

Te Puna Springs

Proposed Private Plan Change,
23 Te Puna Road, Tauranga

Te Puna Springs Estate Limited

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1 Introduction

This is a private plan change request by Te Puna Springs Estate Limited (“Te Puna Springs”) to change parts of the Western Bay of Plenty District Plan (“District Plan”) pursuant to Section 73(2) and Part 2 clauses 21(1) and 22 of the First Schedule to the Resource Management Act 1991 (the “RMA”).

This request relates to the rezoning of the land at 23 Te Puna Road, Tauranga. The request seeks to have approximately 5.93 hectares of land on the western side of Te Puna Road rezoned from the current partial Rural, and partial Commercial zoning to a to a new scheduled site provision within the Commercial Zone, which is proposed to be titled as the “Te Puna Springs”. The aim of this scheduled site is to enable a comprehensive plan for the subject site including enabling development of a new community hall, village green and pond, allowing for better utilisation of the land for commercial development (of a rural trade nature) and avoiding piecemeal proposals which may result in reverse sensitivity arising, in accordance with existing District Plan rules, proposed site-specific rules, and a Structure Plan.

The changes sought to the District Plan are detailed in Section 5 of this document “Schedule of Proposed Amendments”.

Section 74 of the RMA requires that the Council, when changing its Plan, have regard to, among other things, the provisions of Part 2 of the RMA, its functions under Section 31 and its duties under Section 32. This report is separated into the following parts:

- Part A: Plan Change Request
- Part B: Section 32 Analysis

Together with the supporting documentation, this report contains the required information to enable council to make a determination on the Plan Change Request.

2 Part A: Plan Change Request

2.1 Site Location

The subject site comprises approximately 5.93 hectares of land located on the northern side of State Highway 2 (SH 2) at Te Puna, bound in part by SH 2, Te Puna Road and the existing BP Service Station, Four Square and offices located off the sliplane off SH 2.

The subject site is identified on the location plan in Figure 1. The applicant is the owner and occupier of most of the land included within the subject site of this private plan change request. There is a parcel of land captured within the subject site which is owned by Western Bay of Plenty District Council (shown in green outline below). Western Bay of Plenty District Council purchased this land in 2018 for the purpose of locating a new hall.



Figure 1: Locality Diagram

The site owned by the applicant is legally described as Section 11 Survey Office Plan 491908 and Section 2 Survey Office Plan 529511 each being in fee simple land tenure. The site owned by Western Bay of Plenty District Council is legally described as Section 1 Survey Office Plan 529511. There are no interests registered on the titles that restrict the proposed rezoning from taking place. A copy of the titles is included as **Appendix A**.

The site is located approximately 10km west of Tauranga city centre, and approximately 4km west of Bethlehem town centre. The immediate surroundings of the subject site are split up by each of the 'four corners' which are separated by the intersection of SH 2 and Te Puna Road / Minden Road.

Firstly, the north-west corner of the intersection is where the subject site is situated. At present, the subject site is only utilised in the northern section by Supermac Group, who design and build prefabricated buildings. This section of the subject site is currently used for the storage of 'Modcom Portable Buildings' in association with SuperMac Group's business operations. No Modcom buildings are currently built on this site. The only current access to the site is from the western side of Te Puna Road and into the Modcom storage area. There are two neighbouring kiwifruit orchards, one to the north (Okaro Orchard) and one to the west (648 SH 2 Orchard). In the section of land adjacent to SH 2 (closest to the intersection), there is a Four Square supermarket, a BP service station and an office.

The north-east corner of the intersection has two main land owners, namely DMS and Zariba. Zariba owns the land closest to the intersection where there is Nourish Café and some offices and light industrial uses (including Federation Homes). North of the Zariba land is the DMS Te Puna site. DMS is a large food and beverage exporter and the use of this piece of land is characterised by large industrial style buildings utilised by DMS. Beyond these two land owners in this corner there are some more kiwifruit orchards and rural residential dwellings / lifestyle blocks.

The south-east corner of the intersection has one main land owner, Paul Williams. There is a Farmlands building located in the land closest to the intersection. There is also a mix of other activities in this corner, including the Te Puna Tavern, offices including WaterForce Tauranga, Te Puna Vets and Advanced Housing Systems, Te Puna Deli and a rural residential homestead.

The south-west corner of the intersection has a 4-star hotel, Accommodation Te Puna, located in the land closest to the intersection. Beyond that there is a mix of residential dwellings of varying densities, with the land further from the intersection being larger rural and rural residential lots and some orchards / permanent horticulture sites.

2.2 Site Description

The subject site is generally of flat contour (although it rises towards the west), compared to the other three of the 'four corners' which all have undulating topography. The elevated nature of SH 2 means that the subject site is visible to passing motorists, particularly those travelling west towards Katikati. There are no identified waterways on the site, but there is a small drain through the site which drains to a lower section of the site in the north-western corner.

The area of commercially zoned land in Te Puna is commonly known as Te Puna Village. It was inserted into the District Plan in recognition of the activities that existed or were planned at the time of writing. The wider geography of Te Puna extends around a large area bounded by the harbour, the Wairoa River, the Te Puna Stream and Te Rangituanehu (Minden ride), including Motuhua Island. Te Puna has experienced growth over the past three decades, with the population growing due to numerous rural subdivisions. In 2013 the population of Te Puna (Te Puna and Minden Area Units) was 6,834 and projected to be 7,385 in 2018. This equates to 2,954 dwelling units in 2018 and 3,354 dwelling units by 2028. There is a kindergarten located approximately 400m south of Te Puna Village and Te Puna School is located approximately 2.4km north of Te Puna Village. There are also various reserves and parks located in the wider vicinity of Te Puna Village, including L'Anson Reserve, Minden Scenic Reserve, and Te Puna Quarry Park.

The subject site is located at the downstream end of a larger catchment. A few natural open channels exist on the subject site that discharge into an existing attenuation pond behind an embankment located within the site boundary.

The subject site is located within an area that is not currently serviced by council reticulated sewer infrastructure. There are water mains that front the subject site on Te Puna Road and along SH 2.

New Zealand Transport Agency (NZTA) have in recent years completed intersection safety and capacity improvements to the Te Puna/Minden intersection as part of the SH 2/Minden Road/Te Puna Road roundabout project. The new intersection north of the roundabout is a four-way intersection, with right turn bays and a left turn slip lane into the BP service station. There are three commuter and shopper bus routes available at Te Puna, however, there are currently no formal cycle provisions on road or off road in the vicinity of the subject site. Local pedestrian facilities have been provided to accommodate people who live on the southern side of SH 2 to access the commercial area.

According to the Bay of Plenty Maps, there is an unnamed tributary which is located partially within the subject site and the soil type is identified as Katikati black sandy loam. The subject site is not within a tsunami evacuation zone. The subject site is also not identified as a HAIL site, although there are several identified HAIL sites in the surrounding environment at the nearby orchards due to the persistent pesticide use.

Te Puna Village is currently not connected to the wastewater system, meaning that each site needs to treat their wastewater with an onsite wastewater treatment system / septic tank.

2.3 Existing Consents / Designations

The Applicant was granted resource consent to establish a boat yard, consisting of a show room and workshop, and a service station workshop (Supermac) associated with servicing vehicles and plant on the subject site in December 2016 (Consent Ref: P/1243/42).

The Te Puna hall was previously located on the corner of Te Puna Road and SH 2. This hall was removed due to the construction of the intersection upgrades by the New Zealand Transport Agency. The proposed hall location has been identified as being within the Te Puna Springs site, on the western boundary, and a designation has been approved by Western Bay of Plenty District Council. The designation has subsequently been appealed by the neighbouring property owner on the basis of potential reverse sensitivity effects.

SH 2, south of the site, is designated in the Western Bay of Plenty District Plan.

3 Explanation of the Plan Change

3.1 Purpose and Background

The purpose of the Plan Change is to:

- rezone the subject site from the present Rural and Commercial Zoning to a new “Te Puna Springs” scheduled site under the Commercial Zone.
- to provide for further business activities to service the Te Puna community and to create local commercial business opportunities.
- to establish new definitions as they relate to the new scheduled site.
- to establish new Rules and Assessment Criteria for the zoning.
- to add Rules and Performance Standards in the District Plan as they relate to the development of the site; and
- to incorporate a new Structure Plan in the District Plan as a guide to the development of the site, specifically relating to landscaping.

The Applicant has initiated this request for a Plan Change as it is considered that the introduction of a new scheduled site provision within the Commercial Zone would enable a coordinated and consolidated approach to the development of the subject site. A scheduled site would enable more specific and appropriate policy framework to apply to the subject site. In addition, there has not been any review of the Commercial Zone since the mid 1990's, which is before Te Puna experienced significant population growth, and the current Commercial zoning is also written more for commercial areas in Western Bay of Plenty which have a 'main street' which does not fit with the commercial area of Te Puna Village.

An important part of the development of this Plan Change is the dialogue that has been going on between the local community in Te Puna, the various landowners and businesses and Western Bay of Plenty Council. In December 2017, the Te Puna Community Plan was published which developed shared goals for the collective community of Te Puna. This acknowledges the extreme importance of the Te Puna commercial areas for local resilience. Following on from the release of that document, in mid-2018 elected members requested that community engagement be undertaken to help understand Te Puna community aspirations and issues and opportunities for the commercial zone, with the focus being on Te Puna Village (which the subject site is a part of). Western Bay of Plenty engaged with the Te Puna community in August – November 2018 to understand their expectations for the future of the commercial zone. In November 2018, a Discussion Paper was produced and released to the public to document this process and its outcomes. This Discussion Paper provided recognition of the need to comprehensively consider the future of Te Puna commercial zone.

“The commercial zone for Te Puna was inserted into the District Plan many years ago in recognition of the activities that existed or were planned at that time. The aim of commercial zones throughout the District is to provide a vibrant commercial environment that encourages social and cultural interaction in our communities. The rules are fairly permissive in that retail is retail so there is no consideration for the implications of different types of commercial activity (e.g. book shop vs a butcher).”

For an area like Te Puna, there is no set formula used to determine how much commercial land is needed. It is a given that a community of this size should have access to a commercial centre to service the immediate catchment but how big that is and the types of services it provides is largely driven by land use zones, infrastructure capacity and the market response to community demand.”
(Page 11)

To prepare for this Plan Change, the Applicant has referred to the aspirations of the community and the Western Bay of Plenty District Council through building on the opportunities for the Te Puna Village, whilst attempting to reduce or mitigate any issues that were raised. This information was also supplemented by the two workshops that were held by Western Bay of Plenty and interested stakeholders in early 2019.

3.2 Rationale

The aim of the Plan Change is to enable a comprehensive plan for the subject site including enabling development of a new community hall, village green and pond, allowing for better utilisation of the land for commercial development (of a rural trade nature). The Plan Change will also include features such as naturalisation of the spring (as a result of pre-application consultation with Pirirakau). The Plan Change would avoid piecemeal proposals which may result in reverse sensitivity arising, reduce the reliance on the State Highway network, be in accordance with existing District Plan objectives and policies, which are supplemented by additional proposed site-specific rules, and a Structure Plan.

In terms of the removal of the Rural Zoning from the subject site, the subject site is not utilised for the purposes of Rural activity and is unlikely to be in the future given the uneconomic size of the landholding and the existing commercial zoning of part of the site. It is also considered inappropriate for rural lifestyle blocks or residential development to occur on the subject site due to the potential for reverse sensitivity effects to arise, given the close proximity to horticultural land uses.

The Applicant wishes to proceed with a Plan Change for the following reasons:

- The current Rural zoning does not allow for future commercial use of the site which the applicant seeks to achieve;
- The proposed rezoning will foster the development of complementary activities to the existing Te Puna Springs commercial zone;
- The proposed rezoning will positively contribute to creating a consolidated, futureproofed commercial hub for the benefit of the community;
- The proposed rezoning will provide certainty of investment as well as assist in long term infrastructure planning;
- The applicant seeks to expand their business on site, and provide leased tenancies for other companies who wish to locate themselves in Te Puna, and would require a Resource Consent to do so;
- The site is not and will not be used in accordance with the existing Rural zoning in the future due a number of constraints, including but not limited to, land size which is uneconomic to be utilised for the purposes of traditional rural activities, and the inappropriate use of the site for residential purposes due to the proximity to established horticultural uses adjacent to the site.

The applicant is pursuing this Plan Change Request as it considers rezoning the site as proposed would enable a coordinated and consolidated approach to development in a manner that effectively acknowledges the Commercial-Rural interface, provides landscaping requirements for visual amenity effects and allows for controls over the level and form of development available on site. It is considered that this Plan Change Request would remain consistent with the environmental outcomes anticipated through the objectives, policies and rules of the District Plan, and accords with the principles of the following statutory and non-statutory strategies:

Bay of Plenty Regional Policy Statement (2018)

- Includes policies in respect of a range of relevant matters such as air quality, integrated resource management, iwi resource management and urban and rural growth management;
- Policy AQ 1A actively discourages locating new sensitive activities near activities that discharge offensive and objectionable odours, chemical emissions or particulates;
- Policy IR 3B aims to adopt an integrated approach to resource management;
- Policy IR 4B encourages using consultation in the identification and resolution of resource management issues;
- Policy IW 2B recognises matters of significance to Māori;
- Policy MN 4B encourages ecological restoration and rehabilitation;

- Policy UG 7A provides for the expansion of existing business land in certain circumstances;
- Policy UG 8B implements high quality urban design principles;
- Policy UG 9B aims to ensure coordination of new urban development with infrastructure;
- Policy UG 10B requires rezoning for urban development of land to take into account sustainable rates of land uptake, existing or committed public and private sector investments, sustainable provision and funding of existing and future infrastructure and efficient use of local authority and central government financial resources;
- Policy UG 12B provides for quality open spaces;
- Policy UG 13B promotes the integration of land-use and transport activities;
- Policy UG 20B requires that development of rural areas does not compromise or result in reverse sensitivity effects on rural production activities and the operation of infrastructure;
- Policy UG 23B provides for the operation and growth of rural production activities;
- Identifies growth areas, however, Te Puna is not included.

Proposed SmartGrowth Future Development Strategy (2018)

- A Future Development Strategy is required by the Government for high growth areas such as the western Bay of Plenty sub-region, and requires alignment between the National Policy Statement on Urban Development Capacity 2016 and other land use and infrastructure policy;
- Identifies that the Bay of Plenty is in a transition phase between previous policy frameworks and moving forward on an emerging direction;
- SmartGrowth proposed desired outcomes include outcomes such as: growing a sustainable economy, creating an integrated planning and settlement pattern, building communities, sustaining and improving the environment;
- This document acknowledges the importance of the kiwifruit industry to the wider Bay of Plenty regional economy;
- Urban growth is planned to be provided for in two ways: Compact City and New Growth Areas, and Te Puna is identified as an area to be investigated for possible urban growth areas (long-term);
- Te Puna Business Park (located north-east of the subject site) is estimated to be development ready in 2021;
- Acknowledges that the delivery of sufficient infrastructure is in “catch up” mode;
- Promotes being ready for change, with the emerging technologies in transport, the way we work and the way we build our homes and places of business;
- Following the submission period in 2018, The SmartGrowth Leadership Group are to post updated documents in 2019.

Pirirakau Hapū Management Plan (2017)

- Outlines consultation and engagement process;
- The Pirirakau rohe is dominated by several important landscapes and waterscapes, including Te Puna;
- Seeks to ensure that they are in participation of all engagement which protects the Rural characteristic of Te Puna and prevention of urbanisation, with an intent to ensure horticulture and agriculture opportunities will continue;
- Pirirakau seek mitigation of projects to restore and create wetlands;
- Pirirakau do not support connections to the Omokoroa Wastewater pipeline unless mitigation of environmental effects is required;
- Proposes to influence the Te Puna Community Development Plan.

Te Puna Community Plan (2017)

- Result of a community rather than Council driven process;
- Notes that it is the present intention of the Te Puna Hall Committee to build a modern Hall, to replace the structure built in 1922 on the site of the SH 2 roundabout, and to house the memorial plaques of those who served in the two World Wars;
- Te Puna Junction is a commercial area which is extremely important for local resilience (provision of food, services and resources), but this centre is likely to be affected by the removal of traffic and therefore customers if the Tauranga Northern Link eventuates;
- Construction of the Te Puna West Community Wastewater Scheme in 2017/18 will address issues of water quality in the Te Puna West area but elsewhere in Te Puna where there are older homes, outdated septic tanks will require upgrading;
- Encourages having a diverse range of work opportunities available locally;
- Te Puna to be kept an essentially rural area by limiting industrial and commercial areas to current locations and focusing on local services.

The details of the proposed change are set out in Section 5 of this report.

3.3 Wider Te Puna Village Development Plan

As recognised earlier, there has been extensive community and stakeholder engagement relating to the development of the Te Puna Village in the future. Whilst the focus of this Plan Change is on the subject site (which is the north-west corner of the Te Puna Village intersection), it is important to recognise that the proposal of this Plan Change would fit in with the wider Te Puna Village Development Plan which has been prepared.

The Plan Change would encourage business, cultural and social interaction and create a more central 'hub' of activity for the Te Puna Village on the subject site. The extension of the commercial zone over the subject site is similarly proposed to occur in the south-east corner of Te Puna Village. Various traffic calming, pedestrian/cycle ways and landscaping techniques are proposed throughout the subject site and the wider Te Puna Village in order to create a location with improved amenity and promotion of activity. In order to improve the severance caused by SH 2, a proposed crossing bridge has also been indicated as a possibility between the north-east and south-east corners of Te Puna Village. These features are in response to the ideas generated through the community and stakeholder engagement that has occurred over recent years.

4 District Plan Provisions

4.1 General

Part of the site is zoned Commercial (in pink), with the remainder of the site zoned Rural (in yellow) (shown in Figure 2). The site is not affected by any natural hazards, or cultural/heritage sites identified on the Planning Maps. The site is bound on two sides by SH 2, and Te Puna Road.

The land adjacent to the property is zoned Commercial (Four Square and offices and BP Service Station), Reserve (location of old Te Puna Hall (in green dash)) and the land directly adjacent to the site over Te Puna Road is zoned Post Harvest Industrial (ITM Building Supplies (in olive green)). There are two designations within the vicinity of the surrounding environment, D55 referring to a Telecommunication site of Telecom New Zealand, and D203 referring to SH 2 (NZTA). The relevant planning map U87 from the Western Bay of Plenty District Plan is also attached as **Appendix B**.

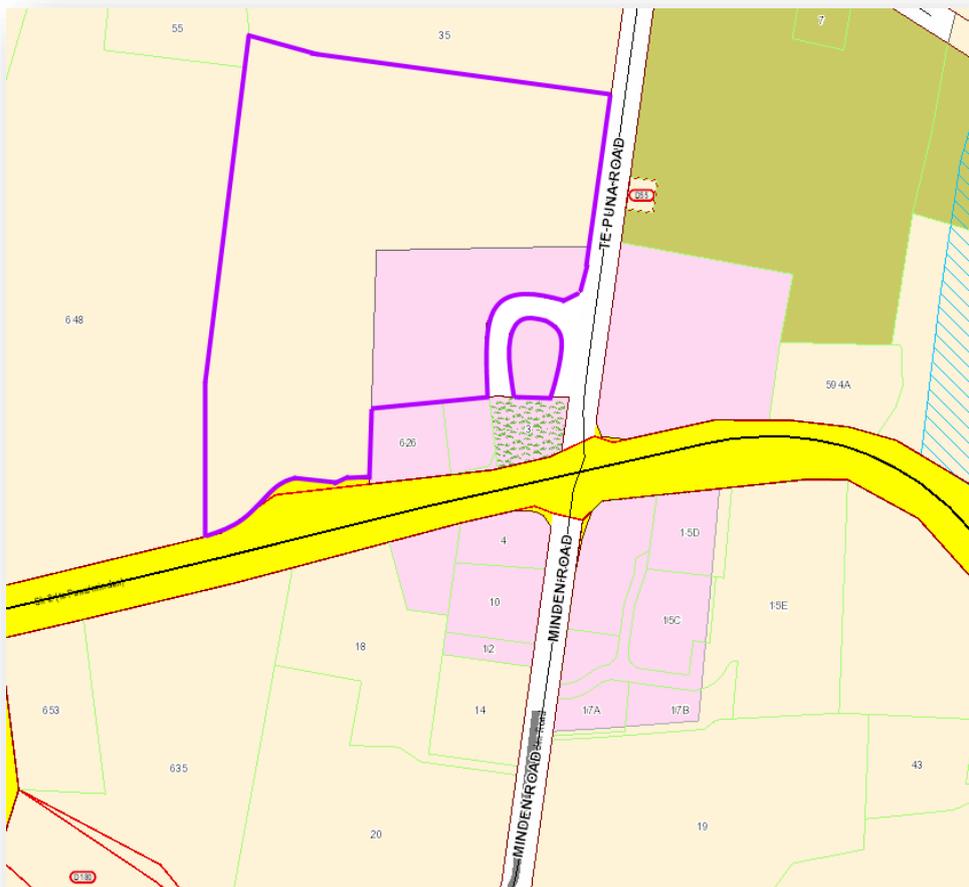


Figure 2: Operative District Plan map (with subject site identified in purple)

Relevant provisions applying to the site and proposed rezoning are contained in Section 18 (Rural) and Section 20 (Commercial).

There are no outstanding references to the District Plan that are of relevance to the site or to the provisions that this Plan Change Request seeks to amend.

4.2 Rural Zone

The District Plan identifies the Rural Zone as important to the Western Bay of Plenty District as a predominantly rural area, with rural production being the primary economic driver of the District. The main purpose of the Rural Zone and associated provisions is to maintain the zone's rural amenity and character. The District Plan recognises that:

“the magnitude of demand for rural living which has resulted in the high degree of rural land fragmentation through subdivision was not anticipated and the point has now been reached where the cumulative effects of the large amount of intensified rural development has now become evident. Many owners of land have also carried out subdivision to secure future development rights (Section 18, page 3).

There are a range of objectives and policies in Chapter 18 of the District Plan which aim to maintain the rural land resource and provide for primary productive activities, whilst preserving the options for the future use of land identified in the Bay of Plenty Regional Policy Statement as being required for future urban development.

The more pertinent rules controlling land use in the Rural Zone can be summarised as follows:

- Minimum allotment area: 40ha
- Structure coverage: no restriction
- Setbacks:
 - Dwellings: 30m
 - Strategic Road / Designation boundary: 30m
 - All other buildings/structures: 5m
 - Side/rear yard: 10m
 - Front yard: 10m
- Structure height: 9m
- Screening & Landscaping: Required for solid waste storage and disposal areas

Subdivision of land in the Rural Zone is generally a Discretionary Activity. As the applicant's site is under six hectares in size, subdivision under the Rural Production provisions would be a Non- Complying Activity. The Rural zone applies a 30m front yard to buildings established on site and side yards can be reduced to 10 metres within certain circumstances as outlined in the District Plan.

4.3 Commercial Zone

The District Plan identifies the Commercial Zones are important as they provide *“a sense of identity and belonging to individuals and the community in general”*. Objectives for the Commercial Zone in the District Plan include aiming to create consolidated commercial centres that are vibrant commercial environments that encourage social and cultural interaction, and keeping them of an appropriate scale, well designed and to allow the Commercial Zone to operate effectively and efficiently.

The more pertinent rules controlling land use in the Commercial Zone can be summarised as follows:

- Dwelling houses: All dwellings located above ground floor
- Minimum allotment area: no restriction
- Structure coverage: no restriction
- Setbacks:
 - Strategic Road / Designation boundary: 10m
 - All other buildings/structures: 3m
 - (where property adjoins the Rural Zone)

- Structure height: 9m
- Screening & Landscaping: Required for interface with Rural Zone
- Building design: Verandas required
Daylight boundaries for all site boundaries adjoining Rural Zone
Floor area utilised for office purposes on the ground floor is not to exceed 20% of the GFA of the ground floor of the building

The Commercial Zone's rules do not differentiate between types of retail. It is also noted that the objectives, policies and rules in the Commercial Zone were written primarily for commercial areas which were based around the 'main street'. As Te Puna Village does not have a main street strip retail offering (with active frontages), there are some rules above that are inappropriate for Te Puna Village such as the requirement for verandas and active frontages.

5 Schedule of Proposed Amendments

This Plan Change Request introduces the following amendments to the District Plan to enable the rezoning of the site from Rural to a new scheduled site provision within the Commercial Zone, which is proposed to be titled as the “Te Puna Springs”.

There are two sub areas of the scheduled site provision proposed. Area A will ensure that no sensitive activity(ies) will locate within 30m of the northern and western boundaries (to avoid reverse sensitivity issues arising with the adjoining kiwifruit orchards). Area B is the remaining balance of the land and includes the hall and proposed village green.

Proposed changes/additions are highlighted in bold and underlined.

The Plan Change Request also refers to a proposed Structure Plan throughout the proposed changes/additions. The Structure Plan is provided in **Appendix C**.

5.1 Section 3 Definitions

Add new definitions, as follows:

“Sensitive Activity(ies)” means activities which are sensitive to noise, dust, spray residue, odour which generate reverse sensitivity effects from nearby activities. This includes residential dwelling, accommodation facility, places of assembly, restaurants and other eating places, educational facilities and medical or scientific facilities.

5.2 Section 4C – Amenity

Add new Activity Performance Standard, as follows:

4C.5.3.2 Screening in Industrial and Commercial Zones

(h) Te Puna Springs

(i) Any subdivision or development of land within the zone shall be designed, approved and developed in general accordance with the Te Puna Springs Structure Plan and Landscape Cross Section in Appendix 7;

(ii) Landscape plans shall be prepared by a qualified landscape designer and approved by Council. The plan for the stormwater pond shall be prepared in consultation with Pirirakau.

5.3 Section 19 Commercial

Add new permitted activity rule, as follows:

Additional Permitted Activities (Te Puna Springs only)

- (a) Rural Contractors Depot**
- (b) Offices (ancillary to activities occurring on site that are not provided for)**
- (c) Places of Assembly within Area B**
- (d) Warehousing and Storage**

Add new non-complying activity rule, as follows:

Additional Non-Complying Activities (Te Puna Springs only)

- (a) Sensitive activity(ies) located within Area A**

Amend / add to 19.4 Activity Performance Standards, as follows:

19.4.1 General

(a) Building height, setback, alignment and design

(v) Te Puna Springs

The maximum building/structure height in the Te Puna Springs shall be 12.0m.

(vi) All other areas including spot Commercial Zones

The maximum *height* shall be limited to two storeys and 9m and no provision is made for additional non-habitable space above the 9m *height* limit;

(vii) Any balustrade servicing a third floor (not in the Omokoroa Stage 2 Structure Plan Area) shall be either set back in accordance with Diagram 1 below or be 80% visually permeable.

(viii) Continuous retail frontage – Development in the Commercial Zone shall be constructed up to the road boundary except for vehicle access up to 6m wide per site, **with the exception of the Te Puna Springs.** Each building shall have clear windows on the ground floor that must cover at least 50% of the building's frontage to a main street and at least 25% for all other streets and public areas, such as walkways and public parking areas.

(ix) No car parking, other than underground parking, shall be located within 10m of any street boundary, **with the exception of the Te Puna Springs.**

(d) Yards

All buildings/structures

Minimum 3m where a property adjoins a Residential, RuralResidential, Future Urban, Rural Zone or reserve boundary.

Provided that:

A *building /structure* may be located within a side or rear yard and up to a side or rear boundary where the adjoining property is a road or where the written approval of the owner of the immediately adjoining property to a specified lesser distance is obtained.

Except that:

Where any yard adjoins:

- A Strategic Road or a designation for a Strategic Road (except in the Commercial Zones in Katikati and Te Puke), it shall be a minimum of 10m;
- A railway corridor or designation for railway purposes, it shall be a minimum of 10m.

Add to 19.7.4 Discretionary and Non-Complying Activities – Matters of Discretion and Assessment Criteria, as follow:

In considering an application for a Discretionary or Non-Complying Activity Council shall consider:

(a) The extent of non-compliance with the Permitted Activity performance standards and the actual and potential effects on the environment.

(b) How well the development integrates with existing commercial development and its orientation to public space.

(c) How the development meets the design outcomes of adopted town centre plans and the Built Environment Strategy.

(d) Any national standards for urban design.

(e) What provision is made for pedestrian and vehicular access.

(f) The effect on the amenity values of adjoining residential and reserve land.

(g) Consideration of the extent to which rural production activities will be adversely affected by the development, including any *reverse sensitivity* effects.

5.4 Appendix 7

Add the Structure Plan to Appendix 7 as '**Section 13: Te Puna Springs**' (with reference to the Structure Plan in **Appendix C**).

Any other consequential amendments, including numbering, maps and cross references, as necessary.

6 Statutory Framework

6.1 Resource Management Act 1991

6.1.1 Section 73 – Preparation and change of District Plans

Section 73(2) of the RMA states that:

“Any person may request a territorial authority to change a District Plan, and the Plan may be changed in the manner set out in the First Schedule”.

