- Total construction cost $75,000

Photo -4 State Highway 3 opposite Bristol Property

5.5.9 Telecommunications

Pricing for fibre services and the extension to service the Structure Plan area will depend on the standard fees at the time of application, however they currently range from $1,200 - $1,600 excluding GST per lot. These prices are POA and based on a fibre solution.

5.5.10 Power

Powerco have advised that the new power reticulation in this area would be designed and built as each stage is developed. Property developers would engage with Powerco approved contactors, who would prepare a design for each stage, taking into account both the current and future indicated development. The contractor's proposed designs are submitted to the Powerco customer works team for approval prior to construction to ensure they comply with the relevant standards and have adequate provision for later growth.

Developers will typically arrange the civil works including trenching and reinstatement for cables that will be installed by their chosen Powerco approved contractor. That practice allows them to coordinate those activities on the site. Powerco will make a financial contribution to the cost of the reticulation by payment directly to the Powerco approved contractor once the equipment is commissioned and all as built requirements have been met.

The electricity reticulation in this area will be supplied from the existing 11kV cable in Tirimoana Place and the overhead lines on Great North Road. Transformers will typically be installed for every 70-80 sections. Easements in gross in favour of Powerco will be required for any transformers, switchgear, or other reticulation installed on private property, however Powerco's preference is to have those assets installed in the road reserve.

5.5.11 Gas Supply

GasNet, has confirmed that the existing gas network on Great North Road was designed for a large industrial (CNG) load and as that load has become non-existent, network capacity is available.

The relative cost of reticulation in this area is no different to other areas. New residential developments use common utility trenches, where the developer provides trenches for all services and the utility owners lay their pipes and cables as per Council's standard street cross section.

6 Structure Plan Features

6.1 Land Use

6.1.1 Residential Land Use

The proposed land use is intended to be residential and the majority of the land within the study area should be re-zoned via a plan change to Residential. The exception being the south western sections of land on the Quigley property, on which stormwater ponds are to be located. These are proposed to be retained as Rural Lifestyle zone, to encourage lifestyle block sized lots to be developed. The Otamatea Development Overlay could be removed during the same plan change process. This would allow the Structure Plan area and wider Residential zone to be fully developed as residential. Refer to Figure 11 for the proposed District plan zones.

Areas of open space are provided for within the Structure Plan either as stormwater detention areas which can be landscaped to provide enhanced recreational and ecological amenity value. Given the proximity to other residential areas and the manner in which infrastructure can be provided, residential use is considered to be the most efficient and practical use of the land contained within the study area.

6.1.2 Lot Size and Diversity

A range of lots sizes is anticipated throughout the Structure Plan area. The Structure Plan assumes a minimum lot size of 800m^2 to facilitate a total number of lots consistent with projected demand. It is assumed that the Otamatea Development Overlay which currently requires a minimum lot size of 1000m^2 will be removed via a District Plan change and this will facilitate greater infill development opportunities within the existing Residential zone.

Lots on the south western side of the Quigley properties would be restricted to larger lifestyle blocks given the topography of the land in this portion of the study area. As such, it is recommended that these areas retain their Rural Lifestyle zoning which has a minimum lot size of 5,000m^2.

6.1.3 Existing Land Parcels and Dwellings

The proposed roading layout and development area has incorporated and integrated existing properties and dwellings to enable development of land in the most effective manner. There are a number of smaller sized lots currently zoned Residential adjacent to or close to Great North Road. The layout is sympathetic to these existing residential properties.

6.1.4 Consenting Requirements

Developers who undertake subdivision within the study area in accordance with this Structure Plan, will need to consider the requirements of the Horizons One Plan (or any subsequent Regional Plan) which contains regulations with respect to earthworks and land disturbance. At the time of the drafting of this report, a Land Use consent was required for land disturbance above 2,500m^2 (as well as other standards), and Erosion and Sediment Control Plans are required to be prepared for land disturbance requiring a Land Use consent.

Consideration of the Whanganui District Plans earthworks rules will also be required, along with consideration of the noise set back provisions.