Under Clause 22 of the First Schedule, a plan change request must:

- Explain the purpose and reasons for the request;
- Assess environmental effects, taking into account the provisions of the Fourth Schedule of the RMA, in such detail as corresponds with the scale and significance of actual or potential environmental effects anticipated from implementation of the requested plan change; and
- Contain an evaluation under Section 32 of the RMA for any objectives, policies, rules or other methods proposed.

The purpose and reasons for the Plan Change Request have been outlined in Section 3 of this document. These are further supported by the accompanying Assessment of Effects (Section 7) and Section 32 Assessment (Section 8, Part B).

6.1.2 Section 74 – Matters to be considered by territorial authority & Section 75 – Contents of district plans

Section 74 and 75 sets out the matters that Council must be taken into account and those that shall be had regard to. By way of summary the following items listed in section 74 are considered to be relevant to this Plan Change Request:

- Part 2 of the RMA;
- the functions and duties of the local authority under the RMA;
- the National Policy Statement on Urban Development 2020 (NPS-UD);
- the Proposed Regional Policy Statement; and
- any management plans and strategies prepared under other Acts.

6.1.3 Part 2 of the RMA – Purpose and Principles

Part 2 of the RMA comprises four key sections, each of which is discussed below.

Section 5 – Purpose

Section 5 requires an overall judgement as to whether the Plan Change Request would provide for the sustainable management of natural and physical resources:

The purpose of this Act is to promote the sustainable management of natural and physical resources.

In this Act, "sustainable management" means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while -

- (a) *Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*

- (b) *Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
- (c) *Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

This purpose has two components, one enabling and one regulatory. The enabling component contained in the first paragraph entitles people and communities to use, develop, and protect resources in any way they desire in their pursuit of wellbeing. However, this may only occur if the Plan Change Request satisfies the terms of the regulatory component in sub-paragraphs (a) – (c) that are refined and given further meaning by sections 6, 7 and 8. If these terms cannot be met then the Plan Change Request falls short of achieving the purpose of the RMA.

Turning to the enabling component of the RMA, the Plan Change Request would allow for comprehensive development of the land in a manner that provides for an appropriate scale and form of commercial development that is consistent with the principle of urban consolidation while maintaining the ability of the surrounding orchards to continue to provide for their economic wellbeing without concerns raised around reverse sensitivity. The principle issue is whether the regulatory component can be satisfied.

The first regulatory matter addresses the potential needs as they relate to the subject land, which in our view are to fulfil a need to provide commercial development in an integrated way that will not adversely affect the natural and physical resources. For the reasons given in the following Assessment of Effects, it is not considered that adverse effects on the site's resources or the surrounding environment will arise from this Plan Change Request.

The second regulatory matter concerns safeguarding the life supporting capacity of air, water, soil, and ecosystems. It is considered that the Plan Change Request will not threaten any of the matters mentioned, with appropriate systems available to ensure the site is serviced in an environmentally sensitive manner.

The final regulatory matter is that to do with avoiding, remedying and mitigating adverse effects. A loss of amenity is inevitable where rural land is rezoned and developed for commercial purposes. However, the site currently displays minimal rural character and amenity value. In addition, as stated in the Property Economics Economic Overview report (provided in **Appendix D**), the land has not been utilised for rural activities for a number of years and it is highly unlikely that it would transfer back to that use. Existing standards within the District Plan, supplemented by to site-specific standards, including adherence to the Structure Plan, will effectively control the scale and form of future development in a manner that is compatible with the receiving environment. For the reasons outlined in the Assessment of Effects, it is considered the effects of subsequent development in accordance with the Plan Change Request will be no more than minor.

It is considered that the Plan Change Request would build on the existing commercial zone provision, by allowing a more permissive planning framework for complementary activities (such as the community hall and trade activities). The potential issues have been worked through with the recent consultation undertaken and the additions are proposed to the District Plan in order to ensure that whilst the extent of commercial activity in the area will increase, there will also be a centrally located community hall, and a village green and pond which will help to add to the 'hub' feel that the Te Puna Village currently has, whilst ensuring that adjacent rural land uses on the orchards can continue to operate without concerns being raised in relation to reverse sensitivity.

The Plan Change Request is considered to be an efficient and sustainable method to manage the potential effects that expanding the Commercial Zone and the associated activities proposed to be permitted in the Te Puna Springs may have on the environment.

Overall it is considered that this Plan Change Request is an appropriate method to sustainably manage the natural and physical land resource that is available within the Te Puna Village. The Plan Change Request is therefore considered to be consistent with the purpose of the RMA.

Section 6 – Matters of National Importance

Section 6 contains seven matters that Council must recognise and provide for as "Matters of National Importance". Those matters that are considered relevant to the Plan Change Request are as follows:

- (a) The preservation of the natural character of...rivers and their margins, and the protection of them from inappropriate subdivision, use and development.

The subject site is bisected by a few natural open channels that discharge into an existing attenuation pond behind an embankment located within the site boundary. Although the landform may require some shaping, it is considered that the natural character of the channels can be maintained. In addition, it is proposed that the embankments of the stormwater ponds and edges of the channel will be planted with wetland species and there will be the addition of the naturalised spring to the village green.

- (d) The maintenance and enhancement of public access to and along the coastal marine area, lakes and rivers.

The Plan Change Request provides for the acknowledgement of Pirirakau with the land and the spring on site which the applicant is proposing to relocate and open for public and cultural access

- (e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga.

Consultation has found there to be no issues with the Plan Change Request in respect of matters of culture and tradition of interest to Pirirakau.

- (h) The management of significant risks from natural hazards.

The Infrastructure Servicing Assessment (provided in **Appendix E**) acknowledges that the development sites within a catchment which may already have downstream issues with flooding and erosion. A conservative approach to stormwater management has therefore been incorporated into the Plan Change Request and an attenuation pond has been sized to meet the Bay of Plenty Regional Council stormwater management guidelines.

Section 7 – Other matters

Section 7 states that particular regard shall be had to the following matters considered to be of most relevance to this Plan Change Request:

- (b) the efficient use and development of natural and physical resources;*
- (c) the maintenance and enhancement of amenity values;*
- (f) maintenance and enhancement of the quality of the environment;*
- (i) the effects of climate change.*

The analysis and technical reports supporting this Plan Change Request contribute to the overall assessment of the proposal under Section 7 of this report. For the reasons contained therein, it is considered that appropriate regard has been had to the above matters.

The Plan Change Request is compatible with the policy and rule framework of the District Plan, which provides an appropriate and accepted means to control the nature and scale of development in the Commercial Zone. The site displays an open character only insofar as it is currently only developed in the areas closest to SH 2 and Te Puna Road. The site could not be said to be of strong rural character or high amenity. The open character of the site will undoubtedly undergo change, but overall in this part of the Te Puna Village the character will not be significantly altered. The rezoning will mean that the subject site no longer will experience having a split of Rural and Commercial Zones applying to the land parcel, and will ensure that development does not occur in close proximity to the northern and western sides of the site (which are adjacent to orchards). The resultant expansion of existing business land is consistent with Policy UG 7A of the Bay of Plenty RPS. As the aim of the extended business land is to accommodate the local provision of commercial uses in Te Puna Village, it is a different aim to just generally expanding the business land to accommodate wider demand for business land in the Western Bay of Plenty sub-region. It is contiguous with the site of an existing zoned business land in that part of the subject site is zoned Commercial at present. The Plan Change does not require connection to any urban water supply distribution, stormwater or wastewater infrastructure located within the urban limits, and it aims to avoid or mitigate effects on rural production activities nearby (through the use of setbacks for sensitive activities). In addition, the stormwater attenuation pond has been designed to ensure that post development flows should not exceed the 2 year, 10 year and 80% of the 100 year predevelopment rates in order to manage the potential issues with flooding and erosion on the subject site.

For these reasons, it is considered that the amenity values, quality, and character of the area will be maintained, if not enhanced. The existing roading and other infrastructure are able to accommodate future development allowed by the proposed rezoning. Providing for commercial development on a site adjacent to an existing commercial area and strategic road infrastructure is an efficient use of the site's resources. The proposal will promote a consolidated and coordinated pattern of development, with subsequent efficiencies in the better utilisation of infrastructure and services.

Section 8 – Treaty of Waitangi

Section 8 requires the principles of the Treaty of Waitangi to be taken into account when considering the proposal. Section 8 now needs to be considered alongside section 32(4A) which was introduced by the Resource Legislation Amendment Act 2017, which requires that the section 32 evaluation report also include a summary of advice received from iwi authorities and the response to that advice. This is another method of consultation with tangata whenua that is now formalised in the RMA.

This is different from the specific pre-notification consultation requirements in clause 4A of Part 1 of Schedule One. It applies to the Assessment of Environmental Effects (“AEE”) that is prepared under clause 22 of Part 2 of Schedule One. The AEE is to address cultural effects and effects on cultural values. Consultation with Pirirakau has been undertaken to inform the effects on cultural values.

Pirirakau have been consulted during the course of the preparation of the Plan Change Request. Formal feedback has been received and is provided in **Appendix F**. Pirirakau have confirmed that they support the Plan Change on the provision of:

- Naming
- Puna intent to pip above ground as a feature
- Earthworks to require a Pirirakau cultural monitor to observe stripping

Consultation will be ongoing throughout the Plan Change process, with the opportunity to respond to any particular concerns as they may arise.

6.1.4 National Planning Documents

The NPS-UD is considered relevant to the Plan Change Request.

Part B of this report provides an assessment of the Plan Change Request in the context of giving effect to this document, as required by section 75 of the RMA.

6.1.5 Regional Planning Documents

The following regional planning documents are considered the most relevant to the Plan Change Request:

- Bay of Plenty Regional Policy Statement (RPS);
- Bay of Plenty Regional Natural Resources Plan (RNRP);
- Bay of Plenty Regional Land Transport Plan (RLTP);
- Proposed SmartGrowth Future Development Strategy (2018); and
- Pirirakau Hapū Management Plan (2017).

Part B of this report provides an assessment of the Plan Change Request in the context of giving effect to, and being consistent with these document, as required by sections 74 and 75 of the RMA.

The subject site contains no archaeological or historical features that would then necessitate matters under the Historic Places Act to be assessed. There are no other statutory planning documents or instruments to be considered.

7 Assessment of Environmental Effects (AEE)

The following is an assessment of the potential effects on the environment that may arise from the Plan Change Request and the type of development that is expected to follow. It is produced in accordance with Schedule 4 of the RMA.

In consideration of the Plan Change Request and the actual and potential effects associated with subsequent development, the request is supported by the following reports:

- Economics Assessment (**Appendix D**);
- Infrastructure Servicing Assessment (**Appendix E**);
- Integrated Transport Assessment (**Appendix G**); and
- Spray Drift Assessment (**Appendix H**).

7.1 Existing Environment

In order to assess the potential effects upon the environment, it is necessary to consider the nature of the surrounding land uses as they presently exist, and how these are likely to develop in the future given the nature of the surrounding zoning.

The subject site is located in the north-western corner of the intersection of SH 2 with Te Puna Road / Minden Road. It currently is zoned partially as Rural Zone and partially as Commercial Zone. Further north and west of the subject site there are orchards and rural residential dwellings, and south of the subject site there is a 4 Square supermarket and a petrol station adjacent to SH 2. Other development in the area includes commercial sites to the east on the other side of Te Puna Road, and on the other side of SH 2. It is considered that due to the position of the subject site near to SH 2 and a mix of commercial buildings that the landscape amenity in the south and easterly direction is generally of low landscape amenity.

The Te Puna hall was previously located on the corner of Te Puna Road and SH 2. This hall was removed due to the construction of the intersection upgrades by the New Zealand Transport Agency. The proposed hall location has been identified as being within the Te Puna Springs site, on the western boundary, and a designation has been approved by Western Bay of Plenty District Council. The designation has subsequently been appealed by the neighbouring property owner on the basis of potential reverse sensitivity effects.

SH 2 is designated by NZTA for State Highway purposes. NZTA have recently completed intersection safety and capacity improvements to the Te Puna/Minden intersection through their Tauranga Northern Link (TNL) project. As acknowledged in the Integrated Transport Assessment (**Appendix G**), TNL was to commence construction in late 2018 with completion in 2022 but there is no indication of when TNL will be constructed currently.

In summary, the nature of the nearby land to the immediate south and east is mixed use / commercial in nature, with the Te Puna Village acting as a hub for the local area. The land located to the west and north of the site is land zoned for rural purposes, characterised by horticulture and low residential density.

7.2 Density

One of the purposes of the Plan Change is to enable further commercial development of the subject site. The proposed scheduled site (Te Puna Springs) and inclusion in the Commercial Zone will change the ability of the subject site to be subdivided.

As part of the site is within the Rural Zone and part of the site is within the Commercial Zone currently, this provides difficulty in developing the site in a comprehensive manner. As noted earlier, subdivision of land in the Rural Zone is generally a Discretionary Activity but as the applicant's site is under six hectares in size, subdivision under the Rural Production provisions would be a Non- Complying Activity. The Rural zone also applies a 30-metre front yard to buildings established on site and side yards can be reduced to 10 metres within certain circumstances as outlined in the District Plan.

The proposed density will be altered as under the Commercial Zone there is no minimum allotment size. The proposed site-specific provisions relating to Te Puna Springs would also provide allowance for 12m high buildings, however, in terms of setbacks, the site-specific provision would be in regards to the Area A where any sensitive activities within 30m of the boundary in Area A would be non-complying. This provides for the same setback from those rural activities than is provided for by the existing zoning.

It is acknowledged that the rezoning will see larger buildings and more activity over the site than what the current partial rural zoning allows for. In recognition of this, the proposed Structure Plan and associated rules will provide for a logical continuation of development that will integrate visually with existing Te Puna Village and the strategic road network.

It is not considered that the proposed zoning would result in a density that is out of character with the surrounding environment. As shown in the Structure Plan (in **Appendix C**), as the scheduled site has been developed in consultation with stakeholders, and includes elements such as a centrally located community hall, a village green and pond, and larger sized lots on the boundary of the subject site, it is considered that the proposed density would be able to be accommodated (with the suggested landscaping provisions). It is considered that the proposed density under the Commercial Zone, plus scheduled site provisions, are the most appropriate for the site.

7.3 Landscape and Visual Effects

The subject site is generally of flat contour (although it rises towards the west), compared to the other three of the 'four corners' which all feature various inclines. The elevated nature of SH 2 means that the subject site is visible to passing motorists, particularly those travelling west towards Katikati. There are no identified waterways on the site, but there is a small drain through the site which drains to a lower section of the site in the north-western corner.

The subject site is currently only partially used for the storage of 'Modcom Portable Buildings' in association with SuperMac Group's business operations. As previously mentioned, the site is bound by orchards to the north and west and commercial activities to the south and east.

While a loss of open character and outlook will occur, there is no good landscape reason why these aspects should be preserved in the context of the site. The extent and nature of rezoning is considered appropriate to its setting and is in accordance with the environmental results anticipated by the relevant policies and guidelines of the District Plan. The rules and Structure Plan will ensure development will be sympathetically integrated with its wider setting. Future development will assuredly display a level of amenity appropriate to its setting, albeit derived from commercial nature rather than rural.

The direct effects on landscape character will be the loss of rural character as well as a change in the level of the built environment to include commercial development. The visual effects of the site will be changed from the existing open spaces to the west of the subject site with storage facilities to the Te Puna Road side of the site into a comprehensively designed area where a community hall is located in the centre, and there are a mix of large modular buildings located on either side of a new proposed road to allow for each new lot on the outer edge of the subject site to have access to both SH 2 and Te Puna Road.

To mitigate the effects of the change in landscape it is proposed through the Structure Plan to provide shelter belts, landscape buffer strip, village green and pond. This will complement the centrally located community hall.

The benefit of the scheduled site provisions is that Council can ensure through the additions to Section 4C – Amenity that any subdivision or development of land within the Te Puna Springs will be designed, approved and developed in general accordance with the Structure Plan. The Applicant has also proposed that landscape plans be prepared in consultation with Pirirakau.

The character of the site is envisaged to be a commercial area of higher amenity values than currently experienced in the Te Puna Village, with the effects of the larger commercial buildings being mitigated through the level of landscaping proposed. Over time this vegetation will mature and add to the rural characteristics of the area. The scale of buildings will also be consistent with those of the adjacent Post Harvest zone.

A stormwater attenuation pond are proposed as part of the on-site stormwater management. These ponds will be planted with wetland species.

It is considered that the proposed development will integrate visually with the rural land uses to the north and west, whilst improving the commercial look of the existing Te Puna Village. The landscape character of the area will be enhanced through the landscaping of the site boundaries and the stormwater pond.

7.4 Transport Effects

It is proposed as per the Structure Plan to provide a new internal 'L shaped' privately owned road to provide access for the identified lots to both SH 2 and Te Puna Road.

Consultation with NZTA has been undertaken. It has been highlighted that when the roundabout was designed, NZTA had certain assumptions of the types of development that would occur on the subject site. It is considered that the proposed amendments to the District Plan will ensure that the development that will subsequently be permitted in the scheduled site would not be inconsistent with these assumptions (as there are no high volume, short term turnover activities accommodated for). As the proposed land uses to be included as part of the Plan Change are similar to those that were considered when the SH 2 roundabout was modelled, NZTA are comfortable that the roundabout is designed with adequate capacity.

In addition, it is considered appropriate for the rule for car parking to be located 10m back from street boundary to be omitted for the subject site as that rule is aiming to ensure that commercial centres with 'main streets' and is not necessary for a commercial area such as Te Puna Springs.

An indicative internal road layout is shown on the Structure Plan. All internal roads will be designed and constructed in accordance with the Code of Practice.

Attached as **Appendix G** is an Integrated Transport Assessment which outlines the transport effects associated with the Plan Change. In terms of traffic generation, the expected traffic generation has already been accounted for in the design of the Te Puna Road, Minden Road, SH 2 roundabout and associated roading improvements. It is considered that more than adequate room is available on the sites to accommodate expected parking, loading and manoeuvring. In addition, internal private roading and intersections with public road will be designed in accordance with Austroads and Safe System Principles. The Integrated Transport Assessment provided in **Appendix G** does recommend that construction of cycling facilities to link the Omokoroa to Bethlehem cycle path will need to be considered as the area develops and as the commercial area develops, Council will need to consider a permanent reduction in speed limit on SH 2 and Engineering and Safe System measures to urbanise Te Puna Road and Minden Road. The Plan Change Request can be supported from a transport and road safety perspective.

7.5 Infrastructure Effects

Aurecon were engaged to carry out an investigation of servicing networks to determine availability and capacity to accommodate the proposed rezoning. Attached as **Appendix E** is an Infrastructure Servicing Assessment describing the existing servicing networks in the vicinity of the site and outlining the proposed methods for servicing future development of the site under the proposed zoning regime. The following sections summarise the key findings of the Infrastructure Service Assessment.

7.5.1 Water Supply

There is an existing 200 mm diameter water main which fronts the subject site on Te Puna Road, and a 150 mm diameter water main which fronts the subject site along SH 2. Based upon the Western Bay of Plenty District Council Development Code, a peak hourly flow of 1.5 L/sec/ha is anticipated to be appropriate for the proposed development, therefore, an approximate supply demand of 12L/s is required. An indicative proposed reticulation layout to comply with NZS4404 is provided in Figure 12 of the Infrastructure Service Assessment in **Appendix E**. All lots would be serviced by a standard 150mm double ended principle main connection between the existing water mains on SH2 and Te Puna Road providing a peak demand of 12L/s. Standard 20mm lot connections would service each lot. The proposed commercial development is expected to be classified as a Fire Hazard Category 2 and Fire Water Classification 4. The indicative locations of fire

hydrants within the development are also shown in Figure 12 of the Infrastructure Service Assessment in **Appendix E**.

The Plan Change is not expected to have any significant constraints in regard to water supply.

7.5.2 Wastewater

The subject site is located within an area that is not currently serviced by council reticulated sewer infrastructure. Therefore, the wastewater will either need to be treated and disposed of using onsite effluent treatment systems (OSETs) or alternatively a new reticulated system connecting to the existing rising main in Omokoroa or conveying the wastewater to a new treatment plant or disposal field on nearby land.

During the community engagement undertaken to help understand Te Puna community aspirations and issues and opportunities for Te Puna Village (discussed in Section 3 of this Plan Change Report), it was clear that wastewater management was a key issue. It is understood that Western Bay of Plenty District Council have engaged with consultants to conduct an assessment of the wastewater servicing options and the report identified that the existing OSET systems for the current commercial businesses were undersized or not installed at all. At the time of writing, no plans have been confirmed for the proposed connection to the municipal reticulation. For the purposes of the Plan Change, the Infrastructure Servicing Assessment (provided in **Appendix E**) considered both on-site treatment and the connection to an offsite municipal treatment or connection to the existing Omokoroa rising mains.

Sewer connections from the planned development have been found to be achievable using options of either connection to the proposed new rising main on Te Puna Road which would convey the wastewater to an offsite treatment facility or existing council reticulation, or utilisation of On-site-effluent-treatment systems within each lot boundary. Reticulation to off-site treatment or existing Council network would require a pipeline location within the berm of Te Puna Road and both systems would require a pump station. Initial discussions with WBOPDC have, however, suggested that there are already capacity issues within the Omokoroa catchment and hence it is unlikely that the Te Puna commercial area will be able to connect directly into this existing infrastructure without other upgrades to the system being completed. In terms of OSET systems, Lots 2 and 3 may require more sophisticated treatment systems to accommodate the high occupancy, whereas the remainder of the Lots should only require typical on-site effluent treatment systems and disposal fields. There is expected to be sufficient space for a disposal field.

The Plan Change is not expected to have any significant constraints in regard to wastewater.

Through our workshopping with council staff, the preferred option is connection to reticulation. The applicant has held off lodging the plan change until there was certainty about the system provided.

7.5.3 Stormwater

The subject site sits within a catchment which may already have downstream issues with flooding and erosion and hence a relatively conservative approach to the stormwater management is required to meet the council guidelines.

The BOPRC stormwater management guidelines state that the post development flows should not exceed the 2yr, 10yr and 80% of the 100yr predevelopment rates. To meet these design criteria the existing attenuation pond sizing will need to be increased from the current 3100m³ to approximately 8300m³. There is provision for 7000m² of reserve/wetland located in the natural low point of the site so increasing the pond area is not expected to be an issue.

Some reshaping of the terrain within the site will be required to optimise the usable areas and create suitable building platforms. Most of the fill required will be used to infill the existing stormwater gullies with the existing pipes being extended within the fill to reach the new pond. It is expected that some imported fill will be required to complete the reshaping with approximately 25,000m³ of material to be moved onsite.

Flood levels during the 100yr ARI are expected to reach a peak of RL 14.24m so all building platforms will need to be set at a min of 14.54m to maintain a 300mm freeboard.

Stormwater on site will be collected by roadside catchpits and open swales which will divert the stormwater flow into the gravity pipe network. The gravity network will convey all stormwater into the two extended

detention ponds located either side of the main flow path for the greater catchment. From the extended detention ponds the stormwater will then be released at the controlled rate into the main attenuation pond located in line with the existing stream flow at the site of the existing pond which is the natural low point within the entire site.

The Plan Change is not expected to have any significant constraints in regard to stormwater.

7.5.4 Telephone

There is not expected to be any servicing constraints with connections to the nearby telephone network.

7.5.5 Power

There is not expected to be any servicing constraints with connections to the nearby Power and Fibre networks located in the road frontage on SH 2 and Te Puna Road.

7.6 Cultural Effects

There are no known sites of cultural or historical significance on or near the property in question. Consultation has been undertaken with Pirirakau and they have confirmed that they do not oppose the zone change but would require consultation on future commercial activities within the newly created commercial zone. Certain aspects of the Structure Plan have been accommodated due to views from Pirirakau, such as the naturalisation of the spring in the village green. Consultation will be ongoing throughout the Plan Change process, with the opportunity to respond to any particular concerns as they may arise.

7.7 Reverse Sensitivity

Reverse sensitivity describes the effect that development of one kind may have on activities already occurring in an area. The use of zoning in the District Plan is intended to provide land uses that are compatible within identified areas and avoid the indiscriminate mixing of incompatible land uses and developments, and the associated potential for reverse sensitivity effects to occur.

With regards to the subject site, there are two neighbouring orchards, one to the north (Okaro Orchard) and one to the west (648 State Highway 2 Orchard). As the prevailing wind is west to southwest, the greatest risk of spray drift comes from the orchard at 648 State Highway 2. Whilst there are very few recorded events where off-target spray dirt has caused any issues for neighbouring properties, the most significant issue is the anxiety experienced in relation to spray drift. Information is considered to be the best means of reducing this anxiety. However, the Applicant has decided that additional shelter belts are to be included in the Structure Plan in order to ensure that there is minimal risk of spray drift and has proposed a non-complying activity status for sensitive activity(ies) within Area A. Please refer to the Spray Drift Report in **Appendix H** for more detail.

It is considered that the combination of building setbacks, enhanced boundary shelter belts and plantings will adequately address any potential reverse sensitivity matters.

7.8 Economic Effects

Property Economics have provided a high-level economic overview of the implications of the Plan Change, which is provided in **Appendix D**.

The Economic Overview report estimates that the identified catchment of Te Puna's localised economic market has a population base of around 3,750 people, but this is forecasted to grow to 4,100 over the projection horizon to 2038. Due to Tauranga's high growth status, Property Economics considers it prudent to consider a high growth scenario for Te Puna too, which would bring the population base up to approximately 4,750 by 2038. In addition, the continual growth of SH 2 traffic means that the level of demand

for commercial activities and services in Te Puna is likely to grow over the foreseeable future, increasing the requirement for commercial land locally.

In terms of economic effects, the Economic Overview report considers that the activities provided for in the Plan Change would complement the existing commercial activity within the Te Puna Town Centre. As the land is unlikely to be used for rural purposes, it also creates a more economically efficient use of the site. The addition of the community meeting hall on the site will also create a sense of community for the area and the consolidated hub will be in line with community aspirations for the Te Puna Springs area.

It is considered that the proposed rezoning will provide economic benefits to Te Puna through the development of complementary activities to the existing provision in Te Puna Springs and will positively contribute to creating a consolidated and futureproofed commercial site in the Western Bay of Plenty.

7.9 Conclusion

The appended specialist's reports confirm that potential effects of the proposed Plan Change relating to transport, infrastructure and reverse sensitivity are able to be avoided, remedied or mitigated through the development of appropriate scheduled site rules in the District Plan and a Structure Plan together with the existing Commercial rules.

It is considered that the current zoning and use of the site is neither productive or efficient, and the sustainable management of resources would be better served through the proposed zoning. It is considered that the actual and potential effects associated with the proposed rezoning can be appropriately managed by the existing District Plan provisions and the additional provisions promoted through the Plan Change Request and through future Bay of Plenty resource consent processes.

Overall, it is considered that the site is suitable for the development of Commercial zoned land as provided by the Plan Change request, and that the environmental effects of such development will be no more than minor.

8 Section 32 Assessment

8.1 Section 32, RMA

This assessment has been prepared to fulfil the requirements of Section 32(1) of the RMA. The RMA requires Council to undertake a further evaluation under Section 32(2) before making a decision on a private plan change request under Clause 29(4) of the First Schedule to the RMA.

Section 32 sets out the manner in which any proposed objective, policy, rule or other method is to be evaluated. The parts of Section 32 of the RMA relevant to the present proposal are as follows:

- (3) ...
An evaluation must examine—
 - (a) *the extent to which each objective is the most appropriate way to achieve the purpose of this Act; and*
 - (b) *whether, having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives.*
- (4) ...
For the purposes of the examinations referred to in subsections (3) and (3A), an evaluation must take into account—
 - (a) *the benefits and costs of policies, rules, or other methods; and*
 - (b) *the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods.*
- ...

The key matter referred to in Section 32(3)(a) is that the Plan Change Request must be assessed in terms of whether it is the most appropriate way to achieve the purpose of the RMA. This matter, and other relevant assessment matters relating to efficiency and effectiveness (Section 32(3)(b)), benefits and costs (Section 32(4)(a)), and any potential risks arising from uncertain or insufficient information (Section 32(4)(b)), are addressed in the following sections.

'Effectiveness' means how successful a particular option is in achieving the desired environmental outcome as stated in the objectives.

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

The Plan Change Request does not alter any objectives or policies in the District Plan. Whilst it does add in new rules, this is specific to the Te Puna Springs and is considered necessary to establish the framework within which the effects of development can be appropriately managed. The following assessment therefore focuses on the extent to which the Te Puna Springs scheduled site under the Commercial Zone and its associated provisions is a more efficient and effective method for achieving the existing objectives of the District Plan, than the existing partial Rural, partial Commercial zoning. This assessment has been informed by an evaluation of the associated benefits and costs of the proposal.

At this stage, it should also be recognised that the Plan Change Request relates to activities that fall within the scope of Council's functions listed in Section 31 of the RMA. The parts of Section 31 relevant to the proposal are as follows:

- (1) *Every territorial authority shall have the following functions for the purpose of giving effect to this Act in its district:*
 - (a) *The establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district.*
 - (aa) *the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in respect of housing and business land to meet the expected demands of the district:*

The District Plan takes into account these functions, and the Plan Change Request makes changes that are consistent with these functions of the Council.

Section 32 as part of a Plan Change processes requires a robust analysis of policy options, in addition to consideration of costs and benefits, before coming to a decision on the preferred option. The Plan Change is requested due to the following matters:

- The current Rural zoning does not allow for future commercial use of the site which the applicant seeks to achieve;
- The proposed rezoning will foster the development of complementary activities to the existing Te Puna Springs commercial zone;
- The proposed rezoning will positively contribute to creating a consolidated, futureproofed commercial hub for the benefit of the community;
- The proposed rezoning will provide certainty of investment as well as assist in long term infrastructure planning;
- The applicant seeks to expand their business on site, and provide leased tenancies for other companies who wish to locate themselves in Te Puna, and would require a Resource Consent to do so;
- The site is not and will not be used in according with the existing Rural zoning in the future due a number of constraints, including but not limited to, land size which is uneconomic to be utilised for the purposes of traditional rural activities, and the inappropriate use of the site for residential purposes due to the proximity to established horticultural uses adjacent to the site.

8.2 Current District Plan Provisions

The Plan Change Request has been developed in a manner that is considered consistent with the issues, objectives policies and methods contained within the Western Bay of Plenty District Plan. The following discussions focuses on those objectives and policies of most relevance to the Plan Change Request, which are those found in the following chapters:

- Section 3 – Definitions;
- Section 4C – Amenity;
- Section 18 – Rural;
- Section 19 – Commercial.

The proposal involves rezoning the subject site to Commercial Zone, and to also add a scheduled site allocation (“Te Puna Springs”). This approach is similar in style to other Western Bay of Plenty plan changes, where certain Structure Plans have been introduced and additional rules are added in relation to those Structure Plans (e.g. for Rangioru Business Park and Comvita Campus).

It is not proposed to amend any of the objectives or policies of the District Plan, as it is considered that the proposal is consistent with this overriding framework and can fit within the Commercial Zone. Table 1 below demonstrates the consistency with the relevant objective and policies.

Table 1: Policy Assessment with Operative District Plan

Objective / Policy	Consistency of the Plan Change
Objective 19.2.1.1: Consolidated commercial centres that are vibrant commercial environments that encourage social and cultural interaction	The Plan Change would consolidate this north-west corner of the Te Puna Village and encourage social and cultural interaction, particularly with the centrally located community hall and the landscaping proposed.

Objective / Policy	Consistency of the Plan Change
Objective 19.2.1.2: Well designed commercial centres which reflect accepted urban design principles	The Plan Change would incorporate urban design principles into Te Puna Village, which was noted during consultation as something would could be improved on with a comprehensive plan for the subject site.
Objective 19.2.1.3: Convenient and safe commercial centres	<p>The Plan Change would improve upon the current offering of the Te Puna Village and the proposed traffic and landscaping changes would improve the safety.</p> <p>As stated in the Integrated Transport Assessment provided in Appendix G, Te Puna Road access will be designed in accordance with AUSTRROADS to accommodate the expected design vehicles, details of which will be confirmed and submitted to WBoPDC for approval prior to construction. It is intended that the design of this intersection will incorporate safe system measures to complement the expected future reduction in speed limit on Te Puna Road.</p>
Objective 19.2.1.4: Commercial development of a scale that is appropriate for the location	The Plan Change is considered to increase commercial development on the subject site, but it is of an appropriate scale.
Objective 19.2.1.5: Public, civic and private space that relate well to each other	The Plan Change incorporates public spaces (such as the pond and village green) in a comprehensive manner, alongside the civic offering of the community hall and the private space of the commercial uses. It is considered that the mix of public, civic and private space relates well to each other.
Objective 19.2.1.6: Commercial centres that have a high level of amenity	The Plan Change would improve upon the current level of amenity at the subject site, and create a more attractive and mixed-use environment through the variety of features in the Structure Plan.
Objective 19.2.1.7: Commercial Zones in which commercial activities can operate effectively and efficiently, without undue restraint from non-commercial uses which may require higher amenity values	The Plan Change would ensure that the subject site, which has commercial uses on part of the site and is located adjacent to the Rural Zone (and orchards with concern about reverse sensitivity) would be used for commercial activities without undue restraint from non-commercial uses.
Objective 19.2.1.9: An efficient network of road, cycle and pedestrian linkages connecting the District's commercial centres to surrounding	The Plan Change would ensure that the network of road, cycle and pedestrian linkages connecting the commercial area of Te Puna Springs to the surrounding area continues to operate efficiently. As recognised in the Integrated Transport Assessment provided in Appendix G , the expected traffic generation has already been accounted for in the design of the Te Puna Road, Minden Road, SH 2 roundabout and associated roading improvements. There is more than adequate room available to accommodate the expected parking loading and manoeuvring. Internal private roading and intersections with public road will be designed in accordance with Austroads and Safe System Principles. A pedestrian facility is provided across SH 2 near the bus stops. The Integrated Transport Assessment does acknowledge the need to incorporate more crossing facilities for pedestrians and cycling facilities as the area develops.

Objective / Policy	Consistency of the Plan Change
<p>Objective 19.2.1.10: The development of commercial centres and associated transportation networks that enhance social, economic and cultural activity through attention to design detail and the integration of the public, civic and private places nearby and therein.</p>	<p>The Plan Change would provide for the development of Te Puna Village that would enhance the social, economic and cultural activity through the mix of activities which would be promoted and to ensure that development was progressed in a comprehensive manner. As recognised in the Economic Overview report (provided in Appendix D), the land is in a competitive and economically efficient location to extent the Te Puna commercial area while maintaining a consolidated commercial hub, as well as aligning with community aspirations for the future of the commercial area.</p>
<p>Policy 19.2.2.1: Provide for the comprehensive development of commercial areas, including the redevelopment of multiple commercial sites by:</p> <ul style="list-style-type: none"> (a) Encouraging the aggregation of land titles in accordance with the relevant town centre plan. (b) Providing incentives (such as a reduction in the required number of onsite car parks) to off-set the acquisition of land required to achieve relevant town centre plan design outcomes. 	<p>The Plan Change would be consistent with the intent of this policy. The aggregation of land titles on the subject site has resulted in a change of Zoning within the aggregated land titles owned by the Applicant. Therefore, the Plan Change would allow for the logical allowance to provide for comprehensive development of the subject site.</p> <p>As recognised in the Economic Overview report (provided in Appendix D), the Plan Change would provide a certainty of investment as well as assisting in long term infrastructure planning for Te Puna.</p>
<p>Policy 19.2.2.3: Limit the establishment of commercial activities in non-commercial zones.</p>	<p>The Plan Change would ensure that commercial activities would be located in a site that is intended for commercial uses. The subject site is partially zoned for Commercial and partially zoned for Rural, which would mean that the alternative of applying for piecemeal resource consents for commercial activities in the Rural zoned part of the land would be inconsistent with this policy.</p> <p>As recognised in the Economic Overview report (provided in Appendix D), Property Economics do not consider that the rezoning necessarily represents a 'loss' of rural land as it is highly unlikely to transfer back to that use as the land has not been utilised for rural activities for a number of years and it is likely to be too small in scale to have the ability to sustain a rural productive unit. The Plan Change, therefore, is more in line with an efficient use of the site as the increase in commercial land provides the flexibility for the centre to grow as market demand grows.</p>
<p>Policy 19.2.2.4: Ensure buildings /structures in Commercial Zones:</p> <ul style="list-style-type: none"> (a) Provide sufficient shelter for pedestrians so as to protect them from the natural elements. (b) Do not compromise pedestrian access unless the characteristics of the locality of the site or the site itself are such that verandas or other forms of pedestrian shelter are not required. (c) Support the development of areas that encourage social interaction. 	<p>The Plan Change would support the progression of the subject site towards a more active 'hub' in the Te Puna Village. With the central location of the new community hall, and the village green, whilst the area would be more actively used by the commercial uses, it would also encourage social interaction for the wider community.</p> <p>A footpath has been constructed on the SH 2 frontage of the Motel and accommodation with a central refuge in the SH 2 median island on the western side of the roundabout. The path extends to the bus stop and shelter.</p> <p>The Integrated Transport Assessment (provided in Appendix G) does acknowledge the need to incorporate crossing facilities for pedestrians to cross either Minden Road or Te Puna Road from west to east as Te Puna Springs develops and expands. It is considered that sufficient shelter and pedestrian access to buildings/structures within Te Puna Springs can be incorporated during the resource consent process.</p>

Objective / Policy	Consistency of the Plan Change
<p>Policy 19.2.2.8: Prevent non-commercial activities that conflict with or detract from the integrity of the Commercial Zone</p>	<p>The Plan Change would ensure that commercial activities would be located in a site that is intended for commercial uses. The subject site is partially zoned for Commercial and partially zoned for Rural, which would mean that the alternative of applying for piecemeal resource consents for commercial activities in the Rural zoned part of the land would be inconsistent with this policy.</p> <p>As recognised in the Economic Overview report (provided in Appendix D), Property Economics do not consider that the rezoning necessarily represents a 'loss' of rural land as it is highly unlikely to transfer back to that use as the land has not been utilised for rural activities for a number of years and it is likely to be too small in scale to have the ability to sustain a rural productive unit. The proposed rezoning would foster the development of complementary activities to the existing provision in the Te Puna commercial zone. Property Economics considered that the rezoning has no meaningful potential to adversely affect the role, function, vitality and viability of the Te Puna area.</p>
<p>Policy 19.2.2.11: Apply height limits that are appropriate for the location of the Commercial Zone especially in relation to smaller communities such as Maketu, Pukehina and Paengaroa where large commercial buildings /structures could detract from the amenity of the area.</p>	<p>The Plan Change would apply a new height limit that is appropriate for a scheduled Commercial site. Whilst the commercial buildings/structures would be large scale, it is considered that the larger lot sizes and the other features of the Structure Plan would ensure that these buildings/structures would not detract from the amenity of the area which is already characterised by taller buildings such as those on the eastern side of Te Puna Road in the Post Harvest Zone.</p>
<p>Policy 19.2.2.12: Promote pedestrian and cycle accessibility by controlling the location and design of accessways.</p>	<p>The Plan Change would promote pedestrian and cycle accessibility by controlling the location and design of accessways. As detailed in the Integrated Transport Assessment (provided in Appendix G), the proposed slip lane access at SH 2 provides for left in and left out onto SH 2. The private road access will provide for all movements although left turn exiting and right turn entering the private road are expected to be low volume as drivers will not arrive or depart this way unless needing to use the Four Square or BP Service Station etc.</p> <p>The intersection will be designed to accommodate the required vehicle swept paths to avoid any potential for turning conflicts. There is currently a 30km/h temporary speed limit in this area which is anticipated to be made permanent in the near future.</p> <p>Internal private roading and intersections with public road will be designed in accordance with Austroads and Safe System Principles. A pedestrian facility is provided across SH 2 near the bus stops. The Integrated Transport Assessment does acknowledge the need to incorporate more crossing facilities for pedestrians and cycling facilities as the area develops.</p>
<p>Policy 19.2.2.14: Ensure that development in Commercial Zones is designed and constructed to be consistent with the New Zealand Urban Design Protocol and National Guidelines for Crime Prevention through Environmental Design.</p>	<p>The Plan Change would ensure that development progresses in line with urban design principles and will consider the safety of the local community in its design.</p>

The changes proposed to the definitions and rules are limited to those necessary to ensure that the Plan Change makes specific provision for the activities included within the Structure Plan, whilst ensuring that certain rules are set in order to ensure environmental effects can be managed.

It is useful to consider the objectives and policies for the Rural Zones (Section 18) in order to understand the status quo, as the subject site is currently split between being zoned Rural and Commercial. The status quo means that under the current District Plan, the land owned by the Applicant has very different objectives and

policies. In comparison to the above objectives and policies for the Commercial Zone, the Rural Zone seeks to maintain and enable rural production of the Rural Zones ((Objective 18.2.1.1) and Policies 18.2.2.1 to 18.2.2.5)), to maintain, amongst other matters, the rural setting of urban areas (Objective 18.2.1.5 and Policy 18.2.1.11).

The status quo seeks to provide for these desired outcomes through a 40ha minimum subdivision, and bulk and location standards relative to the retention of rural character.

Since the time the above policy framework was formulated, Te Puna has grown through the increased population from the level of rural subdivision occurring. The local community values the current offering of Te Puna Village and the various stakeholders who occupy land within the existing Commercial Zone are looking to grow.

8.3 Plan Change Consistency with S74-75 RMA

Sections 74 and 75 of the RMA require an analysis of the Plan Change Request in the context of giving effect to, and being consistent with, Part 2 and relevant regional planning documents. Section 6 of this report contains an assessment against the purpose and principles set out in Part 2. What follows is consideration of the Plan Change Request in terms of the relevant national and regional planning documents.

8.3.1 National Policy Statement on Urban Development 2020 (NPS-UD)

The NPS-UD came into effect on 20 August 2020. This replaced the NPS-UDC.

The objectives of the NPS-UD seek to achieve the following:

- a) Well-functioning urban environment that enable people to provide for their social, economic and cultural well-being, and for their health and safety, now and into the future;
- b) Planning decisions that improve housing affordability;
- c) Enable more people to live in areas of an urban environment that are near centres, employment, well served by public transport or there is a high demand for housing;
- d) Recognition that urban environments and amenity values change overtime;
- e) Planning decisions take into the principles of the Treaty of Waitangi;
- f) Decisions on urban development are integrated with infrastructure and planning decisions, strategic over the medium and long term, and responsive;
- g) Local authorities have robust and up to date information about their urban environments and use it to inform planning decisions;
- h) Urban environments support reductions in greenhouse gases and are resilient to the effects of
- i) climate change

The NPS-UD identifies Western Bay of Plenty District Council as a Tier 1 local authority.

Objective 1 seeks well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future.

Objective 3 seeks for district plans to enable more people to live in, and more businesses and community services to be located in, areas of an urban environment in which one or more of the following apply:

- (a) the area is in or near a centre zone or other areas with many employment opportunities;
- (b) the area is well-serviced by existing or planned public transport;
- (c) there is high demand for housing or for business land in the area, relative to other areas within the urban environment.

Objective 4 seeks for urban environments, including their amenity values to develop and change over time in response to diverse and changing needs of people and communities.

Objective 5 requires planning decisions to take into account the principles of the Treaty of Waitangi.

Objective 6 seeks for local authority decisions on urban development to be integrated with infrastructure planning and funding decisions, strategic over the medium term and long term and responsive.

Policy 1 seeks that planning decisions contribute to well-functioning urban environments; which are urban environments that as a minimum:

- (b) have or enable a variety of sites that are suitable for different business sectors in terms of location and site size;
- (c) have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport

Policy 2 requires Tier 1 local authorities to provide at least sufficient development capacity to meet expected demand for business land over the short term, medium term, and long term.

Policy 9 requires local authorities to involve hapū and iwi in the preparation of RMA planning documents and any FDSs by undertaking meaningful and early consultation.

The SmartGrowth Housing and Business Development Capacity Assessment 2017 recognised that there was high growth in employment projected for the sub-region in the short term, with Western Bay of Plenty employment to grow by 33.1% by 2050. This Assessment Report also recognised that in the Western Bay of Plenty District all of the four urban growth area townships have substantial provision for commercial zones. However, while development capacity is well catered for across the sub-region, the Assessment Report does recognise that *“there will be emerging pressure on some smaller neighbourhood centres, especially if increasing demand for services results from higher densities of residential activity and higher proportions of older residents in these areas”*. The SmartGrowth Development Trends Technical Report 2018 recognised that commercial building consents were very slow in Western Bay of Plenty District.

The Plan Change is considered to support Tauranga in becoming a well-functioning urban environment, providing people and communities the ability to enhance their social, economic and cultural wellbeing into the future. The Plan Change will assist in the provision on efficient use of land, and additional provision of business land to the Te Puna Village. This will support businesses which are in close proximity to the existing Commercial Zone, and enable the urban environment to develop and change as the area grows. Whilst there is the Te Puna Business Park located in Te Puna, it is considered that the commercial offering provided by the activities promoted in this Plan Change are different from the industrial supply of land through the Te Puna Business Park. The findings made by Property Economics in the Economics Overview report (provided in **Appendix D**) confirm that as consider that the site is in a better location to facilitate commercial, community and light industrial growth than other vacant land in Te Puna, as well as the business park zoning to the north.

In preparation of the Plan Change, engagement has been undertaken with iwi, see section 9 for further details. It is considered that the principles of the Treaty of Waitangi have been taken into account in the preparation of this Plan Change.

The Plan Change is also able to achieve suitable servicing infrastructure. Although wastewater is an issue for the area, it has been found that sewer connections using either connection to the proposed new rising main on Te Puna Road which would convey the wastewater to an offsite treatment facility or existing council reticulation or utilisation of OSET systems within each lot boundary. Regarding Objective 6, it is also recognised that whilst the servicing assessment did not rely on the investment of a council funded network reticulation scheme, that Western Bay of Plenty District Council has subsequently committed to a scheme which is estimated to commence in 2021. An information sheet on this process is provided in **Appendix I**. As stated in section 7.5.2, the preferred option is connection to this reticulation system.

8.3.2 Bay of Plenty Regional Policy Statement (RPS)

The RPS became operative in 2014 (last amended in December 2018). It sets the framework for resource management in Bay of Plenty, providing an overview of the significant resource management issues facing

the region, and setting out objectives, policies and methods to address the region’s resource management issues. The goal of the RPS is the integrated management of the region’s natural and physical resources.

The Plan Change Request is considered to be consistent with the provisions of the RPS. It is acknowledged that while the RPS identifies growth areas, Te Puna is not included.

Table 2 below demonstrates the consistency with the relevant policies.

Table 2: Policy Assessment with Bay of Plenty RPS

Policy	Consistency of the Plan Change
Policy AQ 1A actively discourages locating new sensitive activities near activities that discharge offensive and objectionable odours, chemical emissions or particulates	The Plan Change is proposing larger separation distances between buildings/structures and the adjoining orchards, in addition to a rule requiring resource consent if a new sensitive activity were proposed in the Commercial Zone. It is therefore considered that the Plan Change is consistent with this policy.
Policy IR 3B aims to adopt an integrated approach to resource management	The Plan Change involves an integrated approach to redeveloping the subject site, and the Structure Plan proposed has been developed through a consultation process. It is considered the Plan Change has adopted an integrated approach to resource management.
Policy IR 4B encourages using consultation in the identification and resolution of resource management issues	The Plan Change has referred to the consultation process led by Western Bay of Plenty in order to inform the Structure Plan and the proposed additions to the District Plan rules.
Policy IW 2B recognises matters of significance to Māori	The Applicant has consulted with Pirirakau in relation to the Structure Plan. It is considered that the Plan Change has recognised matters of significance to Māori.
Policy MN 4B encourages ecological restoration and rehabilitation	<p>The Plan Change incorporates landscape mitigation through the Structure Plan to provide shelter belts, landscape buffer strip, village green and pond.</p> <p>The character of the site is envisaged to be a commercial area of higher amenity values than currently experienced in the Te Puna Village, with the effects of the larger commercial buildings being mitigated through the level of landscaping proposed. Over time this vegetation will mature and add to the rural characteristics of the area.</p> <p>A stormwater attenuation pond are proposed as part of the on-site stormwater management. These ponds will be planted with wetland species. In addition, it is proposed that a spring located south of the Village green will be naturalised and will be piped into the village green area.</p> <p>It is considered that these landscape mitigation measures will encourage ecological restoration and rehabilitation.</p>
<p>Policy UG 7A provides for the expansion of existing business land outside the urban limits shown in Appendix E, only if the proposal will:</p> <ul style="list-style-type: none"> (a) For the expansion of existing zoned business land, not be able to be accommodated within existing business zoned land in the western Bay of Plenty sub-region; (b) Be contiguous with the site of an existing business activity or existing zoned business land; 	<p>Although the Plan Change would expand the existing zoned business land, the aim of the extension is for the local needs of Te Puna. The aim is not to increase supply in order to accommodate demand within the greater western Bay of Plenty sub-region.</p> <p>The subject site is not only contiguous with the site of an existing business activity or existing business land, but it is partly within a business zoned land.</p> <p>The Plan Change does not require new connections to urban water supply distribution, stormwater or wastewater infrastructure located within the urban limits, as stormwater can be managed on site, there is a nearby water main and sewer connections can be achieved</p>

Policy	Consistency of the Plan Change
<ul style="list-style-type: none"> (c) Not require new connections to urban water supply distribution, stormwater or wastewater infrastructure located within the urban limits; (d) Avoid, remedy or mitigate effects on rural production activities; (e) Not compromise access to identified regionally significant aggregate and other mineral resources; and (f) Not adversely affect existing, consented, designated or programmed regionally significant network utilities and infrastructure. 	<p>through either new pipes to reticulated treatment facilities or OSET systems.</p> <p>The Plan Change has sub areas and site specific rules proposed in order to avoid reverse sensitivity effects on the existing orchards located north and west of the subject site.</p> <p>The Plan Change does not compromise access to identified regionally significant aggregate, or adversely affects any regionally significant network utilities and infrastructure.</p>
<p>Policy UG 8B implements high quality urban design principles, with Appendix B including principles of high quality urban design</p>	<p>The Plan Change proposes implementing high quality urban design principles, with development to be progressed in line with the Structure Plan.</p>
<p>Policy UG 9B aims to ensure coordination or new urban development with infrastructure</p>	<p>The Plan Change is considered to be an efficient addition of commercial land to the existing Te Puna Springs commercial zoned area. The Integrated Transport Assessment (provided in Appendix G) confirms that the expected traffic generation has already been taken into account for in the design of the Te Puna Road, Minden Road, SH 2 roundabout and associated roading improvements. The Infrastructure Servicing Assessment (provided in Appendix E) also concludes that the Plan Change is not reliant on the proposed connection to the municipal reticulation, although it would be beneficial for the Te Puna area.</p>
<p>Policy UG 10B requires rezoning for urban development of land to take into account sustainable rates of land uptake, existing or committed public and private sector investments, sustainable provision and funding of existing and future infrastructure and efficient use of local authority and central government financial resources</p>	<p>The Plan Change considers sustainable rates of land uptake. The Economics Overview (provided in Appendix D) demonstrates that there is growing potential in the market for commercial expansion as the population and traffic in the core economic catchment increases. The increase in commercial land therefore provides flexibility for the centre to grow as the market demand grows which is important as at present there is limited, if any, vacant development capacity and growth potential within the Te Puna commercial zone.</p> <p>As stated above in relation to Policy UG 9B, the Plan Change is not reliant on the potential commitment for the proposed connection to the municipal reticulation.</p>
<p>Policy UG 12B provides for quality open spaces</p>	<p>The Plan Change proposes a variety of landscaping, including shelter belts, landscape buffer strip, village green (with naturalised spring) and pond (with planting on the edges). It is considered that the Plan Change provides for quality open spaces.</p>
<p>Policy UG 13B promotes the integration of land-use and transport activities</p>	<p>The Plan Change proposes similar land use activities to that used by NZTA in their assumptions made for the intersection modelling for the roundabout at SH 2, Minden Road, Te Puna Road and the associated upgrades. The expected traffic generation has therefore already been accounted for in the design of the area.</p> <p>As stated in the Integrated Transport Assessment provided in Appendix G, the Plan Change can be supported from a transport and road safety perspective. Internal private roading and intersections with public road will be designed in accordance with</p>

Policy	Consistency of the Plan Change
	Austroads and Safe System Principles. A pedestrian facility is provided across SH 2 near the bus stops. The Integrated Transport Assessment does acknowledge the need to incorporate more crossing facilities for pedestrians and cycling facilities as the area develops.
Policy UG 20B requires that development of rural areas does not compromise or result in reverse sensitivity effects on rural production activities and the operation of infrastructure	The Plan Change is proposing larger separation distances between buildings/structures and the adjoining orchards, in addition to a rule requiring resource consent if a new sensitive activity were proposed in the Commercial Zone.
Policy UG 23B provides for the operation and growth of rural production activities	The Plan Change will in effect remove the partial Rural zoning from the site, however, it is not used and is not likely to be used for rural production activities given the size of the allotment and potential reverse sensitivity issues in the establishment of further horticulture uses on the site. This is supported by the Economic Overview report prepared by Property Economics (and provided in Appendix D).
Policy NH 11B incorporates the effects of climate change in natural hazard risk assessment. It seeks to ensure a consistent approach to identifying and assessing coastal hazards, which aligns with the most recent and internationally accepted scientific knowledge on climate change risk. This policy and Policy IR 2B set out minimum values for climate change projections to be taken into account when assessing natural hazards and identifying the types of natural hazards likely to be exacerbated by climate change	<p>The Plan Change has considered the potential flooding issues which are likely to be exacerbated by climate change and incorporated it into the stormwater solution. As the development sits within a catchment which may already have downstream issues with flooding and erosion, a relatively conservative approach to the stormwater management is required to meet the council guidelines.</p> <p>The BOPRC stormwater management guidelines state that the post development flows should not exceed the 2yr, 10yr and 80% of the 100yr predevelopment rates. To meet these design criteria the existing attenuation pond sizing will need to be increased from the current 3,100m³ to approximately 8,300m³. There is provision for a 7,000m² of reserve/wetland located in the natural low point of the site so increasing the pond area is not expected to be an issue.</p>
<p>Policy IR 2B recognises and provide for the predicted effects of climate change having particular regard to:</p> <p>(a) Predicted increase in rainfall intensity, taking account of the most recent national guidance and assuming a minimum increase in the annual mean temperature of 2 degrees C by 2090 (relative to 1990 levels); and</p> <p>(b) Predicted increase in sea level, taking into account the most recent national guidance and the minimum sea-level rise projections in Policy NH 11B.</p>	The Plan Change has considered the potential flooding issues which are likely to be exacerbated by climate change and incorporated it into the stormwater solution.

8.3.3 Bay of Plenty Regional Natural Resources Plan

The Operative Regional Natural Resources Plan (formerly the Bay of Plenty Regional Water and Land Plan) became operative in December 2008.

The provisions of the RNRP have been reviewed through the preparation of this Plan Change Request. An application for resource consent associated with the treatment and discharge of stormwater will be required at the time of development, providing the appropriate opportunity for environmental effects to be duly considered and mitigation measures identified. Furthermore, future development of the site is able to be serviced by reticulated wastewater treatment disposal or OSET systems, and water supply systems.

For the reasons contained in the Infrastructure Servicing Assessment (**Appendix E**), it is considered that the proposal gives effect to the provisions of the RNRP.

8.3.4 Bay of Plenty Regional Land Transport Plan

The Bay of Plenty Regional Land Transport Plan sets the strategic direction for land transport within the Bay of Plenty region over a 10-year period (2018-2028).

The Bay of Plenty's response to the transport challenges they face is an Optimised Transport System.

For the reasons contained in the Integrated Transport Assessment (**Appendix G**), it is considered that the proposal is consistent with the strategic direction of the Bay of Plenty Regional Land Transport Plan.

8.3.5 Proposed SmartGrowth Future Development Strategy (FDS)

A future development strategy is required by the NPS-UD 2020. This is the continuation of the work that SmartGrowth has been doing since the launch of the first SmartGrowth Strategy in 2004.

The FDS outlines how the partnership will provide for sufficient development capacity to meet demand for the next 30 years. The FDS is aligned with the TUS which sets out Council's strategic direction for responding to growth through a future spatial urban form that will provide for future growth.

The FDS was publicly consulted on in 2018 and considered growth characteristics over the next 30 years for the land area from Waihi Beach to Pukehina, with particular focus on growth in and around Tauranga City.

The FDS identifies the following issues:

- a) Aligned growth and infrastructure;
- b) Dealing with uncertainty;
- c) Growth funding;
- d) The impacts of growth;
- e) Housing affordability;
- f) Changing demographics;
- g) Development trade-offs.

The Proposed SmartGrowth Future Development Strategy aims to drive discussion and decision-making around expected population growth in the western Bay of Plenty. A Future Development Strategy is required by the Government for high growth areas such as the western Bay of Plenty sub-region, and requires alignment between the National Policy Statement on Urban Development Capacity 2016 and other land use and infrastructure policy.

The Bay of Plenty is identified as being in a transition phase between previous policy frameworks and moving forward on an emerging direction.

The SmartGrowth proposed desired outcomes include outcomes such as: growing a sustainable economy, creating an integrated planning and settlement pattern, building communities, sustaining and improving the environment. Urban growth is planned to be provided for in two ways: Compact City and New Growth Areas.