6.2 Development Contributions and Infrastructure Phasing

6.2.1 Development Blocks

Due to the large area of land being considered for residential development, it is acknowledged that the entire area will not be developed at one time. The stages of development will depend, in part on the timing and division of cost for infrastructure, in particular the wastewater pump stations.

It is noted that development of the south western portion of the Bristol property will be dependent on a road linkage from either the Tirimoana Place development, or the northern end of the Bristol property and access from Great North Road.

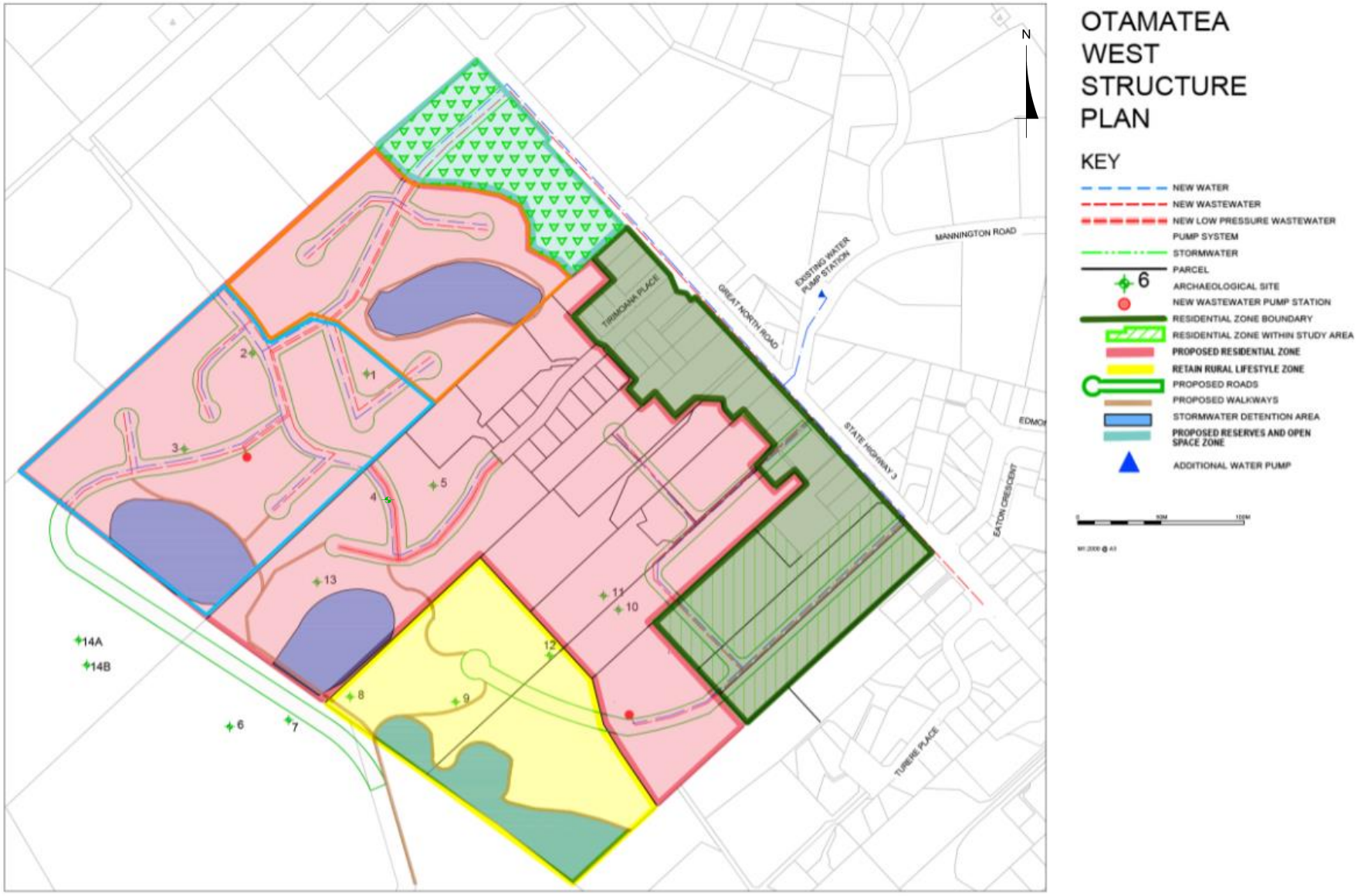

Figure 11 – Proposed District Plan zones

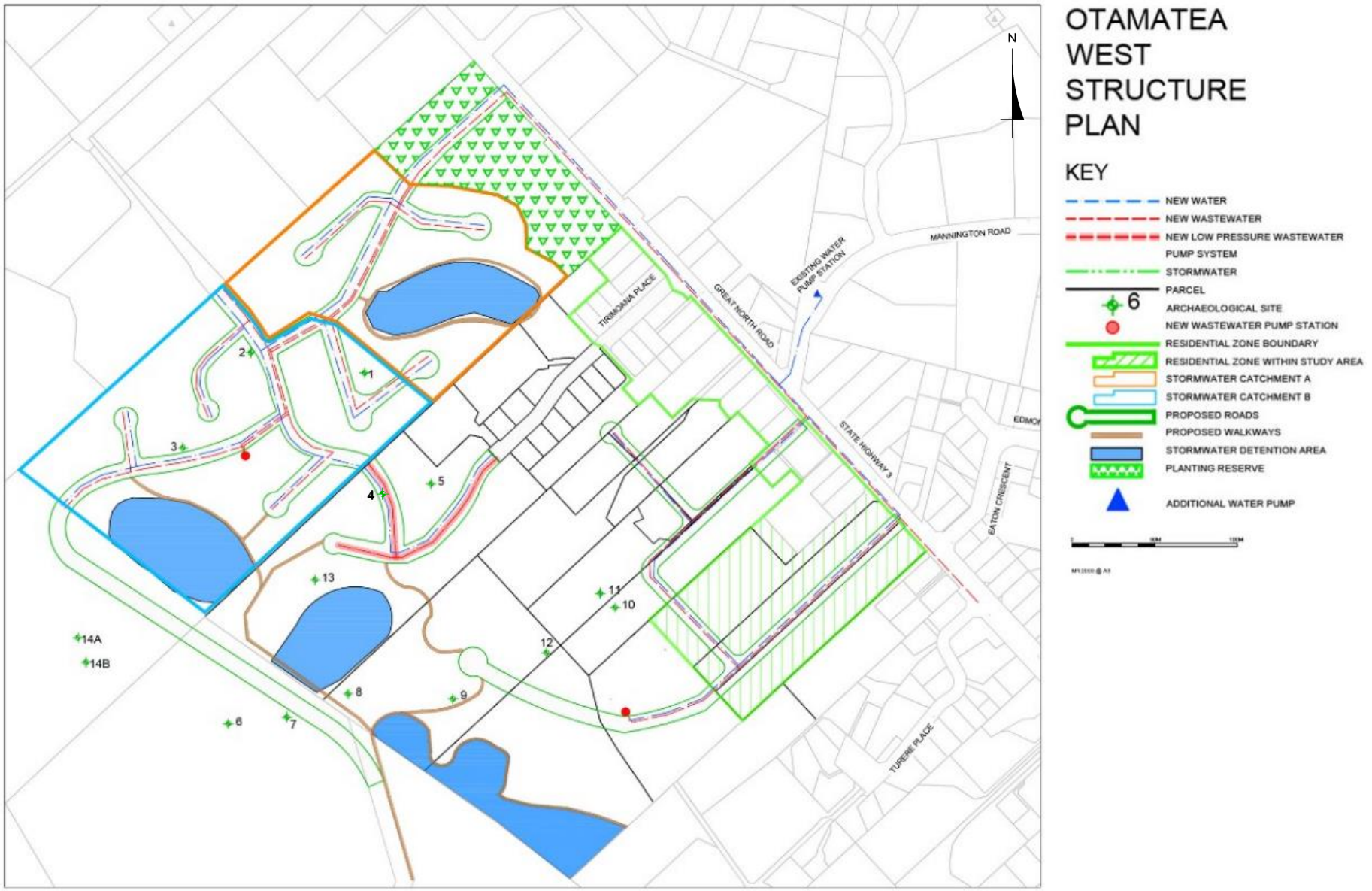

Figure 12 – Proposed Otamatea West Structure Plan

6.2.2 Key Infrastructure Projects

The following key infrastructure is identified as being directly attributable to growth and likely to require development contribution and/ or Council implementation ahead of development of all benefiting sections, in order to implement this Structure Plan:

- A series of stormwater detention ponds, throttled to achieve hydrologic neutrality for each of the existing key properties. The physical distribution of ponds will facilitate the potential for each pond to be provided as part of a subdivision consent rather than by development contribution. However this will largely depend on the staging and magnitude of each development over time.
- It is assumed that the proposed Catchment B stormwater detention pond on the Bristol property and one of the stormwater detention ponds on the Quigley property, will be installed to serve development of much of the Hodson and other adjacent land during the next LTP period (2018 – 2027).
- Stormwater Catchments areas (A) and (B) define the beneficiary properties for each of the two ponds on the Bristol property. Refer to Figure 12.
- Land acquisition and formation of the two ponds on the Quigley property will likely need to be funded ahead by Council, as there will be multiple beneficiaries and the subject property is not suitable for residential development itself and not currently own by future beneficiaries of residential development.
- An upgrade of the Tirimoana Place/SH3 road intersection will potentially benefit the Bristol property, as well as facilitate the proposed second stage residential development of Tirimoana Place. Together with the new link road to the Bristol land this intersection upgrade will potentially facilitate development of the mid and rear portions of the Bristol property for residential activities. Council will need to offset the contribution payable by future Bristol sections, in the interim.
- New roads will largely be provided by developers over time, within the Structure Plan area, however two sections of new road adjacent to SH3 at the existing Bristol and Underwood blocks will likely require development contribution funding as the beneficiaries are numerous and likely to involve staged development. Council will need to offset the development contribution payable by those benefiting sections that are planned as future stages of development.
- SH3 intersections will require development contributions as they will benefit a range of development areas which are likely to occur in a series of planned stages.
- New walkways are proposed aligning to and along proposed detention ponds and linking to the footpath network on proposed roads. The wider community will potentially obtain significant benefit from the establishment of these facilities. Development contributions have been distributed relatively evenly according to current ownership patterns recognising the benefit also to the wider Structure Plan area as well as the specific development sites.
- A sewer pump will serve the entire Bristol property and Council will need to offset the development contribution payable by those benefiting sections that are planned as future stages of development beyond the LTP period.
- A sewer pump will serve the majority of the Hodson, Underwood and Quigley infill properties and Council will need to offset the development contribution payable by those benefiting sections that are planned as future stages of development. The scale of this offset will vary depending on how landowners stage development.
- Two supplementary water pumps will be required to serve the entire Structure Plan area, and development contributions or equivalents

should be payable by all future residential development, including Tirimoana Developments Ltd.

- Off-site costs for capital works to provide network growth capacity to accommodate this Structure Plan are detailed in the two technical reports prepared for WDC by GHD in 2016, which modelled wastewater and stormwater scenarios for Otamatea. The report identify growth costs for stormwater projects are $248,559 and $252,356 for wastewater projects. These costs will be apportioned to each new lot as development occurs out to 2065.

Total projects costs and funding proposals, and those likely to be relevant for the next 10 year LTP period will be determined separate to this report.

6.2.3 Key Assumptions for the Structure Plan Implementation

In relation to development stages and the funding implications the following has been assumed:

1. The current owners of the Bristol land support future residential activities on this sandy low productive land, but have no intention of selling land for that purpose themselves. This may defer development of this land for some years.

2. The need to provide pump stations within the Bristol property may also limit any immediate development of this property, and would likely see a significant number of sections developed in quick succession, in the order of 30- 40 lots as a first stage.

3. The link road from Tirimoana Place will potentially enable development of the area defined as Stormwater Catchment B ahead of Catchment A on the Bristol property. It is not proposed that Tirimoana Place not be widened to accommodate additional development but rather be retained as a relatively narrow street as a method to maintain a low speed environment.