The Future Development Strategy acknowledges that the delivery of sufficient infrastructure is in "catch up" mode but promotes being ready for change, with the emerging technologies in transport, the way we work and the way we build our homes and places of business.

The Draft Future Development Strategy raises the question as to whether Te Puna should be considered for urban development in the long term (20-30 years). The importance of the kiwifruit industry to the wider Bay of Plenty regional economy is also acknowledged. Whilst Te Puna is not currently in a New Growth Area, it is considered that the Plan Change is consistent with the direction of the Proposed SmartGrowth Future Development Strategy as it is working towards the desired outcomes of growing a sustainable economy and creating an integrated planning and settlement pattern, with improvements made to the commercial environment.

8.3.6 Pirirakau Hapū Management Plan

The Pirirakau Hapū Management Plan was formally adopted in June 2017. The Pirirakau Hapū Management Plan contains information to give direction to Pirirakau leadership and management and for any party who needs to consult or engage with matters relevant to Pirirakau hapū and their rohe tribal area.

The Pirirakau Hapū Management Plan states that Pirirakau rohe is dominated by several important landscapes and waterscapes, including Te Puna. They seek to ensure that they are in participation of all engagement which protects the Rural characteristic of Te Puna and prevention of urbanisation, with an intent to ensure horticulture and agriculture opportunities will continue. The Pirirakau Hapū Management Plan also clarifies that Pirirakau seek mitigation of projects to restore and create wetlands and that Pirirakau do not support connections to the Omokoroa Wastewater pipeline unless mitigation of environmental effects is required. They also propose to influence the Te Puna Community Development Plan.

The pre-application consultation undertaken included Pirirakau, and the Applicant will continue this consultation throughout the Plan Change process. It has been suggested through the proposed amendments to the District Plan that the resultant landscaping plan is prepared with consultation to Pirirakau.

8.4 Alternatives Considered

Section 32 of the Act sets out a methodology for assessing changes to plans, with a focus on alternatives, benefits, and costs. In considering alternative methods it is necessary to consider different planning methods to achieve the purpose of the RMA, including retaining the status quo.

In terms of non-regulatory methods (including research and information, education, rates relief and levying charges), it is considered that none were appropriate in terms of achieving the objectives of the Plan Change, particularly due to the current situation on the subject site with two different zones applying. Non-regulatory methods therefore would not overcome the existing regulatory provisions of the District Plan and avoid the need for resource consent. In the interest of sustainable management, adopting the zoning technique is considered the most effective and efficient method available.

Four options have been considered in preparing this Plan Change Request:

1. Status Quo, i.e. retain existing part-Rural and part-Commercial Zone;
2. Development by Resource Consent;
3. District Plan Review;
4. Private Plan Change to rezone the site to Commercial Zone (with a scheduled site)

The following is an assessment of the alternatives considered for the purpose of this Plan Change.

Alternative	Costs	Benefits
Status Quo	<p><u>Environmental</u></p> <p>The site will continue to be utilised in an ad hoc manner, and not in keeping with the expectations of the Rural Zone in terms of wide open spaces, or for horticultural purposes.</p> <p>Potential reverse sensitivity issues associated with permitted rural productive operations.</p> <p>Does not deliver the village green, spring and other public amenities.</p> <p>Access to commercial services centres is reliant on private vehicle use and travel to Bethlehem.</p>	<p><u>Environmental</u></p> <p>No loss of rurally zoned land.</p> <p>Limited traffic movements.</p> <p>Limited impact on existing infrastructure.</p> <p>Potential amenity effects from ad hoc development.</p> <p><u>Economic</u></p> <p>There are no economic benefits in retaining the site as is as the Applicant is unlikely to utilise the site for the purposes it is zoned. It is not anticipated that employment for the rural use of the land will occur.</p>

	<p><u>Economic</u></p> <p>The economic cost of the status quo that the land will continue to be used inefficiently. The site is not and will not be used in accordance with the existing Rural zoning in the future. This is due to several constraints, including but not limited to, land size which is uneconomic to be utilised for the purposes of traditional rural activities, and the inappropriate use of the site for residential purposes due to the proximity to established horticultural uses adjacent to the site.</p> <p>Does not deliver local commercial employment opportunities for the Te Puna community.</p> <p><u>Social</u></p> <p>There are no social costs identified.</p> <p><u>Cultural</u></p> <p>There are no cultural costs identified.</p>	<p><u>Social</u></p> <p>There are no social benefits identified.</p> <p><u>Cultural</u></p> <p>There are no cultural benefits identified.</p>
<p>Lodge Resource Consents on an individual basis</p>	<p><u>Environmental</u></p> <p>Loss of rurally zoned land.</p> <p>Potential for reverse sensitivity effects to not be properly considered on a consent by consent basis (particularly in regard to the nearby orchards).</p> <p>There is also the potential that indirectly there could be environmental costs following on from a successful resource consent application for similar land use activities in the Rural Zone (with others challenging the integrity of the current zoning framework). This could result in a loss of rural productive land and/or rural character over time.</p> <p>Ad hoc development with a lack of integrated planning.</p> <p><u>Economic</u></p> <p>A single resource consent application for a comprehensive development, or a series of resource consent applications would be required that would result in an inefficient use of resources. There is a high risk of consents being declined by Council, and there may be difficulty in obtaining and retaining potential tenants during this period to ensure the economic viability. There will be higher consent costs due to additional reporting required, and due to the nature of land use consents and conditions, if Council choose to grant the consents, over time the applicant may need to amend those to cater for future different tenants,</p>	<p><u>Environmental</u></p> <p>There are no environmental benefits identified in proceeding with resource consent(s).</p> <p><u>Economic</u></p> <p>A number of existing or new commercial activities can be relocated or established on site leading to greater employment opportunities for the Te Puna and wider areas.</p> <p><u>Social</u></p> <p>There are no social benefits identified.</p> <p><u>Cultural</u></p> <p>There are no cultural benefits identified.</p>

	<p>building designs or uses – all of which incur additional costs.</p> <p><u>Social</u></p> <p>Potential for resource consents to be non-notified or limited notified and avoid/limit the amount of consultation on the individual proposals.</p> <p><u>Cultural</u></p> <p>There are no cultural costs identified.</p>	
<p>Pursue rezoning through a District Plan Review</p>	<p><u>Environmental</u></p> <p>Loss of rurally zoned land.</p> <p><u>Economic</u></p> <p>The next District Plan review is approximately 7 years away. Therefore, this alternative includes additional holding costs and lost opportunity costs of being unable to develop the land for at least 7 years (at the earliest).</p> <p>The economic costs involved in the loss of rural land are low. The rural land holding is uneconomic for the purposes of traditional rural use given the size of the allotment, the existing activities on site and potential reverse sensitivity issues in the establishment of further horticulture uses on the site.</p> <p><u>Social</u></p> <p>There are no social costs identified.</p> <p><u>Cultural</u></p> <p>There are no cultural costs identified.</p>	<p><u>Environmental</u></p> <p>Better controls around the use of the land and management of environmental effects through site specific rules (e.g. visual and landscape controls).</p> <p>The development of the site can ensure no reverse sensitivity effects on the existing horticultural sites adjacent.</p> <p>Reduces reliance of the local community having to travel to commercial areas in Tauranga.</p> <p><u>Economic</u></p> <p>A number of existing or new commercial activities can be relocated or established on site leading to greater employment opportunities for the Te Puna and wider areas.</p> <p>Provides local employment opportunities.</p> <p><u>Social</u></p> <p>Allows local residents to 'live, work and play' in accordance with SmartGrowth policies through the extension of the existing commercial zone.</p> <p>Facilitate the creation of a more active 'hub' for the community for activities that are currently occurring out of zone in rural locations, particularly with the community hall and village green and the creation of the spring forming a part of the Structure Plan.</p> <p><u>Cultural</u></p> <p>Engagement with Pirirakau to take into account their views and relationship with the site.</p> <p>Benefits relating to additions such as providing access to the spring due to earlier consultation.</p>
<p>Rezone the site to Commercial Zone (with a scheduled site) through a Private Plan Change</p>	<p><u>Environmental</u></p> <p>Loss of rurally zoned land.</p> <p><u>Economic</u></p> <p>The economic costs involved in the loss of rural land are low. The rural land holding is uneconomic for the purposes of traditional rural use given the size of the allotment and potential reverse</p>	<p><u>Environmental</u></p> <p>Better controls around the use of the land and management of environmental effects through site specific rules (e.g. visual and landscape controls).</p> <p>The development of the site can ensure no reverse sensitivity effects on the existing horticultural sites adjacent.</p>

	<p>sensitivity issues in the establishment of further horticulture uses on the site.</p> <p><u>Social</u></p> <p>There are no social costs identified.</p> <p><u>Cultural</u></p> <p>There are no cultural costs identified.</p>	<p><u>Economic</u></p> <p>The proposed plan change will provide economic opportunities to both the Applicant and future occupiers of the site through economic opportunity, and a more efficient use of the land without having to wait until the next District Plan review. The Applicant has the ability to manage the process and there are set timeframes.</p> <p>A number of existing or new commercial activities can be relocated or established on site leading to greater employment opportunities for the Te Puna and wider areas.</p> <p><u>Social</u></p> <p>Allows local residents to 'live, work and play' in accordance with SmartGrowth policies through the extension of the existing commercial zone.</p> <p>Facilitate the creation of a more active 'hub' for the community, particularly with the community hall and village green forming a part of the Structure Plan.</p> <p><u>Cultural</u></p> <p>Engagement with iwi carried out to take into account iwi views on rezoning.</p> <p>Benefits relating to additions such as naturalised spring due to earlier consultation.</p>
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In order to assist with the processing of this Plan Change, an 'issues based' Section 32 report is provided in **Appendix J**.

Technical assessments that have been undertaken for this Plan Change which have provided information that is sufficient and at an appropriate level of certainty to allow additional methods and rules to be designed to address the residual issues identified. Therefore, an assessment of risk of acting or not acting is not needed.

8.5 Extent to which the relevant objective is the most appropriate way to achieve the purpose of the RMA

Section 32(3)(a) requires plan change proposals to be assessed in order to determine whether the objective is the most appropriate way to achieve the purpose of the RMA. In doing so, it is thus first essential to determine whether the objective will facilitate the purpose of the RMA, and secondly to assess the efficiency and effectiveness of each method.

The zoning and policy framework for managing commercial development is an existing feature of the District Plan, and to this end, the provisions relating to commercial activity have already been tested against Part 2 of the RMA. It is the imposition of a new scheduled site within the Commercial Zone and introduction of a Structure Plan upon which the assessment is to be focused in regards to whether the change is the most appropriate way to achieve the purpose of the RMA when compared to the other options.

In this case the rezoning being sought will allow a greater level of development to occur than the present zoning does. Whether or not the proposed change is necessary to achieve the purpose of the RMA ultimately turns on the adverse effects of the proposal. Such effects can be evaluated through a cost and benefit analysis as required by Section 32 of the RMA and in accordance with Part 2 itself.

Section 6 of this report provides an analysis of the Plan Change Request against Part 2. Overall it is considered the Plan Change Request is in general accordance with the purpose of the RMA. While the

existing zoning of the site does achieve the purpose of the RMA by providing land for activities that might support and encourage productivity, it is considered that the proposed change will facilitate development that better achieves the purpose of the RMA.

The remainder of this section sets out a cost-benefit analysis of the proposal compared against retaining the current zoning of the site (part Rural Zone, part Commercial Zone).

8.6 Taking into account the benefits and costs of the rule or other method

The following sections address the matters referred to in section 32(4)(a), being the benefits and costs of the proposed changes.

8.6.1 Economic Benefits and Costs

The proposal represents an efficient use of the site's resources. The Te Puna Employment Zone: Economic Overview report provided in **Appendix D** recognises that the land is situated in a competitive and efficient location to service both the local community, and to better 'tap into' servicing the SH 2 traffic generated by the Tauranga market. The existing wastewater disposal, water supply, power and telephone infrastructure in the locality does present matters that would need to be considered during detailed design however, the development of the site is not expected to have any significant constraints relating to services. Appropriate systems for treating and disposing of stormwater on-site will not compromise the quality of groundwater or surface water, or the functionality of existing drainage systems in the vicinity of the site. The costs of connecting to reticulated services and implementing the stormwater system will be borne by the developer. SH 2, Te Puna Road and the wider road network will easily accommodate the additional vehicle movements that will arise from the proposed development, and no upgrading of the roading network will be required. There will also be positive economic benefits in the form of increased local employment opportunities, firstly in the short term during the construction phase, and secondly through the establishment and operation of new businesses and community hall. As the area has already begun a state of change through the rise in population growth and Tauranga Northern Link, the Plan Change would enable the area to maximise on the growth and visibility from SH 2. Finally, more intensive use of the village's infrastructure may have positive economic effects by reducing the per capita costs of maintaining these services.

Given the use of existing commercial zoned land in Te Puna, it is considered appropriate to enable more land provision for the activities sought in this Plan Change. It is considered that they will build on the existing commercial zone provision rather than undermine it, and as such be complementary. The Economic Overview report provided in **Appendix D** considers that the site is in a better location to facilitate commercial, community and light industrial growth than other vacant land in Te Puna, as well as the business park zoning to the north due to the economic efficiencies generated through clustering of commercial activity.

As acknowledged in the Discussion Paper prepared by Western Bay of Plenty District Council (provided in **Appendix K**), for an area like Te Puna, there is no set formula used to determine how much commercial land is needed. It is recognised that a community of this size should have access to a commercial centre to service the immediate catchment but how big that is and the type of services it provides is largely driven by land use zones, infrastructure capacity and the market response to community demand.

Retaining the existing part Rural Zone, part Commercial Zone, would leave an applicant facing a costly hearing process for a notified resource consent were they to seek the type of development outlined in this Plan Change Request, with no certainty of gaining approval.

8.6.2 Social Benefits and Costs

The Plan Change contributes to the social needs of the community. The Te Puna Village is currently very valued by the local community and iwi, however, many commented on during the recent consultation that they were disappointed in how Te Puna Village has been developed in a piecemeal manner.

The proposal will make provision for the subject site to not only provide lots which could be leased by rural commercial businesses, alongside providing a 'hub' where the local community can use a centrally located community hall, village green and landscaped areas (shown in the Structure Plan). The addition of the naturalised spring to the village green was also recognised as beneficial to Pirirakau. As the subject site is the area of the 'four corners' of the Te Puna Village which is on the flattest land, it makes sense that this is the area of focus for social interaction. The rezoning will contribute to a vibrant commercial and civic environment that will improve the social wellbeing of residents and visitors alike. This is recognised in the Economic Overview report provided in **Appendix D**, as not only will the community meeting hall on the site facilitate social and cultural interaction and foster a sense of community, but there has been a community process where the message has been clearly made by the community that they want a consolidated commercial hub in Te Puna.

8.6.3 Environmental Benefits and Costs

The Plan Change request proposes a commercial environment that will be comprehensively developed to ensure that environmental costs are minimised. The site is currently partly within the Commercial Zone and will not result in detached urban development with its consequential environmental effects. There will be a loss of what is currently partially a vacant site, however this will be offset by a consolidated and coordinated development in the context of the Te Puna Village (with better layout and landscaping). Although the loss of rural zoned land is referred to in the alternatives considered in the assessment of this plan change, it is important to acknowledge that in the Economic Overview report provided in **Appendix D**, Property Economics considers that the proposing rezoning does not necessarily represent a 'loss' of rural land as it is highly unlikely to transfer back to that use and the land holding is likely to be too small in scale to sustain a rural productive unit.

By reinforcing the consolidation of Te Puna Village, the proposal is unlikely to generate pressure for outward extensions of the urban area into adjoining or intervening land. The Economic Overview report provided in **Appendix D** acknowledges that the rezoning is unlikely to generate significant reverse sensitivity effects for neighbouring businesses and the site-specific controls will also ensure that the potential for reverse sensitivity effects to occur at the nearby orchards are reduced (through the non-complying status of any sensitive activities within 30m of Area A and the screening proposed in the Structure Plan). This is important as it was highlighted in pre-application discussions that when the option of exploring options for the potential extension of commercial zone on the subject site was discussed, that the only 'con' was the impacts on adjacent landowners and rural character. The approach of the 30m sub area has been discussed with the orchard owner and is considered acceptable (as 30m is the required setback as per the current Rural zoning). Future development of the site in accordance with the existing and proposed rules is likely to provide for a level of amenity that is consistent with and complimentary to the receiving environment.

The site's natural resources will be protected as connections to reticulated services or OSET systems can be established, and appropriate stormwater management systems implemented, for the development. Developing a commercial environment and resolving the issue of having a site captured within two different zones, will ensure the amenity values of the urban and rural environment will be maintained and, in many respects, enhanced.

8.7 Whether, having regard to their efficiency and effectiveness, the rules or other methods are the most appropriate for achieving the objectives

The provisions that are the most efficient and effective are those that achieve the objectives at the least overall cost when compared to other provisions. For the purpose of this section 32 evaluation, this is limited to those rules and methods relevant to the change. While it is accepted there may be alternative objectives, policies, rules and methods available (e.g. less or more restrictive rules, or a suite of new bulk and location standards), the assessment supporting this Plan Change concludes that the proposed rezoning as Commercial Zone with a scheduled site and associated rules are appropriate to achieving the same environmental outcome.

Establishing the measure of efficiency and effectiveness is a process of comparing benefits to costs of options. The environmental, social and economic benefits of establishing commercial development and other activities such as a community hall on the site outweigh the costs, and from the above evaluation it is considered most appropriate to adopt a scheduled site under the Commercial Zone to control and guide development of the site in accordance with a Structure Plan. In this way, the Plan Change Request seeks to complement and add to the District Plan's existing planning framework to ensure compatibility between land uses.

Rezoning of the land allows for further economic development of the Te Puna centre, further employment opportunities for residents within the area, a more efficient use of land than the zoning currently allows for, and the opportunity to provide landscape and visual controls to provide a high-quality environment. As stated in the Property Economics Economic Overview report (in **Appendix D**), the Plan Change would provide "*the flexibility for the centre to grow as market demand grows and secures the town centre's long-term position in the market*".

The other options, being the Resource Consent process or waiting for the next District Plan review would likely deliver the same or similar outcomes, albeit with further risk with the Resource Consent option and the possibility that Council could decline the application. However, both options are considered to be inferior in terms of efficiency of process, and do not provide the same certainty to landowners and other stakeholders. Furthermore, the Plan Change process provides the ability for the applicant to include specific landscape and visual controls.

It is not considered appropriate that the land remain partially subject to the restrictions of the current partial Rural Zone. Retaining the site's partial Rural zoning would not assist in meeting the Rural Zone's objectives, nor the Commercial Zone's objectives. The site is not and will not be used in accordance with the existing partial Rural zoning in the future due to a number of constraints, including but not limited to, land size which is uneconomic to be utilised for the purposes of traditional rural activities, and the inappropriate use of the site for residential purposes due to the proximity to established horticultural uses adjacent to the site.

In the interests of time and cost effectiveness, and certainty of outcome, relying on the resource consent process is not considered the most efficient way to achieve the purpose of the RMA. It is considered that the Commercial Zone in addition to the scheduled site provisions and associated Structure Plan included in the Plan Change Request are the most appropriate for achieving the objectives in relation to integrated management and form and function of the Te Puna Village area.

In summary, the approach taken in the Plan Change Request is to seek to achieve the policy intent of both the District Plan and the RPS, in the most efficient and effective manner. The addition of a scheduled site within a zone, with reference to a Structure Plan, is also noted as the standard Plan Change process that Western Bay of Plenty have been utilising.

This report concludes that the Plan Change Request is the most appropriate means of achieving the purpose of the RMA and the objectives of the District Plan. It is acknowledged that submissions on the Plan Change Request, and subsequent research into any issues raised in submissions, may give rise to amendments to the Plan Change Request and this evaluation.

8.8 Taking into account the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the rules, or other methods

Section 32(4)(b) seeks to ensure that the risk of acting on uncertain or insufficient information is taken into account.

If the Council fails to make adequate provision for commercial development within the subject site, there is the possibility that the Applicant and the other existing businesses could be attracted away from Te Puna Village, which could have a significant effect on the potential growth of the local economy.

The applicant is aware of the risks associated with acting with insufficient information. It has spent considerable time and resources in gathering the information and undertaking the assessments required to ensure the decision-making process associated with the Plan Change Request is based on sound and up to

date information and associated with best practice on this issue. Reassurance of the benefits of acting have been provided in particular from the community desire for a consolidated, futureproofed commercial hub and that Property Economics consider that the proposed rezoning will contribute positively towards the delivery of this in Te Puna.

For the above reasons there is not considered to be any potential area of uncertainty requiring specific consideration in terms of Section 32(4)(b).

8.9 Conclusion

Rezoning the site to a scheduled site within the Commercial Zone and incorporating an Structure Plan to guide development in accordance with existing and proposed rules, is considered necessary to provide certainty as to the ability to undertake commercial development and site a community hall within the subject site. The proposal will allow a range of land uses already acknowledged as legitimate in the District Plan, as well as make provision for activities such as Rural Contractors Depots, Offices (ancillary to activities occurring on site), Places of Assembly (within Area B) and Warehousing and Storage. Furthermore, future development will be subject to site-specific rules, in addition to existing standards that currently apply to the Commercial Zone specifically. Accordingly, it has been demonstrated that the proposed method of zoning for commercial development can be implemented and is enforceable and effective.

Having assessed the Plan Change Request against the provisions of Sections 32, 74 and 75 of the RMA, it is considered that the proposal is the most appropriate way to achieve the purpose of the RMA, and that the implementation of the proposed change will not have significant adverse effects, costs, or risks.

9 Consultation

9.1 Introduction

Prior to lodging this Plan Change request some preliminary consultation has already been completed. The First Schedule to the Resource Management Act 1991 provides some guidance on who is to be consulted during this phase.

The primary purpose of this preliminary consultation has been to seek feedback from parties before finalising the content of this Plan Change request.

9.2 Western Bay of Plenty

The Applicant has been actively engaging in recent consultation on the Te Puna Village Commercial Area. This consultation was led by Western Bay of Plenty District Council, as an exercise to understand the Te Puna community aspirations and the issues and opportunities for the commercial zone.

The five key issues identified for Te Puna Commercial Area include; wastewater, transport, commercial zone, amenity and bigger picture. Further details of the consultation undertaken, and the options put forward for each issue can be found in the 'Te Puna Village Commercial Area: Discussion paper' (November, 2018) provided in **Appendix K**, that was produced by Cheryl Steiner from Western Bay of Plenty District Council.

9.3 Other Parties as required under Clause 3 of the First Schedule

The community engagement process involved the following parties:

- Pirirakau
 - Consultation has been undertaken with Pirirakau, being the local hapu over the area. Correspondence with Julie Shepherd is attached at **Appendix F** of this document.
 - Pirirakau are supportive of the naturalised spring component to the village green.
 - Pirirakau have confirmed that they support the zone change and would require provision of naming; Puna intent to pipe above ground as a feature; and to set aside this area for community use and enjoyment and earthworks to require a Pirirakau cultural monitor to observe stripping.
 - Consultation will be ongoing throughout the Plan Change process, with the opportunity to respond to any particular concerns as they may arise.
- NZTA
 - Consultation has been undertaken with NZTA and their inputs helped to prepare the Integrated Transport Assessment (provided in **Appendix G**).
 - NZTA wanted to ensure that the activities they anticipated in the subject site were similar to those proposed in the Plan Change – e.g. no high volume, short term turnover activities.
 - NZTA provided a letter confirming that they do not have any concerns regarding the proposed plan change in March 2020 (provided in **Appendix L**).
- Te Puna Heartlands
- Bay of Plenty Regional Council
- Te Puna Business Network.
- Adjoining land owners

In terms of adjoining owners, the applicant has had ongoing discussions with DMS and Zariba Holdings who have raised no concerns with the proposal on the basis that the proposal will complement existing and proposed future uses on their sites. A meeting was held on 24 September 2020 with Syd and Lorraine Muggeridge and the boundary of the land and the Muggeridge's' orchard was visited. It was agreed that a setback for sensitive activities would apply (such as childcare, education and food & Beverage), and that planting should be shown along the boundary as agreed on site. It was also agreed that a no-complaints covenant would be registered on the title of the applicant's land (outside of the plan change process) which acknowledges the Muggeridge's orcharding activities.

Two workshops have been held to inform the preparation of the 'Te Puna Village Commercial Area: Discussion paper'. Whilst these workshops involved wider discussions, the content and aims of this Plan Change were also discussed at the workshops. The minutes of these two meetings is provided in **Appendix M**.

At the first workshop on the 31st May 2019, a range of topics were discussed in terms of accessibility, stormwater and wastewater and open space and amenities. It was at this meeting, where the potential for bringing the spring up and creating a water feature was discussed. The concern was also raised in regard to reverse sensitivity and the need to avoid any sensitive activities. The options in regard to wastewater were also discussed and those attending were informed of an internal council workshop the Western Bay of Plenty were holding to discuss the benefits and costs of each option. It was also identified that the employment of young people is an important consideration for future development in Te Puna Village.

At the second workshop on the 17th June 2019, a first draft of the Outline Development Plan (now titled the Structure Plan) was provided and discussed. The need for landscaping to go on the subject site was discussed as being included in the subject of the plan change (with screening belt in addition to amenity planting). It was also discussed in terms of the practicalities of the spring restoration, the ownership of the stormwater reserves and how the open space and council reserve space next to the community hall will function (including how the parking will be managed). It was confirmed at this meeting that it was Council's intent to link Te Puna Village into the pipeline, but that work needed to occur on how this might occur. It was requested that a rule should be proposed in the plan to include a final detailed landscape plan, and this has been included in this Plan Change Request. It is acknowledged that it was discussed that there would be three pockets included in the proposing zoning of the Plan Change, however, the need for three separate sub zones has been avoided through the detail of the scheduled site rules. It was confirmed that Bay of Plenty District Council have used the scheduled site approach before for sites such as Comvita.

10 Conclusion

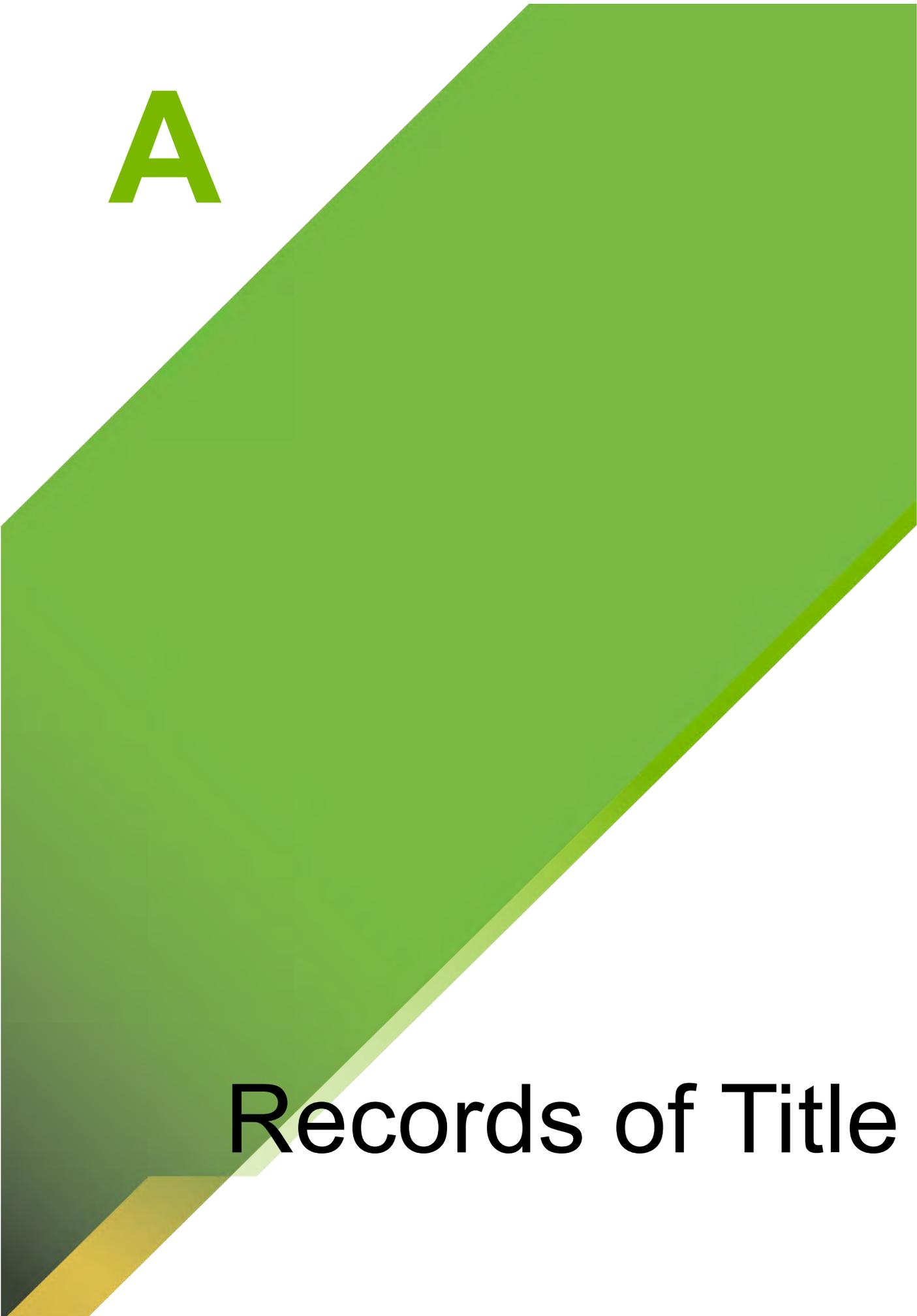
Te Puna Springs Estate Limited have proposed the Plan Change as discussed within this document. The purpose of the Plan Change is to provide for a scheduled site within the Commercial Zone for the Te Puna and northern Western Bay area. The site is strategically located behind the existing Commercial zone and can be considered a logical extension to that zone. It is an efficient use of land which is unlikely to be used for the purposes of which it is currently zoned and will allow the owner of the site to relocate his business from Tauranga and to also beautify the site.

The current zoning provides no opportunities for the expansion of the Commercial zone, or for the applicant to utilise the site for anything other than horticultural or rural uses. There is no permeant dwelling on site, and the site is unlikely to be used for residential occupation given the proximity to the State Highway and high traffic volumes and associated noise from the BP service station.

A comprehensive masterplanning exercise has been undertaken with a variety of experts to establish the best fit for this site and ensure the best possible environment, social and economic outcomes possible.

Extensive work and research has been undertaken in producing this Plan Change which is supported by a range of technical assessments. In addition, the Plan Change is considered to be consistent with the National Policy Statement on Urban Development Capacity, Regional Policy Statement and SmartGrowth.

Having evaluated the alternatives in accordance with Section 32 of the RMA this Plan Change is considered the most appropriate planning response, consistent with the higher order policy documents and meets the relevant statutory criteria

A large green polygon with a diagonal line running from the bottom-left to the top-right. The top-right corner is cut off by a horizontal line. At the bottom-left corner, there is a small yellow triangle. The letter 'A' is positioned in the upper-left area of the green shape.

A

Records of Title

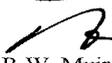
Appendix A
Records of Title



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD**

**Guaranteed Search Copy issued under Section 60 of the Land
Transfer Act 2017**




R. W. Muir
Registrar-General
of Land

Identifier **873798**
Land Registration District **South Auckland**
Date Issued 11 January 2019

Prior References

743718

Estate Fee Simple
Area 5.4764 hectares more or less
Legal Description Section 11 Survey Office Plan 491908 and
Section 2 Survey Office Plan 529511

Registered Owners

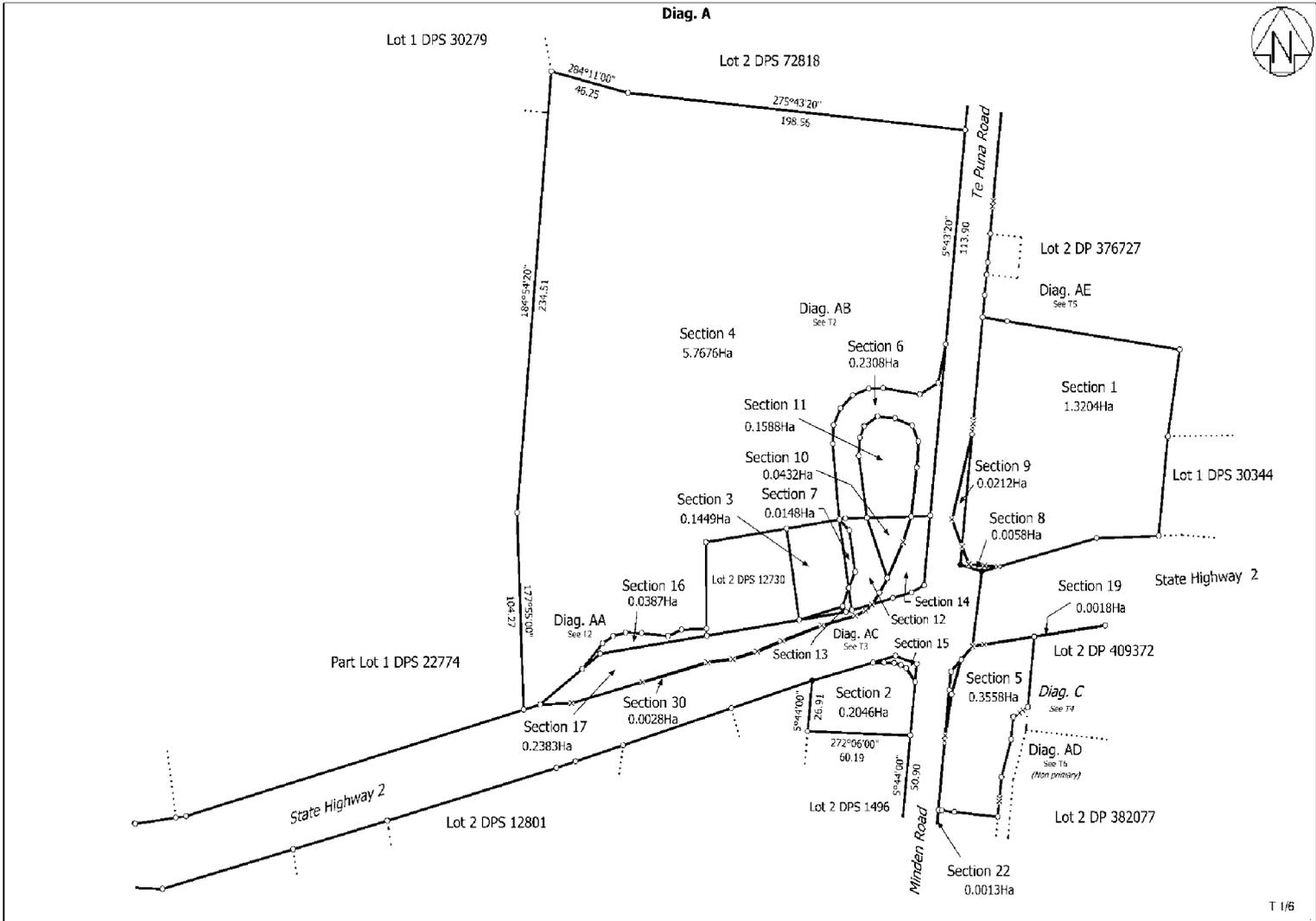
Te Puna Springs Estate Limited

Interests

S477228 Gazette Notice declaring State Highway 2 fronting the within land to be a limited access road - 8.4.1970 at 9.50 am

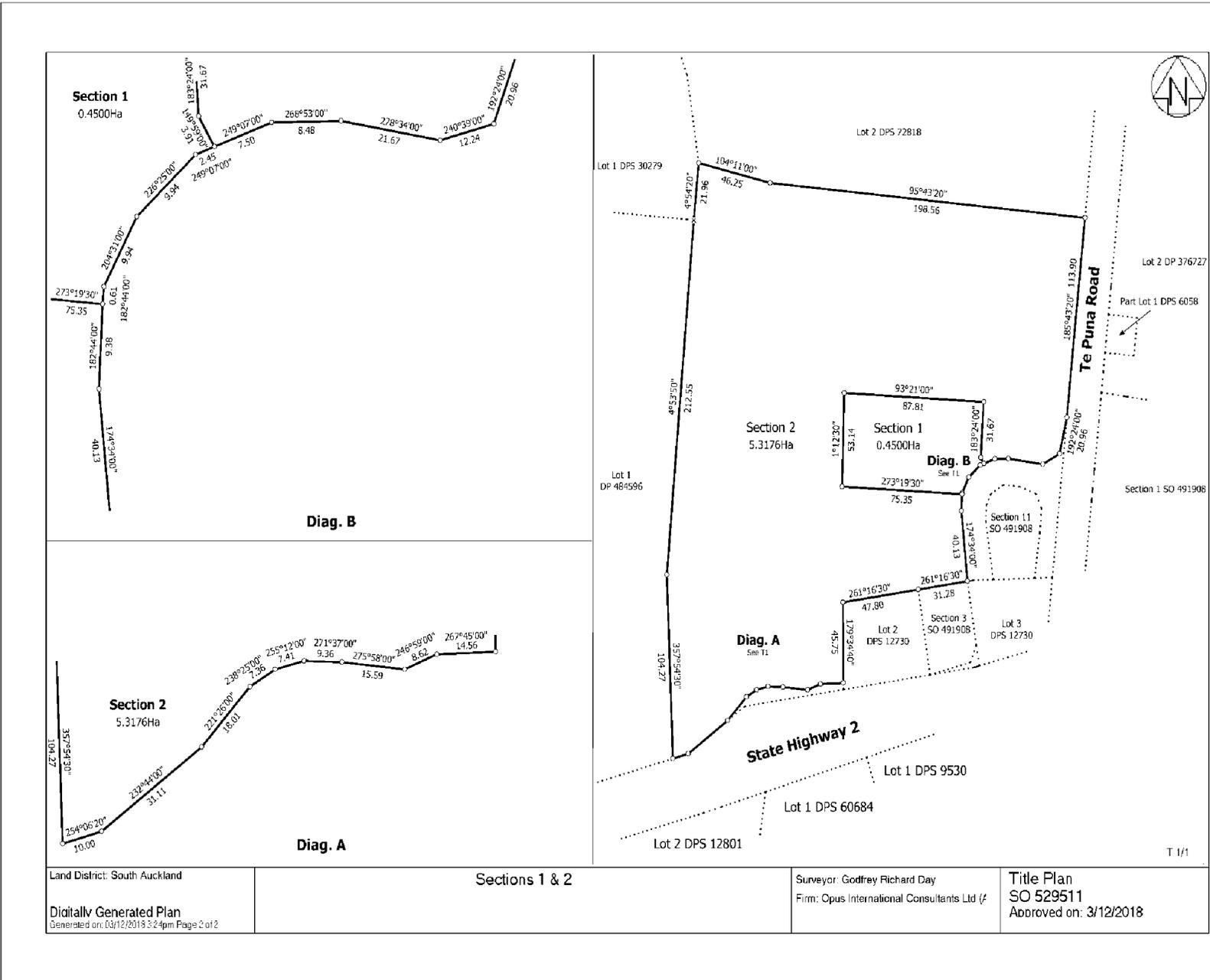
6677589.3 Mortgage to ANZ National Bank Limited - 6.12.2005 at 9:00 am

10132424.1 Notice pursuant to Section 18 Public Works Act 1981 - 24.7.2015 at 5:17 pm



T 1/6

Land District: South Auckland	Sections 1 - 30 and Easements	Surveyor: Godfrey Richard Day	Title Plan SO 491908
Digitally Generated Plan Generated on: 08/12/2015 08:54am Page 4 of 3		Firm: Opus International Consultants Ltd (f/	Approved on: 9/12/2015



T 1/1



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD**

**Guaranteed Search Copy issued under Section 60 of the Land
Transfer Act 2017**




R. W. Muir
Registrar-General
of Land

Identifier **883144**
Land Registration District **South Auckland**
Date Issued 01 April 2019

Prior References

873797

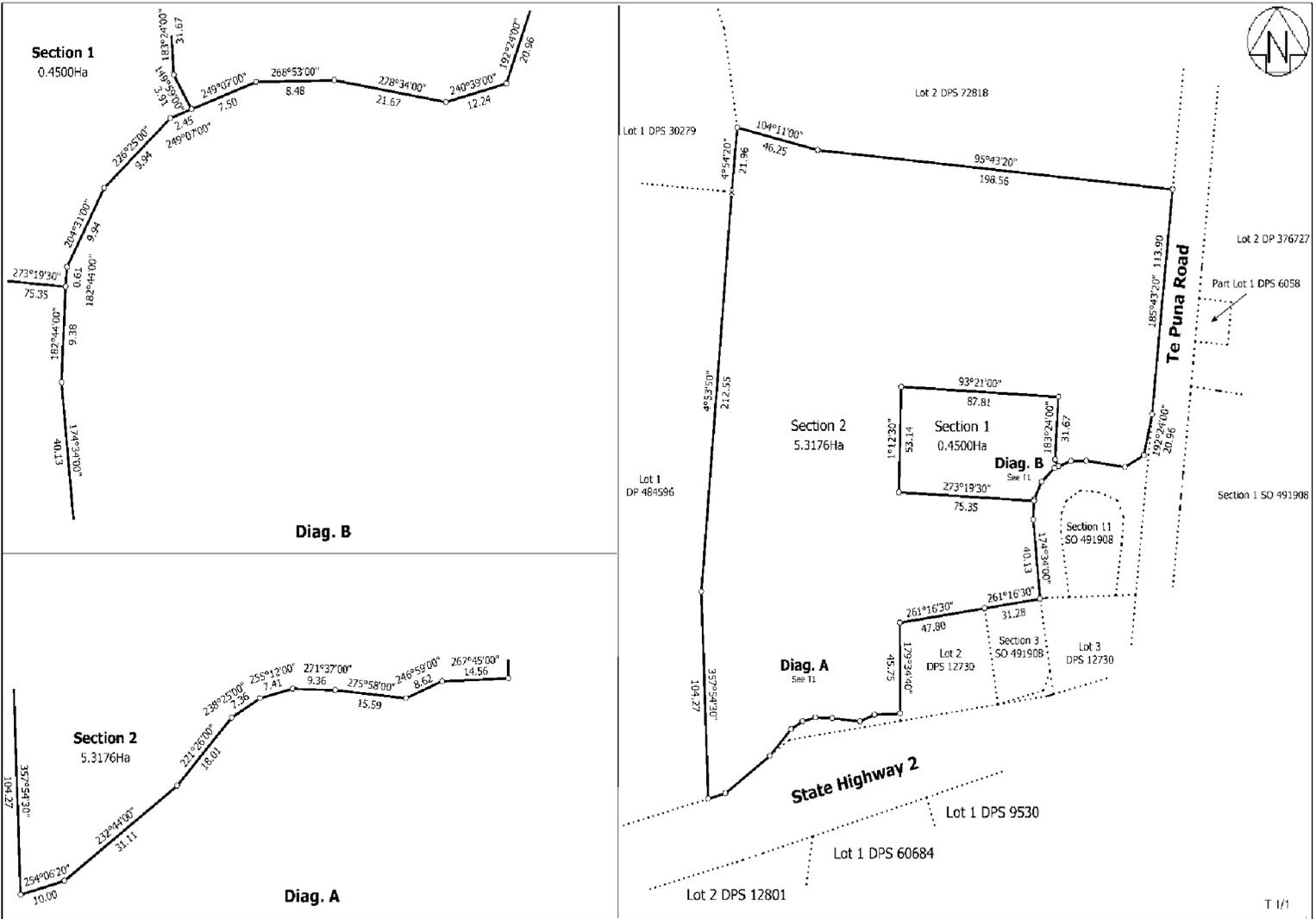
Estate Fee Simple
Area 4500 square metres more or less
Legal Description Section 1 Survey Office Plan 529511

Registered Owners

Western Bay of Plenty District Council

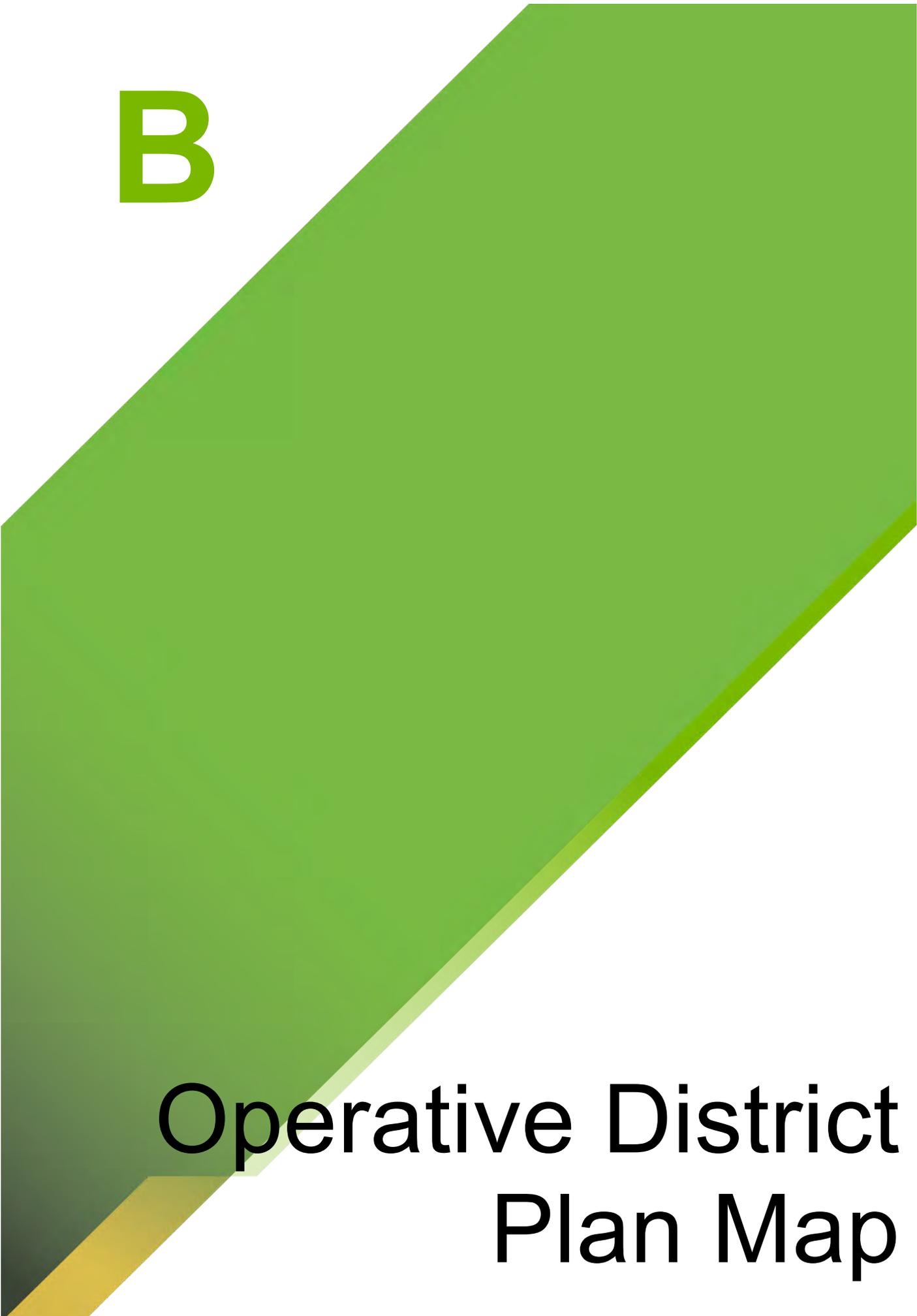
Interests

Subject to section 11 Crown Minerals Act 1991
Subject to Part IVA of the Conservation Act 1987



T 1/1

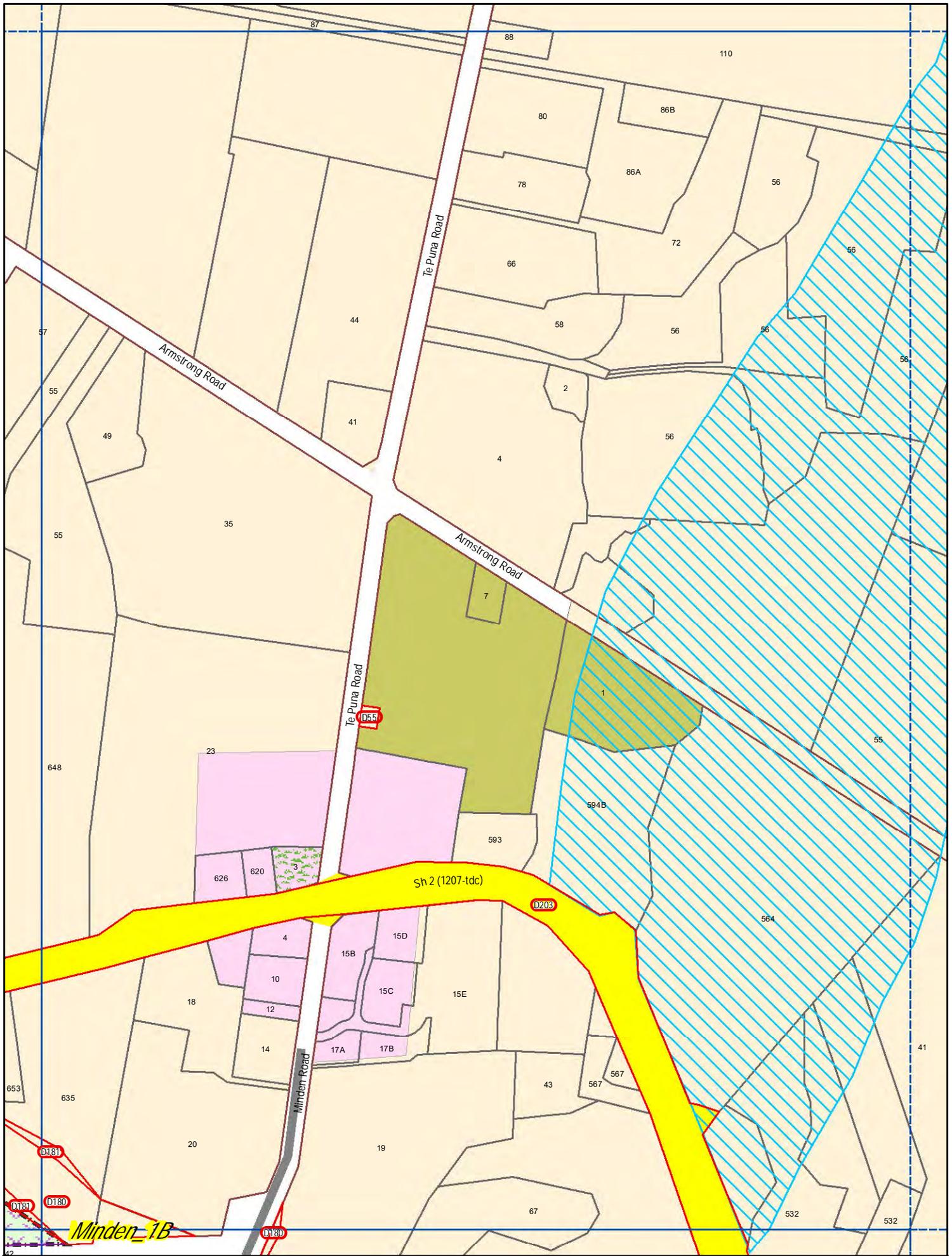
Land District: South Auckland	Sections 1 & 2	Surveyor: Godfrey Richard Day	Title Plan SO 529511
Digitally Generated Plan Generated on: 03/12/2018 3:24pm Page 2 of 2		Firm: Opus International Consultants Ltd (/)	Approved on: 3/12/2018

A large green polygon with a diagonal cutout. The top-left corner is cut off by a diagonal line. The bottom-left corner is a yellow triangle. The rest of the shape is green.

B

**Operative District
Plan Map**

Appendix B
Operative District Plan Map



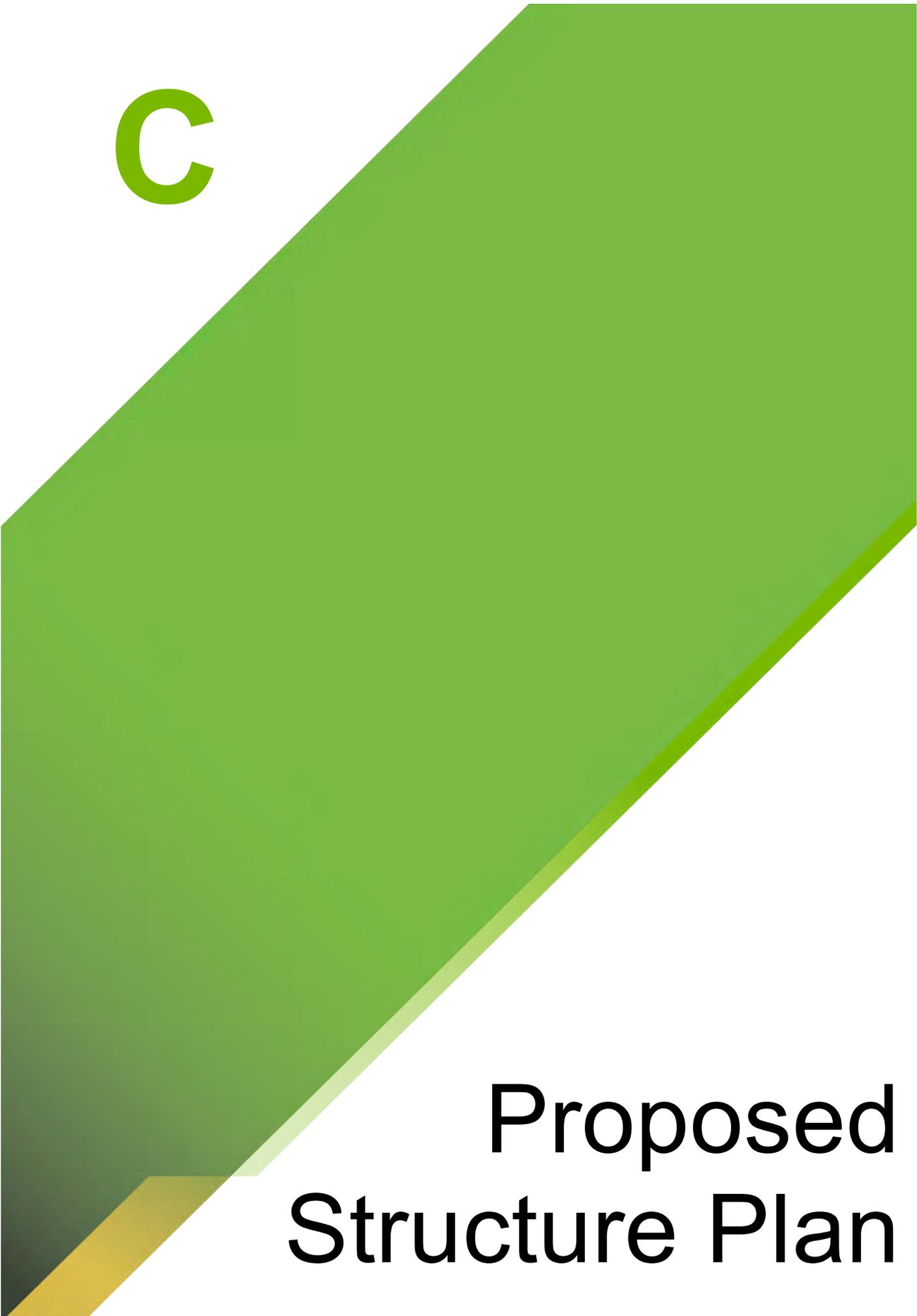
U87

Minden



Scale 1:5000 (A4)

Revision Date: 16 June 2012



C

Proposed
Structure Plan

Appendix C

Proposed Structure Plan

LEGEND

- 1 Commercial
- 2 Commercial
- 3 Hall
- 4 Village Green and Spring
- 5 Commercial
- 6 Commercial
- 7 Commercial
- 8 Commercial
- 9 Stormwater management area
- 10 4m wide landscape buffer strip
- 11 2m wide landscape buffer strip

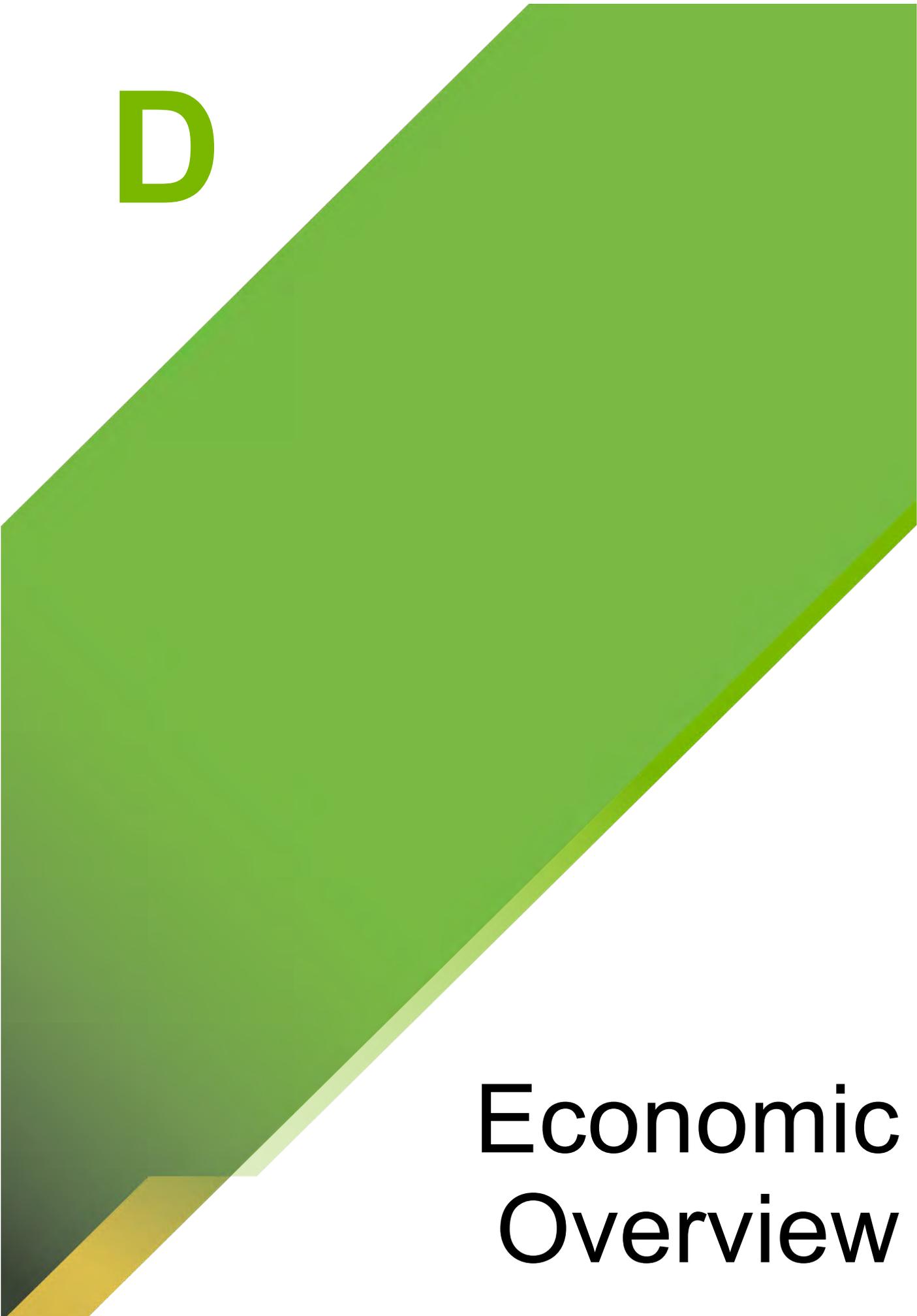
KEY

-  Specimen trees
-  Landscape buffer strip
-  Grassed area
-  Traffic calming strip
-  30m Setback



Legend

-  Area A
-  Area B

A large, abstract green shape that resembles a stylized letter 'D' or a large 'D' with a diagonal cutout. The shape is filled with a solid green color. At the bottom left corner, there is a small, yellow, wedge-shaped element. The overall shape is positioned on the left side of the page, with the text 'Economic Overview' to its right.