4. Full development of Stormwater Catchment B on the Bristol property to a residential density, should not be served by Tirimoana Place alone. The SH3 intersection road will be required. The threshold for this requirement will depend on future proposals to stage this development.

5. Up to 15 lots within the Hodson/ Underwood properties will be enabled to connect to the existing Turere Place wastewater network.

6. It is assumed that just one of the two supplementary water pumps will be required during the next LTP period.

7 Recommendations

7.1 Suitability for Residential Development

The preparation of this Structure Plan has investigated the relevant factors in developing an area for residential development. Based on the assessment and conclusions reached in this report, development of the study area for residential development is considered appropriate. Residential development undertaken in accordance with this Structure Plan should result in a high quality and desirable residential area.

7.2 Recommendations

THAT:

1. The majority of the study area be rezoned to Residential via a change to the District Plan. The Plan change should include appropriate objectives and policies and establish the Otamatea West Structure Plan as a requirement to be considered when applicants apply for Subdivision and Land Use consents. Portions of the south western area of the Quigley property should remain zoned as Rural Lifestyle to retain lifestyle block sized lots due to the topography and proposed stormwater attenuation ponds proposed in this area. This site comprises significant areas of natural stormwater ponding.

2. The following proposed policy (or similar) along with the Structure Plan in Figure 12 be included in the District Plan to guide future development:

    a. That development of the Structure Plan area be undertaken in general accordance with the Structure Plan in Figure 12, which shows the recommended roading, three water infrastructure, historic heritage features, and landscaping.

    b. Variations to the Structure Plan layout in Figure 12 are encouraged provided the following key criteria to ensure quality urban design outcomes and efficient infrastructure provision are adhered to:

    - Create purposeful linkages for vehicles and for active modes of transport which are safe, pleasant and work with the natural landform. Establish linkages to existing residential development adjacent to the Structure Plan area and t maintain quality road linkages in all four directions as currently proposed.
    - Manage stormwater to ensure hydrologic neutrality for each development parcel within the Structure Plan area, thus ensuring neutral environmental effects beyond the Structure Plan area.
    - Ensure quality residential areas and infrastructure which are designed to work with the natural landscape as far as possible.
    - Avoid perpetuating the prevalence of private rights of way, as access to back sections and where possible redesign to remove existing private rights of way.

3. Recorded archaeological sites should be mapped in the District Plan to raise awareness of their existence, given their vulnerability being within a future development area. An archaeological alert over the entire study area should be imposed. Developers should be clearly directed that an Archaeological Authority will need to be obtained from Heritage New Zealand prior to any land disturbance within the Structure Plan area.

4. Te Runanga O Tupoho and Ngaa Rauru Kiitahi are iwi who identify this area as being within their respective rohe. Both iwi have identified that this area potentially has cultural significance for them. A cultural impact assessment will likely be required, either for individual blocks as they prepare to develop or for the entire study area. Developers should be clearly directed that an assessment of the cultural impact of any proposed development will need to be obtained; and the methodology and authors of this report should be determined in liaison with Te Runanga O Tupoho and Ngaa Rauru Kiitahi and completed and submitted to Council, prior to any land disturbance within the Structure Plan area.

5. Bennetts Pond should be upgraded in accordance with the GHD report “Churton Creek (Stage A) Stormwater System Improvements Report” September 2016, to improve the efficiency of the proposed stormwater system within the Structure Plan area.

6. A recreation reserve area capable of accommodating a substantial children’s playground be provided within the Bristol property, portion of the Structure Plan area. This could potentially be located within a portion of the eastern stormwater pond area or as a separate reserve area centred around one of the key heritage sites such as the Tayforth Homestead site or various middens.

7. The existing healthy mature vegetation e.g. the walnut and exotic trees, be retained as far as possible due to their provision of scale and enclosure to the study area.

8. Capital costs associated with implementing the Structure Plan, attributed to growth, be defined and included as part of a proposed development contribution policy in accordance with the Local Government Act 2002 or be used to determine appropriate developer contributions associated with subdivision and detailed design stages for residential development within the study area. This should be based on the summary of capital projects identified in section 6.2.2 above.

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