D

Economic Overview

Appendix D
Economic Overview

PROPERTY **E**CONOMICS



TE PUNA EMPLOYMENT ZONE

ECONOMIC OVERVIEW

Client: Te Puna Springs Estate

Project No: 51731

Date: October 2019



1. INTRODUCTION

Property Economics has been engaged by Aurecon, on behalf of Te Puna Springs Estate Limited, to provide a high-level economic overview of the implications of their proposed Plan Change to rezone their land at 23 Te Puna Road, Tauranga.

It is Property Economics understanding that under the Western Bay of Plenty (WBOP) Operative District Plan (ODP) a small portion of the existing site is currently zoned Commercial Business as forms part of the Te Puna Town Centre, with the balance being zoned Rural. The applicant seeks to have the rural component of the site rezoned to be an extension of the Commercial Business Zone, with specific landscaping and building design controls.

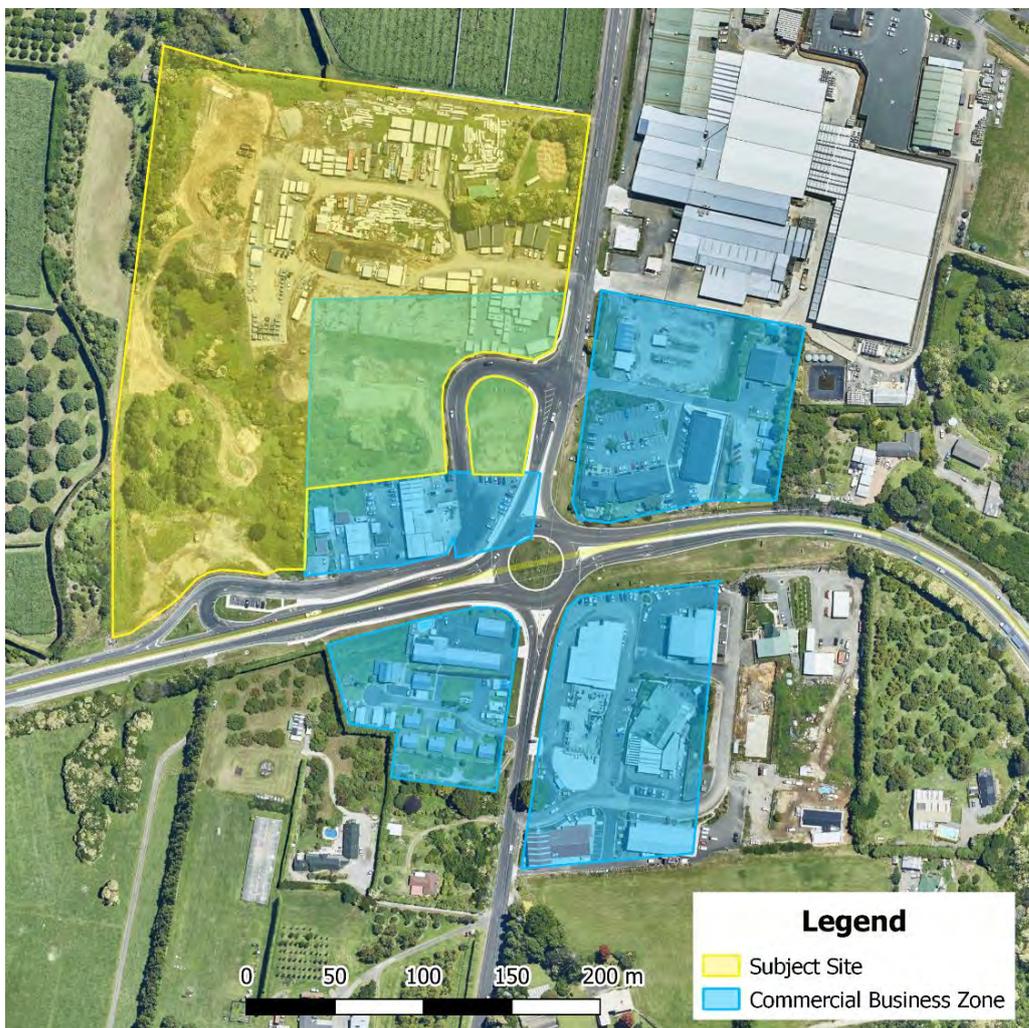
The economic overview has a specific focus on the appropriateness and potential RMA economic effects associated with the use of approximately 4.75ha of land currently zoned rural activity being rezoned for commercial business purposes. It will consider the practical appropriateness of the land in question to be zoned either rural or commercial businesses, through the consideration of WBOP ODP provisions and community aspirations. The assessment will also consider whether the proposed rezoning would have propensity to generate adverse economic effects on the existing commercial zoned Te Puna Town Centre in the context of the RMA.

2. LOCALISED TE PUNA MARKET

The subject site at 23 Te Puna Road is situated on the north-western edge of the Te Puna Town Centre and is currently occupied by a house removal business. The total site occupies approximately 5.91ha, with 4.75ha being within the Rural zone and 1.16ha being zoned Commercial Business.

Figure 1 below shows the site outline, as well as the surrounding Commercial Business zone of the Te Puna Town Centre.

FIGURE 1 – TE PUNA TOWN CENTRE – SUBJECT SITE AND COMMERCIAL BUSINESS ZONE



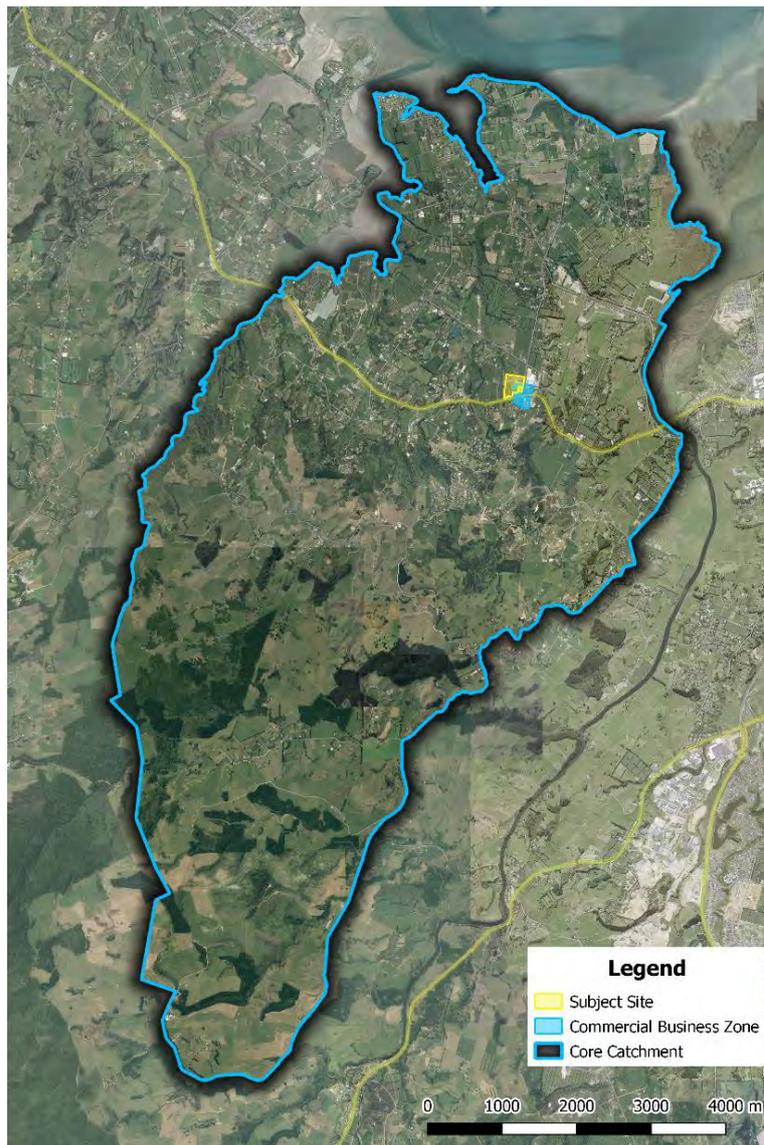
Source: Property Economics, WBOP District Council

To assess the appropriateness of an expansion to the Commercial Business zone, it is important to understand and assess the size of the localised market which the Te Puna Town Centre more frequently services, albeit acknowledging the town centre's SH2 location and traffic flow is an important 'lifeline' to the commercial viability of the centre.

Figure 2 below illustrates the indicative localised economic market for Te Puna. Given the more rural nature of Te Puna's localised economic market and roading access to SH2, the commercial core would service a market slightly wider than just the immediate Te Puna area itself.

This economic market is not intended to represent the entire catchment for Te Puna given SH2's influence, but the localised area where residents would utilise the Te Puna Commercial Centre on a more frequent basis.

FIGURE 2 – TE PUNA LOCALISED ECONOMIC MARKET



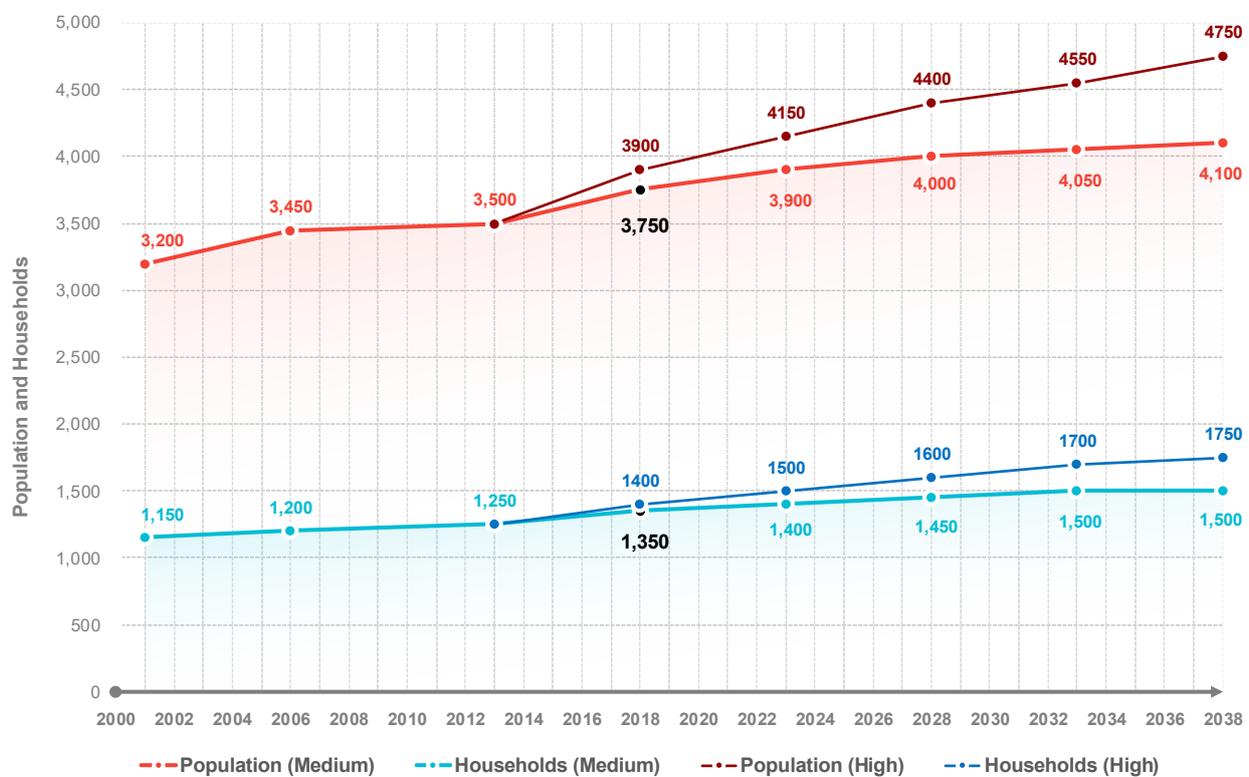
Source: Property Economics

Figure 3 following displays the population and household growth projections within the identified catchment (Figure 2) and represents Te Puna's localised economic market. These projections are derived from the Property Economics Growth Model with the base inputs being the most recent Statistics New Zealand (SNZ) Medium series projections.

The identified catchment is estimated to currently have a population base of around 3,750 people and 1,350 households (rounded). This is forecast to grow to 4,100 and 1,500 respectively over the projection horizon to 2038 under the SNZ Medium growth series.

Tauranga is a city with a predisposition to achieve higher growth rates than projected, and Te Puna would benefit from this. As such, Property Economics consider it prudent to consider a high growth scenario as well. Under the SNZ High growth scenario, population for the localised catchment is forecast to grow to around 4,750 by 2038, with households growing 1,750 over the same forecast period.

FIGURE 3 – TE PUNA CATCHMENT FORECAST POPULATION AND HOUSEHOLD GROWTH



Source: Property Economics, Statistics NZ

Figure 3 shows that while the population base nominally may not be large in commercial terms, it is forecast to be a growth area. This, combined with the likely continual growth in SH2 traffic (and the market this offers Te Puna) means the level of demand for commercial activities and services in Te Puna is likely to grow over the foreseeable future, increasing the requirement for commercial land locally.

NZTA reported that there were approximately 18,000 vehicles per day travelling through Te Puna on SH2 in 2016 and have an objective of increasing the SH2 road capacity to cater for 23,000 vehicles per day by 2025. This would elevate Te Puna commercial demand further.



The aforementioned data shows there is growing potential in the market for commercial expansion as the population and traffic in the core economic catchment increases. However, it is expected that Te Puna will continue to draw commercial activity from a wider catchment than in Figure 2, due to its location on a main arterial route (SH2) in and out of Tauranga, as well as the type of activity present in the Town Centre.

3. ECONOMIC OVERVIEW

3.1. SITE AND SURROUNDING AREA CONSIDERATIONS

At present, the 5.91ha site sits on 4.75ha of rural zoned land and 1.16ha of commercial business land and is occupied by a house removal business. This current use is deemed a more industrial yard type use, however, is operating on rural zoned land. When identifying the costs and benefits of the proposed rezoning, including the loss of rural land, it is imperative to consider the current fact that the land is not being utilised for rural activities, despite being zoned as rural.

As such, the proposed rezoning does not necessarily represent a 'loss' of rural land in Property Economics view as it is highly unlikely to transfer back to that use as the land has not been utilised for rural activities for a number of years. From a commercial viability perspective the subject land holding is likely to be too small in scale to have the ability to sustain a rural productive unit.

Property Economics consider that the existing zoning of the site is not in line with the current, and potential use of the land, with the proposed zone change creating a more economically efficient use for both the site and the adjacent Te Puna Town Centre.

The existing Commercial Business zone in Te Puna Town Centre is occupied by a range of activities including industrial service activity, a motel and a small number of retail and commercial service activities. As such the proposed development would not compete with the Te Puna Town Centre, but act as a complementary rezoning. The proposed development will provide a range of commercial and light industrial activities, including:

- Prefabricated building manufacturing
- Places of assembly
- Warehousing and storage
- Ancillary office to activities occurring on site

In Property Economics opinion, these activities will complement the existing commercial activity within the Te Puna Town Centre and supporting its existing role and function, creating a futureproofed, consolidated commercial hub for Te Puna. A functioning consolidated commercial hub will provide certainty of investment as well as assist in long term infrastructure planning for Te Puna.

The increase in commercial land provides the flexibility for the centre to grow as market demand grows and secures the town centre's long-term position in the market. This is considered important as at present there is limited, if any, vacant development capacity and growth potential within the Te Puna commercial zone.

3.2. DISTRICT PLAN AND COMMUNITY CONSIDERATIONS

The commercial zone in Te Puna was included in the District Plan many years ago to recognise and promote the existing activities that were already operating, or planned at the time. The zone is intended to provide a vibrant commercial environment that fosters and encourages social and cultural interaction. The rules are fairly permissive in terms of classification of activity, as well as no set formula used to determine the quantum of commercial land required.

It is set out that the community should have access to a commercial hub that is large enough to service the immediate catchment, with the size and scale of this activity driven by land use zones, infrastructure capacity and the response to demand in the market. Property Economics agree this is appropriate as it supports economic efficiencies, as well as economic wellbeing of the community and improved social amenity.

A discussion paper regarding the Te Puna Village Commercial Area in November 2018 by the Western Bay of Plenty District Council outlines the community's vision and aspirations for the commercial area, as well as responses to forecast challenges surrounding the commercial area.

The discussion paper outlines that a key consideration for the commercial area in Te Puna is the Te Puna Community Plan, developed in 2017. The plan outlines community aspirations for Te Puna, as well as frameworks for how these might be achieved.

Key conclusions from the community plan include:

- The community recognises the importance of the Te Puna commercial area for resilience (food, services and resources).
- Te Puna is to be kept essentially rural by limiting industrial and commercial areas to current locations. This includes consolidating any future development to the existing commercial areas.

During consultation with the community, it was documented that the community believe there are limitations to commercial growth in the area, as the supply of commercial land available is not enough to facilitate growth.

As outlined earlier, Te Puna's location on SH2 as a growing arterial route in and out of Tauranga, as well as 22% forecast population growth over the next 20 years (under the SNZ High scenario) shows that there is growing demand for commercial land in the area, however there exists limited expansion potential. Of the 5.5ha of commercial zoned land in Te Puna, there is very limited, if any, opportunity for growth as the bulk of the land is already occupied / developed.

4. SUMMARY

Overall, both subject site and surrounding area considerations as well as WBOP ODP and community considerations show that the rezoning of the land at 23 Te Puna Road to be an extension of the Te Puna commercial zone is a more economically efficient, and desirable outcome for the community of Te Puna.

The land is situated in a competitive and efficient location to service both the local community, and to better 'tap into' servicing the SH2 traffic generated by the Tauranga market which benefits the local Te Puna economy.

It is of Property Economics opinion that the site proposed to be rezoned is in a better location to facilitate commercial, community and light industrial growth than other vacant land in Te Puna, as well as the business park zoning to the north. This is due to the economic efficiencies generated through clustering of commercial activity e.g. certainty of investment and ease of infrastructure development, and the site being adjacent to the existing commercial zone representing a 'natural' extension of the zone.

Not only is it considered a more economically efficient location for development, but the proposed development is also in line with community aspirations for a consolidated commercial hub in Te Puna, and will contribute to the aspiration of Te Puna as a 'village' like commercial area, akin to Matakana to the north of Auckland.

The community meeting hall on the site will facilitate social and cultural interaction within the area and help foster a sense of community, while the commercial aspects of the development would provide the opportunity to create a high-quality commercial hub for local businesses to expand.

On the whole, the proposed rezoning will foster the development of complementary activities to the existing provision in the Te Puna Town Centre and will positively contribute to creating a consolidated, futureproofed commercial hub for the benefit of the community in Te Puna. In essence, the proposed rezoning has no meaningful potential to adversely affect the role, function vitality and viability of the Te Puna Town Centre (in fact it would support these functions), and is unlikely to generate significant reverse sensitivity effects for neighbouring businesses.

Given the above, Property Economics do not believe a full economic impact assessment of the proposed rezoning is necessary given the land in question is in a competitive and economically efficient location to extend the Te Puna commercial area while maintaining a consolidated commercial hub, as well the type of development aligning with community aspirations for the commercial area.

Yours faithfully

Tim Heath
Director

APPENDIX 1 - TE PUNA SPRINGS DEVELOPMENT PLAN

- LEGEND:
- 1 Commercial
 - 2 Commercial
 - 3 Hall
 - 4 Village Green and Spring
 - 5 Commercial
 - 6 Commercial
 - 7 Commercial
 - 8 Commercial
 - 9 Shelter belt
 - 10 Shelter belt 6-8m
 - 11 Street trees
 - 12 5m Landscape buffer strip
 - 13 Traffic calming strip





E

Infrastructure Servicing
Assessment

Appendix E
Infrastructure Servicing Assessment

Te Puna Springs Estate

Infrastructure Servicing Assessment

Supermac Group Ltd

Reference: 251282

Revision: 1

2019-10-30

aurecon

*Bringing ideas
to life*

Document control record

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Appendices

Appendix A

PDP Report - Te Puna Wastewater Servicing Options – May 2019

Appendix B

Te Puna Village Commercial Area Community Engagement

Appendix C

Te Puna Village Commercial Area Issues and Options

Appendix D

Stormwater calculations

Appendix E

Wastewater Treatment systems

Figures

Figure 1: Site Locality

Figure 2: Proposed Te Puna Springs Development Plan

Figure 3: Proposed Site Access and Internal Roads

Figure 4: Pre and Post Shaped Landform

Figure 5: Pond Catchment and Sub-Catchments Based on Roughness Coefficient

Figure 6: Existing Pond and Tributary Flows (overtopping at RL 14.25m)

Figure 7: Possible stormwater pond sizing and available area.

Figure 8 - EDV pond location and catchment areas

Figure 9 - Onsite stormwater management network

Figure 10 - Wastewater pipe network proposal

Figure 11 - Available land for disposal field

Figure 12: Proposed Reticulation Layout for Te Puna Springs Estate

Tables

Table 1: Land Utilisation and Occupancy

Table 2: Peak flow rates for Pre and Post development during 2,10 and 100yr ARI events

Table 3: Provisional design flows for treatment and onsite disposal

1 Introduction

This infrastructure services report has been prepared to accompany the plan change request submitted by Te Puna Springs Estate Limited (“Te Puna Springs”) and covers the site located on the corner of Te Puna Road and State Highway 2 (SH2). According to the District Plan, a portion of the site along Te Puna Road is zoned as Commercial with the remainder of the site being zoned as Rural.

The site has a combined area of 5.93 ha, of which approximately 2 ha is currently being used by the Supermac Group.

The roading network adjacent to the site has recently been upgraded, with a new roundabout at the intersection of Te Puna Road and State Highway 2; and a new road that provides access to the BP service station and adjoining commercial properties. The access road to the BP service station bisects the proposed site.

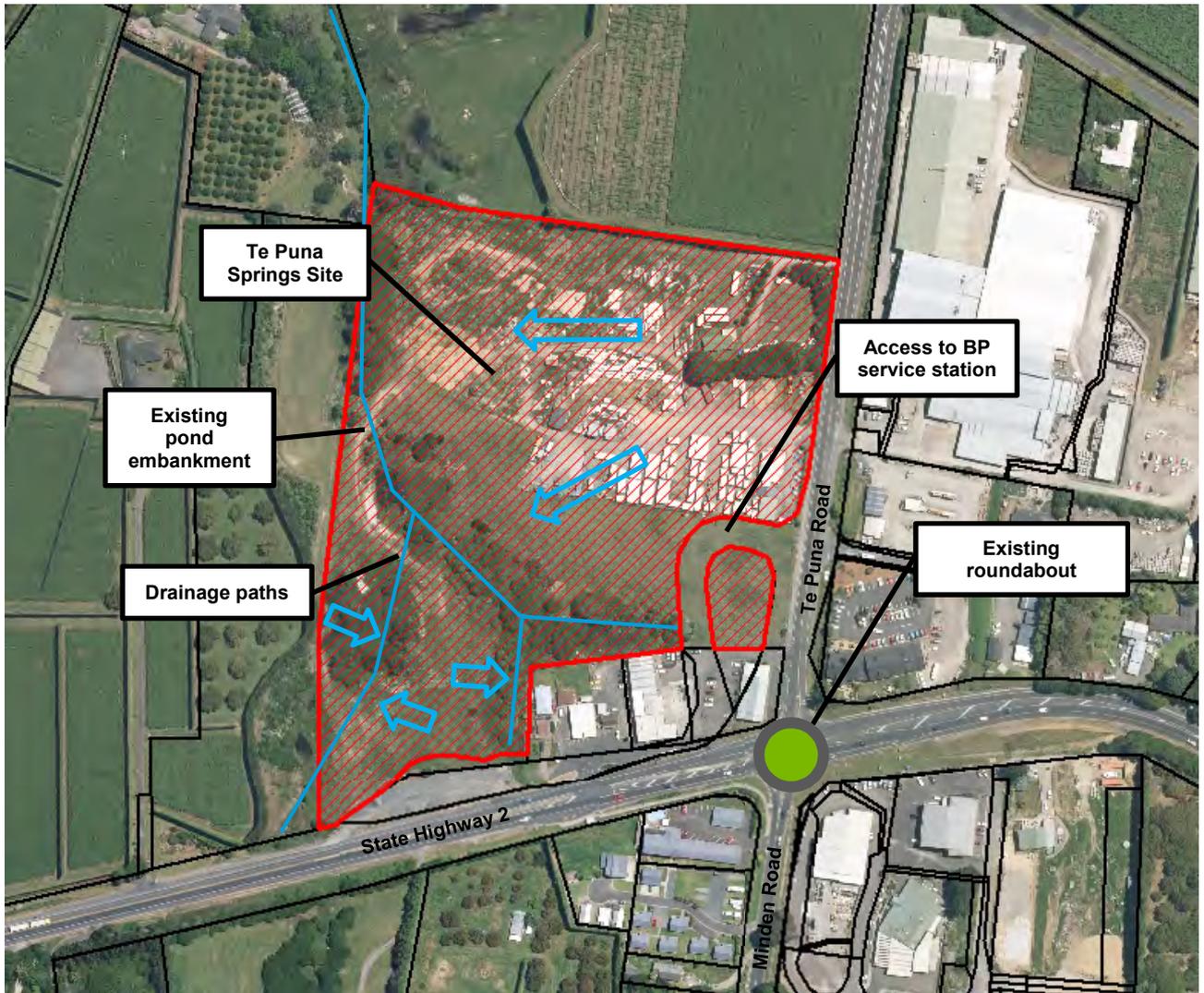


Figure 1: Site Locality¹

Based on 2014/15 lidar data from LINZ, the site has a maximum elevation of approximately 24m RL at the north-east and a minimum elevation of 10.6m RL at the north-western corner of the site. The site is bisected by a network of natural open channels that merge and flow into an existing ponding area behind an earth embankment. The pond outlet is fitted with two 300mm dia discharge pipes that discharge into a stream that merges with the Oturu Creek approximately 730m downstream.

The open channel network subdivides the site into three catchments. The north-eastern catchment generally slopes at a grade of 3.5 to 5% towards the open channel. The south-western catchments have steeper grades varying from 8 to 15% towards the open channels.

¹ Aerial imagery sourced from LINZ, bay-of-plenty-0125m-urban-aerial-photos-2014-15

2 Proposed Development Plan

The proposed development plan involves subdividing the site into 8 lots and rezoning for commercial purposes. The indicative development plan is shown in Figure 2.



Figure 2: Proposed Te Puna Springs Development Plan²

Table 1 provides more information on the anticipated land utilisation and occupancy based on the information available. The information contained in Table 1 is provisional and subject to refinements during the future design stages.

Table 1: Land Utilisation and Occupancy

Lot No.	Site Description	Lot Area (m ²)	Building Area (m ²)	Occupancy	Required Parking Lots
1	Commercial	11165	<ul style="list-style-type: none"> ■ 1500 ■ 1200 	<ul style="list-style-type: none"> ■ 5 Staff ■ 5 Staff 	10 - 15
2	General commercial and 12 Workshop units	5030	<ul style="list-style-type: none"> ■ 1200 ■ 12 x 50 = 600 	<ul style="list-style-type: none"> ■ 5 Staff ■ 12 x 2 = 24 Staff 	30
3	Te Puna Memorial Hall	2850	<ul style="list-style-type: none"> ■ 600 	<ul style="list-style-type: none"> ■ 120 Visitors ■ 3 Staff 	60
4	Village green and spring	2450			
5	Commercial/The group	3630	<ul style="list-style-type: none"> ■ 570 	<ul style="list-style-type: none"> ■ 12 Staff 	15
6	Commercial and retail	2680	<ul style="list-style-type: none"> ■ 450 	<ul style="list-style-type: none"> ■ 3 Staff 	10

² Sourced from Boffa Maskell Drawing. T18002 Rev 1

7	Supermac Group – the existing portion of the site used by Supermac will be cleared and re-established on the proposed lot	18600	■ 1400 ■ 1050	■ 15 Staff	15 -18
8	Boat Place - Retail	1920	■ 420	■ 5 Staff	5

3 Site Access and Internal Roads

Two access locations are proposed for the site, one along SH2 shown as (A) (via an existing road servicing the commercial development adjacent to the proposed site), and the other from Te Puna Road shown as (B). These proposed access locations are shown in Figure 3.



Figure 3: Proposed Site Access and Internal Roads³

The proposed access along SH2 is located within the vicinity of an existing open channel. To accommodate the road, the existing channel will require infilling in conjunction with the extension of a 750mm dia culvert installed beneath SH2 (discussed in greater detail in Section 5).

The Western Bay of Plenty District Council Development Code (WBOPDC) requires that proposed roads comply with a set of design criterion. Accordingly, commercial roads are required to have a minimum road reserve width of 20m and maximum grades of 5% along the road. Based on a broad brush conceptual geometric design of the proposed road, it is anticipated that approximately 3500m³ fill will be required to construct the road, based on a road carriageway width of 11m and fill batters of 1V to 3H.

Access to the individual lots, as described in Section 2, shall be in accordance with WBOPDC drawing W435, with a minimum apron width of 6m and backing slab width of 5.4m for dual access.

Based on the site access and internal roading assessment, the WBOPDC design requirements will be met.

³ This material is based on LINZ services provided by the Open Topography Facility with support from the National Science Foundation under NSF Award Numbers 1557484, 1557319 & 1557330

4 Landform and Building Platforms

The site is bisected by a few natural open channels, resulting in an undulating terrain. To facilitate an increased land utilisation and to meet the requirements of the proposed development plan, some of the lots proposed may require some shaping.

Figure 4A shows the undeveloped landform with 0.5m contour increments. Lots 3 to 6 and Lot 8 generally slope from east to west at grades of 5% or less. However, Lot 1, 2 and 7 have steeper slopes due to the positioning of the existing open channels within their boundaries. To support the proposed development, the landform of these Lots will be reformed/shaped through the removing of material in certain areas and placement of suitable material in other areas. The majority of placement and compaction of suitable material will take place within the existing open channels.

Infilling of the natural open channels will necessitate the installation of piping to accommodate flows from upstream catchments (discussed in greater detail in Section 5).

A high-level, conceptual landform design was completed to facilitate the potential for increased land utilisation, see Figure 4B. The indicative cut and fill requirements to form the proposed landform design are approximately 24000m³ cut and 25000m³ fill. Assuming a compaction factor and the unsuitability of topsoils for structural fill it is envisaged that some material will need to be imported to the site to complete these landform adjustments.

Further refinements to the landform design during the detailed design stages may optimise the required earthworks quantities, which should be conducted in conjunction with a detailed geotechnical assessment and survey.



Figure 4: Pre and Post Shaped Landform

The preliminary landform allows for freeboard above the expected water levels within the stormwater detention area. Based on the LINZ topographical information, the existing embankment wall has an elevation of 14.25m

RL and this will be maintained with the new pond design. Based on the nested 100yr event the maximum water level will 14.24 RL (refer to Section 5).

Lot 7 has the lowest elevation in the proposed development, with an elevation of approximately 14m RL at the north-western corner of the Lot (refer to Figure 4B). This area may be prone to occasional flooding and buildings on the site will need to be constructed with floor elevations above 14.54 RL.

The levelling of Lot 1 to create a building platform at RL 17.5 will effectively cut off the existing stormwater channel entering the site from the West of lot 1. To mitigate and effect on the neighbouring property this stormwater channel will be conveyed via a pipe network to the attenuation ponds (see chapter 5.4 On-site Stormwater Management, for more details on this).

5 Stormwater

The Te Puna Springs Estate site is located at the downstream end of a larger catchment. A few natural open channels exist on the Te Puna Springs Estate site that discharge into an existing attenuation pond behind an embankment located within the site boundary.

The pond was originally constructed by DWS Progrowers Limited to attenuate flow from their site. DWS Progrowers Limited proposed alterations to their site in 2007, whereby increasing their hardstand area. A stormwater pipeline was constructed from their site, running through the Te Puna Springs Estate site and discharging into the pond. According to the BOPRC Resource Consent (application number 63865), the attenuation formed by constructing the embankment reduced the pre-development flow from 2.7m³/s to a post-development flow of 0.82m³/s for the 10% AEP, 60minute storm event.

Since the construction of the pond, SH2 was upgraded (2015-16), by constructing the roundabout at the intersection with Te Puna Road / Minden Road. We have not seen any of the consents associated with this work however it is not anticipated that the alterations to the highway, and associated stormwater infrastructure, would have significantly impacted the peak runoff quantities discharging into the Te Puna Springs Estate site.

Topographical information extracted from the LINZ data service (LiDAR was captured by BOPLASS Ltd and supplied by OpenTopography, dated 2014-15), was used to create a digital elevation model (DEM). The dam's upstream catchment area was delineated based on the DEM. The delineated catchment has an area of approximately 38ha and is shown in Figure 5.

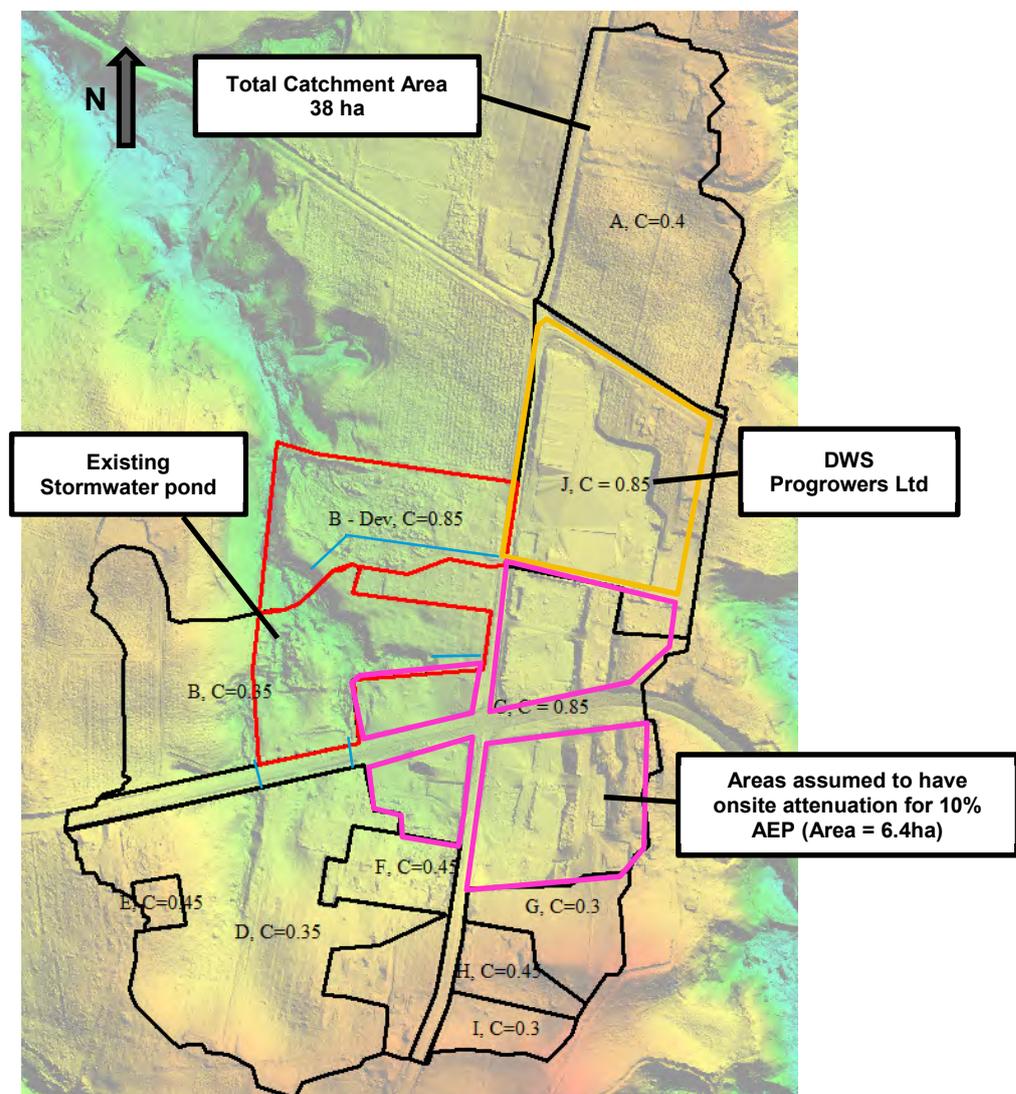


Figure 5: Pond Catchment and Sub-Catchments Based on Roughness Coefficient

It is assumed that the existing commercial developments, with the exclusion of the DWS Progrowers Ltd site, has been constructed to attenuate the 10% AEP runoff within their site boundaries. The commercial sites in question are shown in Figure 5.

The stormwater management philosophy for the proposed Te Puna Springs Estate Development is to collect and treat the stormwater using combined inline extended detention and attenuation ponds which will replace the existing pond and discharging into the water course at the existing point.

Current BOPRC guidelines require that the pond is designed to attenuate to 80% of the 100-year ARI predevelopment flows and match the 10-year and 2-year ARI predevelopment flows to ensure there are no downstream impacts from increased runoff. To mitigate any erosion effects from events smaller than the 2yr ARI, an extend detention pond will be used to distribute these runoff volumes over a 24hr period.

Using the Ramser-Kirpich formula, the Time of Concentration (ToC) was calculated to be approximately 17 minutes. This was based on the longest water course and slope based on the average area methodology. Similar results were achieved using the SCS ToC formula.

5.1 Existing Pond

The current pond design has twin 300mm dia pipe outlets located at approx. RL 11.75 and an approximately 9mtr wide spillway located at RL 14.5. See Figure 6 below showing the aerial view and cross section of the existing pond.

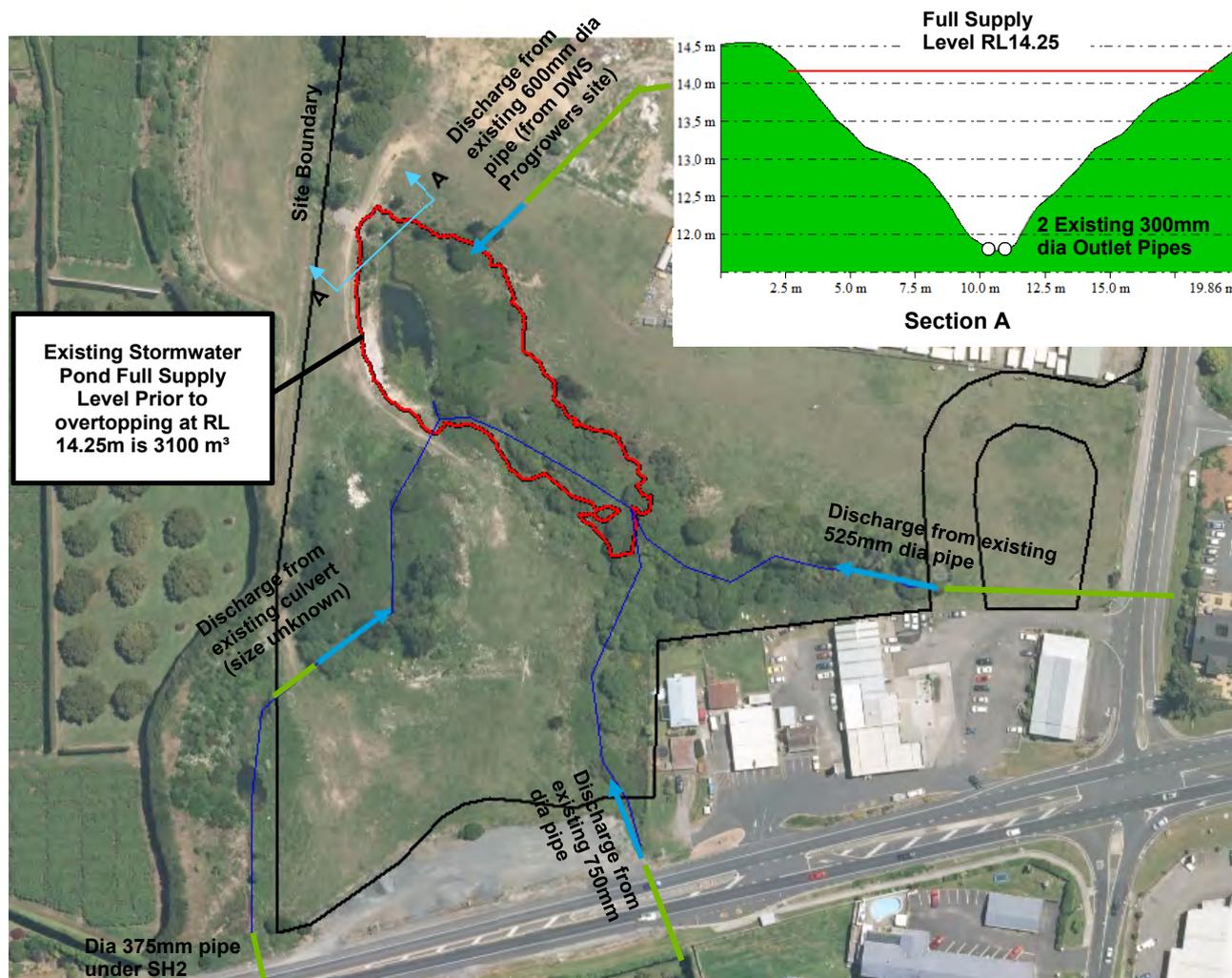


Figure 6: Existing Pond and Tributary Flows (overtopping at RL 14.25m)

As shown above the existing pond area at full level is approximately 3100m² and extends towards the SE following the existing gully and overland flow paths.

Using a 24hr nested storm off the existing catchment the existing pond is shown to exceed its capacity in even a 2yr storm event, with the Top Water Level (TWL) exceeding the crest level, and provides limited attenuation.

The 2yr, 10yr and 100 yr existing catchment flows have been calculated using the HEC-HMS with the existing stage storage for the existing ponding area and this has determined the existing predevelopment flows. These are detailed in Table 2 below.

5.2 Stormwater Pond Sizing

The HEC HMS stormwater model was then used to test increased storage and outlet configurations behind to provide the attenuation to match the target flow rates based on the predevelopment rates for the 2yr, 10yr and 80% of the 100yr. To calculate the 100yr target the existing contribution from the development site was determined, and 80% of this value was added to the balance of the catchment's flow to determine the maximum discharge in the 100yr event.

The resulting discharge rates and top water levels are shown in Table 2 below.

Table 2: Peak flow rates for Pre and Post development during 2,10 and 100yr ARI events

ARI	Predevelopment Flow (m ³ /s)	Post development Flow (m ³ /s)	Required storage volume (m ³)	Peak Elevation (m RL)	Controlling outlets
2yr	4.22 at RL 14.6m (i.e. spilling)	4.11	3000	12.62	2x 1050mm dia pipes at invert level 11.35 RL
10yr	7.62 at RL 14.7m (i.e. spilling)	7.53	5200	13.38	2x 825 mm dia pipes at invert level 12.625 RL
100yr	11.84 (1.98 from site + 9.85 from the rest of the catchment) at RL 14.77m (i.e. spilling) Targeting = 80% of 1.98(1.6) + 9.85 = 11.45	10.53	8300	14.24	As above

The peak runoff flows from the combined catchments were also calculated using the Rational formula for comparison and these results can be seen in the stormwater calculations in Appendix A.

The proposed green space area in the scheme plan covers approx. 7000m² and it is envisaged that the designed attenuation ponds and extended detention ponds would require approx. 4000 m² of this space to create the require volume. Some excavation and shaping between levels RL 11.25 to RL 14.25m will be required to achieve these storage volumes.

A representation of the possible pond position and the area required is shown below in Figure 7. The pond will be positioned within the existing watercourse area and will for the most part be reduced to a small channel running down the centre of the gully.

The embankments of the ponds and edges of the channel will be planted with wetland species and the surrounding area can be planted with larger species as is typical of a reserve/recreational area.



Figure 7: Possible stormwater pond sizing and available area.

5.3 Water Quality and Extended Detention

Two combined extended detention and water quality ponds are planned to be used adjacent to the existing main channel flow and separate from the rest of the catchment. They will be separated from the watercourse by low embankments which will be planted with wetland species.

Based on BOPRC guidelines the WQV has been assessed at 1580 m³ (650 + 930m³) from the areas highlighted in Figure 8 below. The extended detention volumes required are then calculated to be 1900m³ (780+1120) see stormwater calculations in Appendix A.

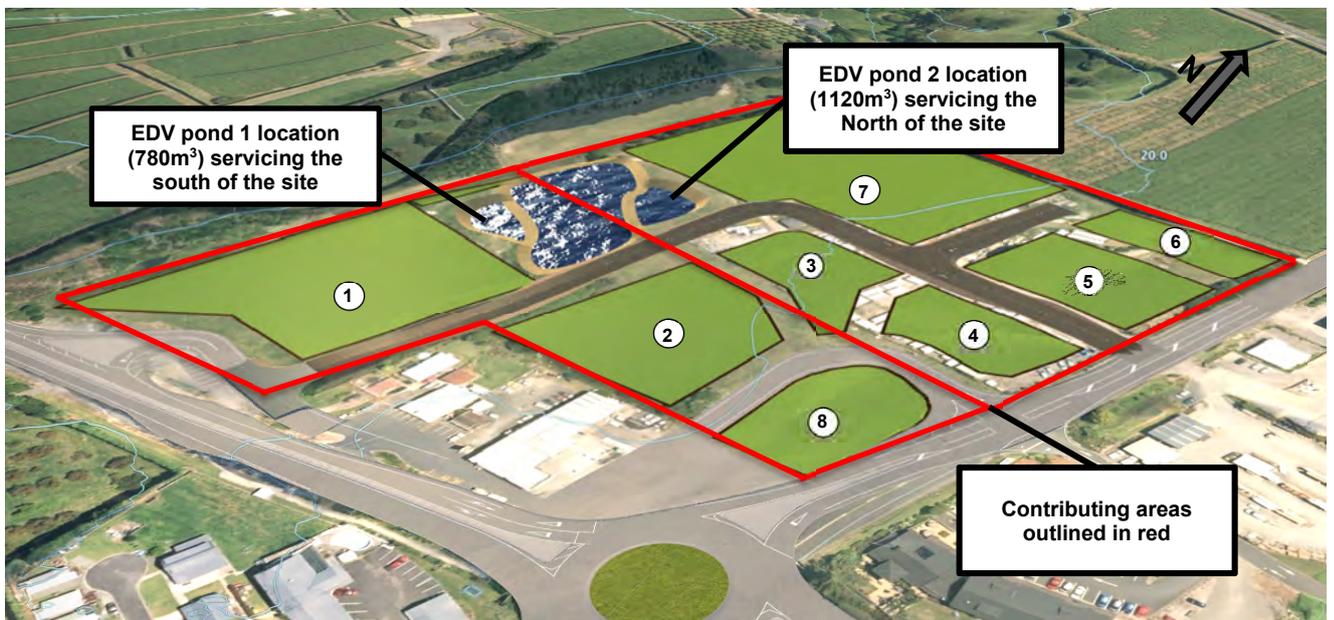


Figure 8 - EDV pond location and catchment areas

During the 100yr storm events it is envisaged that the extended detention ponds will be inundated and the storage volume above these ponds will form part of the attenuation pond storage capacity.

5.4 On-site Stormwater Management

Stormwater on site will be collected by roadside catchpits and open swales which will divert the stormwater flow into the gravity pipe network. The gravity network will convey all stormwater into the two extended detention ponds located either side of the main flow path for the greater catchment.

The stormwater channels that currently passes through proposed lots 1 & 2 will be connected to the new attenuation ponds by an extension of the existing culverts beneath the proposed fill material as shown by the red arrows in Figure 9. As these existing channels are already culverted, beneath an access crossing just inside the site boundary and under State Highway 2, this additional piping is not expected to cause any increase upstream from “heading up” at the inlet.

Overland flows from the southern side of SH2 will cross SH2 at the low point, overland flow down the service lane to approximately the location of the proposed road entry. This access road will be designed to provide overland flow to the attenuation pond to ensure the full upstream catchment passes through the pond.

From the extended detention ponds the stormwater will then be released at the controlled rate into the main attenuation pond located in line with the existing stream flow at the site of the existing pond which is the natural low point within the entire site. See Figure 9

It is understood that the Hall located on Lot 3 will have its own on-site stormwater attenuation system such as storage tanks and soakage, however for this initial assessment, this area has been included in the catchment calculations for the developed site.

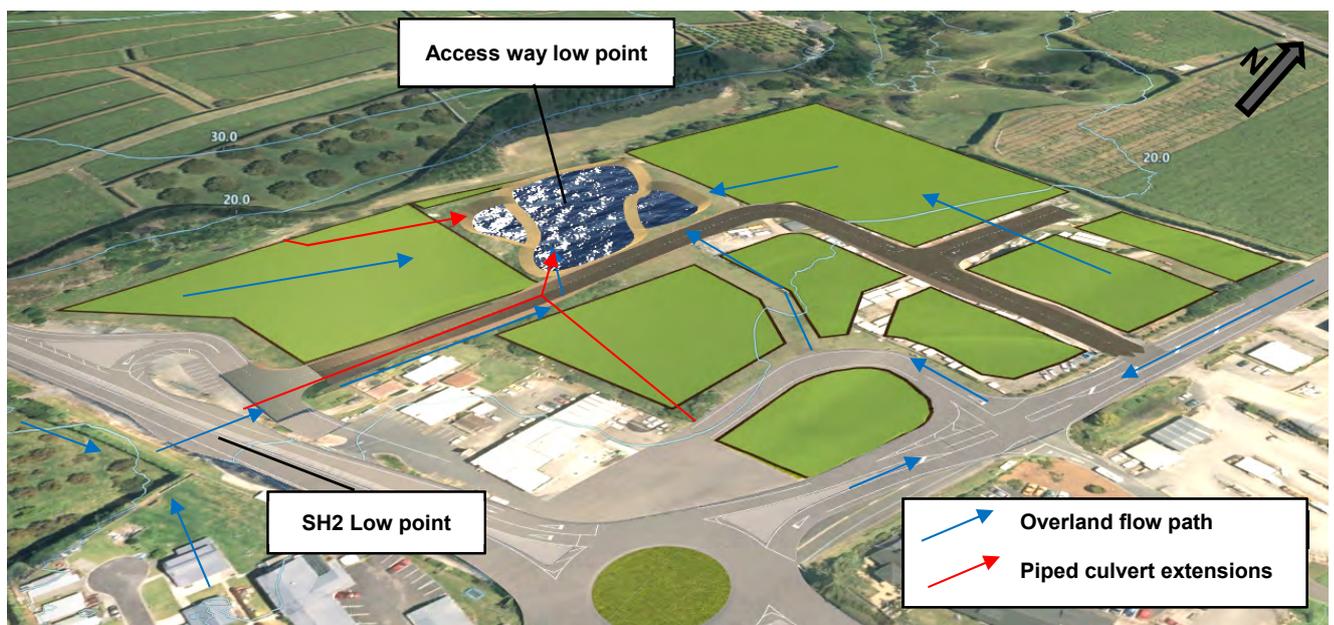


Figure 9 - Onsite stormwater management network

6 Sanitary Sewer

The proposed Te Puna Springs Estate site is located within an area that is not currently serviced by council reticulated sewer infrastructure. Therefore, the wastewater will either need to be treated and disposed of using onsite effluent treatment systems (OSETs) or alternatively a new reticulated system connecting to the existing rising main in Omokoroa or conveying the wastewater to a new treatment plant or disposal field on nearby land.

WBOPDC have recently conducted a community engagement program to understand the requirements within the Te Puna commercial area (see Appendix B and C). Five key issues were identified through this consultation of which wastewater management was one of them.

As a result, WBOPDC then engaged with consultants Pattle Delamore Partners Ltd (PDP) to conduct an assessment on the Te Puna wastewater servicing options and their report was completed in May 2019 (see Appendix A). The PDP report identified that the existing OSET systems for the current commercial businesses were undersized or not installed at all suggesting that current wastewater treatment within the area was not meeting the required standards.

At this point no plans have been confirmed for the proposed connection to the municipal reticulation although an update is expected at the end of October. For the purposes of this report both on-site treatment and the connection to an offsite municipal treatment or connection to the existing Omokoroa rising mains have been considered.

Typical design flows (extracted from Table H3, NZS 1547:2012 - On-site Domestic Wastewater Management) were used to calculate the anticipated daily flows from each of the proposed Lots. The findings are summarised in Table 3.

It is understood that the Hall located on Lot 3 will have its own on-site waste water treatment system and will be managed separate to the Te Puna Springs development.

Table 3: Provisional design flows for treatment and onsite disposal

Lot No. ⁴	Occupancy per day	Typical wastewater design flows (L/person/day)	Total flow (L/day)	Expected Weekly Flow (L/week)
1	10 Staff	50	500	2500
2	29 Staff	50	1450	7250
3	120 Visitors ⁵ 3 Staff	30 50	3750	11250 ⁶
4	N/A	N/A	N/A	N/A
5	12 Staff	50	600	3000
6	3 Staff	50	150	750
7	15 Staff	50	750	3750
8	5 Staff	50	250	1250

6.1 Reticulation to off-site treatment or existing Council network

Disposal of the wastewater to either a remote disposal field for treatment or connection to the existing council rising main and treatment plant facility will likely require a pipeline located within the berm of Te Puna road. To date there has been no consideration regarding the location of a remote disposal field so a conservative approach on the treatment and disposal field should be employed.

⁴ Refer to Figure 4 for proposed Lot layout

⁵ The number of visitors will be intermittent, however on a worst-case scenario, 120 visitors are expected

⁶ Lot 3 will have its own on-site waste water treatment system and will be managed separate to the Te Puna Springs development

Due to the topography in the area (falling away from the road to the west) both of these systems will require effluent to be pumped from the individual lots back up to the sewer main at the road.

A network of storage tanks, pumps and rising mains would be needed to convey the wastewater back up to Te Puna Road and connection to the chosen Municipal disposal system. An example of the possible pipe network is shown below in Figure 10.

All pipe networks should be constructed in accordance with WBOPDC development code guidelines.

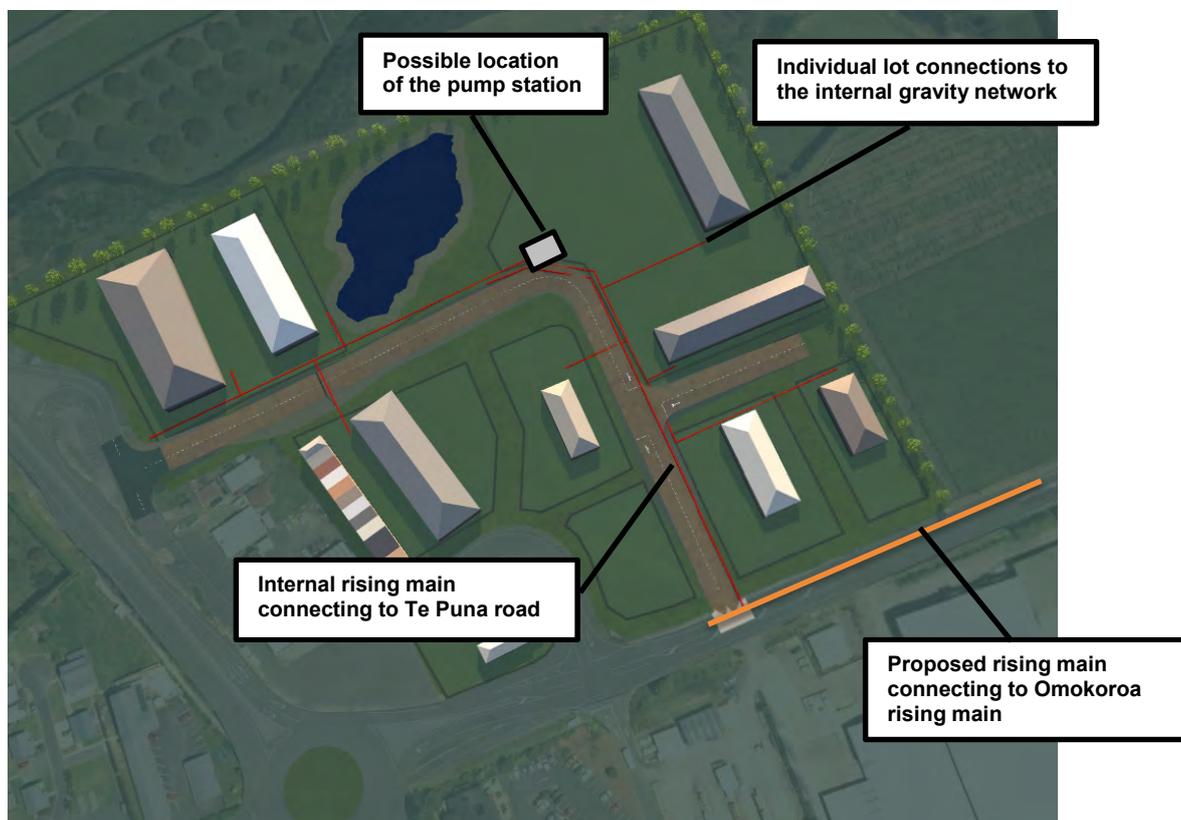


Figure 10 - Wastewater pipe network proposal

Initial discussions with WBOPDC suggest that there are already capacity issues within the Omokoroa catchment and hence it is unlikely that the Te Puna commercial area will be able to connect directly into this existing infrastructure without other upgrades to the system being completed.

6.2 On-site Effluent Treatment Systems

Based on the anticipated occupancy shown in Table 1, Lots 2 and 3 may require more sophisticated treatment systems to accommodate the high occupancy, whereas the remainder of the Lots should only require typical on-site effluent treatment systems and disposal fields.

6.2.1 Sewage Treatment

According to Table J1 in NZS 1547:2012, septic tanks of capacity of 3500L and 4500L will be sufficient to cope with the design flows for the proposed Lots.

Treatment products such as the Oasis Clearwater Aerated wastewater treatment systems (refer to Appendix E), or similarly approved, are recommended for high design flow applications.

6.2.2 On-site Disposal

Based on the anticipated ash soils found in the area, the site is expected to have a weakly structured Category 3 type soil (NZS 1547:2012, classification of loamy material), however this, together with other soil properties will require further investigation prior to detailed design of the disposal system. Based on the relatively low-

density building proposal there is not expected to be any issues allocated space for the required disposal fields.

The proposed option for the Te Puna Memorial Hall site will have the highest effluent production and hence the largest disposal field of approx. 542m². This based on a 30mm/day DLR for Secondary treated effluent and generic trench width of 450mm, depth of 400mm and spacing of 1500mm between trenches.

Based on an available green space area of land of approx. 1400m² (see Figure 11 below) there is expected to be sufficient space for the disposal field.

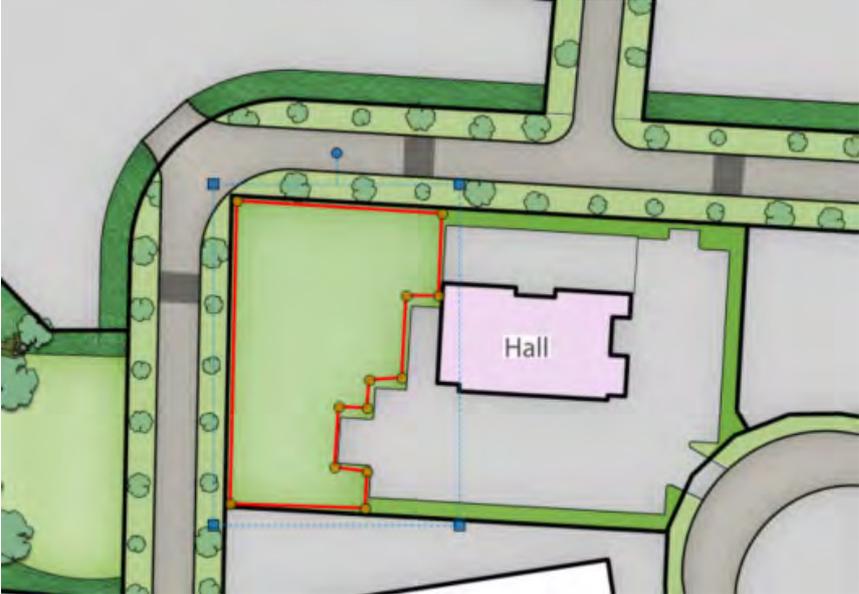


Figure 11 - Available land for disposal field

The remainder of the Lots have lower effluent generation and should therefore also have sufficient capacity to accommodate parking and disposal field requirements, and therefore, the wastewater servicing requirements are met for the Te Puna Springs Estate development.

7 Water

A 200 mm dia water main fronts the site on Te Puna Road and a 150 mm dia fronts the site along SH2. Based on the WBOPDC, a peak hourly flow rate of 1.5L/sec/ha is anticipated to be appropriate for the proposed development, therefore, an approximate supply demand of 12L/s is required. A 150mm dia principal main is expected to be sufficient. This complies with the empirical guidelines provided in NZS4404 Table 6.2 which specifies that a 150mm dia pipe is sufficient to supply 23ha of general industrial developments. A connection is proposed to the existing 200mm dia pipe along Te Puna Road and a connection to the 150mm dia pipe along SH2. An indicative proposed reticulation layout is shown in Figure 12.

A standard 20 mm dual check backflow metered water connection is expected to be sufficient to meet the demand and water protection requirements for each of the proposed lots. If the capacity of the 20mm dia connection is found to be insufficient for any of the lots during future design stages, the dual check valve will need to be installed on the property side of the boundary.



Figure 12: Proposed Reticulation Layout for Te Puna Springs Estate

In accordance with the NZ Fire Service Firefighting Water Supplies Code of Practice (SNZ PAS 4509:2008), the proposed commercial development is expected to be classified as a Fire Hazard Category 2 and Fire Water Classification 4. The following assumptions were made to establish the Fire Hazard Category and Fire Water Classification:

- low fire loads with storage stacks of less than 3m high;
- none of the proposed buildings have firecells larger than 600m²; resulting in a
- primary water flow requirement of 3000L/min within a distance of 135m;

- a secondary waterflow of 3000L/min within 270m for each of the proposed buildings.

Figure 12 indicatively shows the proposed locations of fire hydrants within the development. The proposed fire hydrants are positioned no further than 90m apart and are within reach to provide the required primary and secondary flows to any of the buildings within the proposed development. In the event of a fire, pipe flow velocities are not anticipated to exceed 3m/s, based on the proposed dual connection to the existing bulk water supply.

Subject to approval by Council, it is anticipated that the required development code standards will be satisfied for water reticulation on the Te Puna Springs Estate site.

8 Utilities

A dial B4 u dig enquiry has been undertaken to confirm any utilities located near the site. This enquiry confirmed the presence of the following services:

Powerco: LV cables located in the road frontage on SH2 and Te Puna road.

Chorus: High Capacity and Fibre cables located around the existing service station and on the East side of Te Puna road.

Service providers have not been contacted directly but it is unlikely that the proposed development will exceed the existing capacity to supply the proposed lots, and therefore servicing capacity constraints are not anticipated.

9 Conclusion

The development of the site on the corner of the Te Puna Road and SH2 by Te Puna Springs Estate Limited after the proposed plan change is not expected to have any significant servicing constraints however the following factors should be considered during detailed design.

The development sits within a catchment which may already have downstream issues with flooding and erosion and hence a relatively conservative approach to the stormwater management is required to meet the council guidelines.

The BOPRC stormwater management guidelines state that the post development flows should not exceed the 2yr, 10yr and 80% of the 100yr predevelopment rates. To meet these design criteria the existing attenuation pond sizing will need to be increased from the current 3100m³ to approx. 8300 m³. The current B&L plan has provision for a 9300m² of reserve/wetland located in the natural low point of the site so increasing the pond area is not expected to be an issue.

Some reshaping of the terrain within the site will be required to optimise the usable areas and create suitable building platforms. Most of the fill required will be used to infill the existing stormwater gully's with the existing pipes being extended within the fill to reach the new pond. It is expected that some imported fill will be required to complete the reshaping with approximately 25,000m³ of material to be moved onsite.

Flood levels during the 100yr ARI are expected to reach a peak of RL 14.24m so all building platforms will need to be set at a min of 14.54m to maintain a 300mm freeboard.

Sewer connections from the planned development can be achieved using either a). connection to the proposed new rising main on Te Puna Road which would convey the wastewater to an offsite treatment facility or b). the existing council reticulation network on Te Puna Station road. Strategic planning options from the WBOPDC Council regarding the future wastewater treatment options for the Te Puna Commercial area are expected in the near future and will influence the available connection options. Alternatively, the wastewater can be treated and disposed of via on-site-effluent-treatment systems within each lot boundary.

All lots would be serviced by a standard 150mm double ended principle main connection between the existing water mains on SH2 and Te Puna Road providing a peak demand of 12L/s. Standard 20mm lot connections would service each lot. The proposed commercial development is expected to be classified as a Fire Hazard Category 2 and Fire Water Classification 4.

There is not expected to be any servicing constraints with connections to the nearby Power and Fibre networks located in the road frontage on SH2 and Te Puna Road.



A

PDP Report – Te Puna
Wastewater Servicing
Options – May 2019

Te Puna Wastewater Servicing Options Report

• Prepared for

Western Bay of Plenty District Council

• May 2019

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Limitations:

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Western Bay of Plenty District Council. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This report has been prepared by PDP on the specific instructions of Western Bay of Plenty District Council for the limited purposes described in the report. PDP accepts no liability if the report is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

Executive Summary

PDP was engaged by Western Bay of Plenty Regional Council to investigate the options for community scale wastewater treatment and disposal for the Te Puna commercial area.

The current land within the area of benefit use includes accommodation, retail stores, cafes, pubs, a petrol station, a butchery and two kindergartens.

The existing businesses are serviced by their own on-site wastewater treatment and disposal systems within their own property boundaries. Four properties hold current resource consents from Bay of Plenty Regional Council to discharge wastewater to ground. These current consents issued allow for a total wastewater volume of 26.11 m³/day to be discharged within the area. In January 2019, a maximum water use of 27 m³/day was measured from water meter readings. Given the short period of time these measurements were taken over, this figure should be treated with a level of conservatism. However, based on these water use records, only two sites have adequately sized land disposal fields for both their consented disposal volume, and actual disposal volume. The remaining sites have various reasons for non-compliance with consent conditions, or no resource consent.

The maximum existing design wastewater volumes for all the businesses within the area of benefit is 55 m³/day based on the survey of existing properties and in-accordance with AS/NZS 1547: *Onsite Domestic Wastewater Management* (Standards New Zealand, 2012). Inclusion of 30m³/day from the adjacent Avocado factory at 1 Armstrong Road and allowance for infill, increases the maximum flow to 125 m³/day.

The wastewater from the proposed area to be serviced is expected to be a higher strength than domestic wastewater and its loading is estimated to be equivalent to the domestic load of approximately 1,500 people. This will influence treatment plant and collection system selection requirements to achieve satisfactory level of contaminant removal.

Both flow figures are average dry weather flows. To find equivalent wet weather flows, a peaking factor of 1.2 was applied giving 66 m³/day and 150 m³/day respectively.

The requirements for a land disposal field have been assessed based on a poorly structured Category 3 soil as per ASNZS 1547 (2012). For drip irrigation of wastewater, a design loading rate of 3.5 mm/day is required by AS/NZS 1547 (2012). Final effluent requirements are specified as 10 g/m³ BOD, 10 g/m³ TSS and 30 g/m³ Total Nitrogen to provide a suitable effluent for disposal to land with a nitrogen loading rate of 240 kg N/ha/year. A land disposal area of 3.6 ha is required for the ultimate PDDWF. Including set-back distances and access tracks, 5 ha should be allowed for.

Land surrounding Te Puna is generally of high value with rural residential and intensive horticultural land use the predominant land uses. It is expected that the disposal field could be located some distance from the Te Puna commercial area for cost and land availability reasons.

Two options are considered for the collection network; A STEP system or a low pressure sewer system. The collection system will have an impact on the collection system requirements. The collection network costs are estimated at approximately \$1.4M and are expected to be similar to the cost to provide a collection system and connect to the Omokoroa rising main pipe at Te Puna Station Road, which is approximately 2 km away.

Owing to the potentially high wastewater strength, chemical dosing is expected to be used on conventional proprietary secondary treatment plant technologies. GRAF NZ have provided a proposal that they claim will not require chemical dosing with the use of SBR treatment plant. However, they have stated that the treatment plant is not suitable for a STEP collection system. The requirements for chemical dosing to limit the levels nitrogen discharged will be increased with the use of STEP collection system.

For the ultimate wastewater flows, it is estimated the total cost for this system is \$ 5M - \$ 6M exc. GST.

It is recommended that considerations of alternative disposal methods are considered by WBoPDC, especially connecting into the Omokoroa rising main, or installation of a duplicate rising main. However, if this project was to continue, the next steps would be to locate a suitable piece of land and conduct a detailed site investigation in order to confirm land requirements prior to purchase.

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1.0 Introduction and Background

1.1 Project Scope

Pattle Delamore Partners Ltd (PDP) was engaged by Western Bay of Plenty District Council (WBoPDC) in February 2019 to assess the requirements and options for providing a community scale wastewater treatment and disposal scheme for the Te Puna commercial area. This scope of engagement includes considering both existing and future development scenarios.

1.2 Site Location

The Te Puna commercial area is located approximately eight kilometres west of Tauranga city at the intersection of State Highway 2 (SH 2) with Te Puna Road and Minden Road (Appendix A, Figure A1). The area is commercially zoned (Appendix A, Figure A2) and hosts cafes and bars, accommodation, retail stores, a petrol station and two kindergartens. The mixed retail use is varied and includes a butchery, rural supplies, a physiotherapist clinic and a veterinary clinic.

The Te Puna area in general is growing rapidly and has recently received an upgrade to the SH2 intersection itself with the addition of a roundabout, which is designed to improve traffic flow. The Area of Benefit of the Te Puna commercial area as used for this report is shown in Figure A2 and is demarcated by the red outline. This area has been assumed based on the existing Commercial Zone identified in the WBoPDC District Plan but with some adjustments to meet the existing land uses present in the area (as shown in Appendix A, Figure A3). This area should be confirmed as suitable, or otherwise, by WBoPDC.

A map of the individual properties is located in Appendix A (Figure A3). At present the Area of Benefit is not connected to any municipal wastewater network. Individual properties each have their own OSET (on-site effluent treatment and disposal) systems. These systems rely on effluent disposal by soakage to ground and have varying degrees of success and compliance with consent conditions.

1.3 Performance and Issues of Existing OSET Systems

It is understood that only five properties (some of which contain multiple businesses) are currently consented to discharge wastewater to land via on-site wastewater treatment systems. All the consents to discharge wastewater expire in the next ten years with the consent for No 4 Minden Road (Accommodation Te Puna) expiring at the end of 2019.

According to Bay of Plenty Regional Council (BoPRC), based on details supplied by WBoPDC, two properties are considered to be breaching their consented wastewater volume. These properties are No 4 Te Puna Road and No 4 Minden Road. These two properties also have under-sized disposal fields for the disposal methods and consented disposal volume.

The properties at No 626 and No 620 SH 2 (Four Square, BP Connect, Te Puna Motors and Professionals Real estate) do not have any known resource consents for their wastewater disposal. There are also two residential houses (at No 626 SH2 and No 12 Minden Rd) that are within the commercial zone. They are likely to be operating old septic tanks and would eventually contribute to a wastewater flow and load for a community wastewater scheme.

2.0 Wastewater Loading

2.1 Land Use and Wastewater Quality

The land use includes some businesses that will produce large volumes of wastewater including commercial kitchens, pubs, a butchery and a popular café.

The site of No 17B Minden Road is currently zoned as rural land but has been included in the Area of Benefit as it includes domestic wastewater discharges adjacent to the study area. WBoPDC has also advised to include No 1, 7 and 25 Armstrong Road (Avocado and Kiwifruit Packing Sheds) in the Area of Benefit, as their consent requires connection to a public sewer system if it is available.

2.2 Water Metering

WBoPDC data was supplied that shows the daily water use for each property over a fifteen day period in January 2019. This can be used as a gauge of wastewater production for these sites. For the Te Puna commercial area the average daily water use was measured as 20.9 m³/day. The maximum measured daily use over this time totals 27.2 m³/day. It is noted that given the relatively short period of metering, this represents only a “snapshot” of the water use/wastewater generation and as such these number needs to be treated conservatively.

2.3 Wastewater Flows for Te Puna Commercial Area

Phone calls were made in February and March 2019 to determine the numbers of staff, customers and guests on the site for each business. In some cases, this was not possible so a field survey was undertaken by PDP staff on 6th March 2019 and staff visited some businesses to obtain the required information.

AS/NZS 1547: Onsite Domestic Wastewater Management (Standards New Zealand, 2012) provides design wastewater flows in litres per person per day for various types of facilities for the design of on-site wastewater treatment and disposal systems. Using this, the current maximum wastewater production is assessed to be 55 m³/day. This maximum value was cross checked using Auckland Watercare Guidelines (2018). Comparable results were achieved.

It is considered that this flow represents a Peak Daily Dry Weather Flow (PDDWF). This is regarded as a slightly conservative approach as the wastewater treatment and disposal systems covered by AS/NZS 1547 (2012) normally only apply for domestic wastewater flow up to 2 m³/day (Standards New Zealand, 2012). As such, it is likely to result in an overestimation of wastewater generation when scaled up to a large development. It assumes maximum occupancy of all properties at the same time, which is considered unlikely, especially for a commercial area with varied water use/wastewater production.

The 55 m³/day is well above the maximum recorded water use of 27.2 m³/day for the area. However, it is again noted that given the relatively short period of metering, the maximum recorded water use (and essentially wastewater production) needs to be treated conservatively. It is expected that higher water use (and wastewater production) would be typically occur during seasonal horticulture activities (picking and packing) and/or events such as Aims Games.

Peak wet weather flows are dependent on the type and condition of the waste water reticulation. For this development (as discussed in Section 4.1) a pressurised reticulation system is proposed for the network. Along with other advantages, this significantly reduces the likelihood for stormwater inflow and groundwater infiltration. A peak wet weather factor of 1.2 has been assumed. A Peak Wet Weather Flow (PWWF) of 66 m³/day has been calculated for the existing businesses.

2.4 Wastewater Flows for Ultimate Development

Infill development is estimated using flow rates from AS/NZS 1547 (2012) for vacant premises. An additional 70% is included for further development at 15 and 17 Minden Road and the vacant land adjacent to BP Connect on Te Puna Road. Table B2, Appendix B shows this calculation.

The Avocado Packing Shed on Armstrong Road will be adjacent to a public sewer if this system is constructed. As such it will be required to connect to the system as this is a condition of their current wastewater disposal consent. This property has recently been consented for an on-site wastewater treatment and disposal system to discharge 30 m³/day of domestic wastewater from the packing shed.

Based on these assumptions, a PDDWF of 125 m³/day is estimated for existing land uses based on AS/NZS 1547 (2012) hydraulic loading rates.

Again, a peak wet weather factor of 1.2 has been assumed. A Peak Wet Weather Flow (PWWF) of 150 m³/day has been calculated for the ultimate development.

As a sensibility check on the ultimate development loads, WBoPDC’s Engineering Code of Practice provides a design flow of 0.4 L/s/ha for light commercial/industrial land use. This figure is typically used in the design of larger gravity reticulation systems subject to wet weather inflows and usually needs to provide a wet peaking factor of 3-4 times ADWF for commercial and industrial properties (this equates to 0.1 - 0.125 L/s/ha for ADWF). An ADWF of 116 - 152 m³/day has been calculated assuming all land within the Te Puna commercial area has been developed which is comparable to the PDDWF of 125 m³/day (once the peaking factor has been applied).

2.5 Wastewater Loads

Wastewater loads for levels of BOD₅ and NH₄-Nitrogen are estimated from loading rates included in British Waters Loading Guidelines (2005) for the PDDWF from the existing commercial area (125 m³/day). This equates to a total untreated wastewater load of approximately 30 Tonne of BOD₅ per year and 6,300 kg of Nitrogen per year. These contaminant loads equate to an equivalent wastewater load from a population of 1300 to 1500 people. These calculations can be seen in Table B3, Appendix B. These loads are much higher than typical residential wastewater. This is an important factor in treatment plant and disposal field selection and design.

2.6 Summary

There are several businesses that produce large volumes of wastewater including cafes and accommodation. The loading rate of the wastewater will be higher than typical residential wastewater. Design flows for the existing and ultimate development are presented in Table 1.

Table 1: Design Flows		
Wastewater Volume Scenario	Existing Development ¹ (m ³ /day)	Ultimate Development ² (m ³ /day)
Average Dry Weather Flow ³	25	73
Peak Daily Dry Weather Flow	55	125
Peak Wet Weather Flow ⁴	66	150
<p><i>Notes:</i></p> <ol style="list-style-type: none"> 1. Assessed by facility type (AS/NZS 1547) for each land use and occupancy rate. 2. Increase in the existing flow assuming an additional 25% allowance for infill development and 30 m³/d flow from the Avocado Packing Factory adjacent to the Te Puna Commercial Area. 3. The existing ADWF is based on the average water meter reading data of 20.9 m³/d, with 20% allowed for conservatism. The ultimate ADWF maintains a similar ADWF/PDDWF ratio but allows for the Avocado Packing Factory flows. 4. PWWF allows for a peaking factor of 1.2 x PDDWF. 		

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For high level conceptual design, a community wastewater treatment and disposal system should allow for the ultimate development flows of 125 m³/day and peak wet weather flows of 150 m³/day. The volume and effluent strength design flows shall be verified and confirmed prior to the selection of a suitable parcel of land and the preliminary and detailed design process.

3.0 Existing Onsite Systems

3.1 Description

The current consents held in the Area of Benefit are described below. This data was sourced from BoPRC. It should also be noted that there are multiple sites operating on old septic tanks or unconsented systems.

Table 2: Current Wastewater Disposal Consents				
Property	Consent Number	Consent Expiry Date	Maximum Daily Volume ¹	Treatment and Disposal Method
4 Minden Road	65367	2019	7 m ³ /day	Unknown, Dripper Irrigation
15 and 17 Minden Road	65934	2026	14.11 m ³ /day	Unknown, Disposal Trenches
17B Minden Road	RM18-0060	2028	1.5 m ³ /day	Hynds Lifestyle, Disposal Trenches (not constructed)
4 Te Puna Road	63442	2025	3.5 m ³ /day	Innoflow, Dripper Irrigation
620 SH 2	No consent			Hynds Lifestyle, Raised Soakage Bed (20m ²)
626 SH 2	No consent			Unknown treatment and disposal

Notes:

- This is the maximum consented volume of wastewater to be produced/disposed of each day*

The location of each property/consent is marked in Appendix A, Figure A4. The current consented daily disposal volume totalled in Table 2 is 26.11 m³/day. This is less than the volume calculated as the current daily maximum use or the maximum estimated wastewater flows for the businesses present.

All consents expire in less than 10 years' time, with the consent for 4 Minden Road (Accommodation Te Puna) due for renewal at the end of this year.

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Wastewater production of individual properties has also been compared to their consented volumes and this is shown in the same figure (Figure A4) of Appendix A.

3.2 Suitability of Existing On-Site Systems

As shown in Figures A4 and A5 of Appendix A, not all sites in the Te Puna commercial area are operating outside of their current system capabilities and consent conditions.

The disposal area proposed for No 15 and 17 Minden Road (Te Puna Tavern, Farmlands etc.) appears to be sufficient for the currently measured water used and 17B Minden Road (Kindergarten) has been correctly designed but has yet to be constructed. Water use figures suggest that 4 Te Puna Road (Nourish café) is producing far more wastewater than the treatment plant and disposal field is designed to handle. Furthermore, the specified wastewater disposal field areas do not appear to have been fully constructed. During the site visit it was observed that one is a steep sloping section of ivy and the other is now concreted and split by a retaining wall. An area near the carpark appears to be the current disposal site by drip irrigation. During the site visit no drip lines were seen, however, the soil in the area was saturated.

The field size for 4 Minden Road shown on the consent drawings was less than what is required for the consented volume. The maximum measured water usage was also much higher than the consented disposal volume.

No 620 SH2 (Te Puna Motors and BP Connect) has a recently installed secondary treatment plant and a raised 20 m² disposal bed. This was observed to be seeping to the surrounding ground when on site. It is also too small for the measured water volumes being disposed to it.

626 SH 2 (Four Square site) also does not have a consent. Nothing is known about the wastewater treatment here. It is assumed the site has an old septic tank.

3.3 Soil Types

The soil type is particularly important for wastewater disposal and *AS/NZS 1547: On-Site Domestic Wastewater* (Standards New Zealand, 2012) provides guidance on recommended design irrigation/loading rates for treated wastewater disposal. This directly affects the size of the required disposal system.

S-Map Online (a database produced by Landcare Research) describes soil in the Te Puna area as well drained, 'Ngakura-f' loam with rapid permeability.

In previous consents the soil has been categorised as category 3 or 4 (AS/NZS 1547, 2012) with a poor structure. During the PDP site visit conducted on 6 March, 2019, from observations of road cuttings and it was found that the soil onsite was classed as weakly structured sandy silt with coarse sand. The material is re-worked volcanic material and is highly layered. This is consistent with geotechnical records for recent highway works. This soil is not expected to retain its strength when unconfined and wet. For this reason, calculations were carried out assuming the soil was a category 3 massive soil in accordance with AS/NZS 1547 (2012).

Based on this category, a maximum design loading rate of 3.5 mm/day has been assumed for a community scale wastewater and disposal system. This is a critical assumption, which will need to be carefully considered prior to the purchase of any land for disposal.

4.0 Options and Requirements

4.1 Collection System and Layout

A preliminary reticulation system was developed by PDP as part of this exercise. This can be seen in Figure A6 of Appendix A. The following features have been noted that are relevant in any collection system for the Area of Benefit:

1. Properties on the eastern side of Minden road fall away from the road and will need pumps to pump wastewater back to Minden road to avoid locating infrastructure in the State Highway corridor.
2. 15 Minden Road already discharges through a pumped system and interceptor tanks. Extensive internal site works will be required to convert this system to gravity operation.
3. A central pump station may also be required to collect wastewater to pump it to a disposal field and treatment plant if it is required to be located some distance from the area to be services.
4. At least 24 hours emergency storage is desirable to provide backup storage in case of mechanical or electrical failure of the forwarding pumps.

Owing to the topographical constraints above, and the presence of the existing STEP tanks at 15 Minden Road, a gravity system is generally unsuitable for the Area of Benefit. A low pressure sewer system (LPSS) or Septic Tank Effluent Pumping (STEP) sewer collection system will likely be required for the collection system and have been considered in this report. While, existing businesses at 15 Minden Road already have interceptor tanks and pumps, it is anticipated that these will need to be upgraded to provide satisfactory emergency storage.

A STEP system provides pre-treatment with an interceptor tank including a filtered outlet prior to a high pressure pump to transfer the wastewater to the main treatment plant. This improves the pump reliability and reduces some of the treatment requirements. However, to remove nitrogen, carbon is required in the wastewater. This is usually provided from the solids in the wastewater. In a STEP system where these are separated out before a treatment plant, carbon dosing at the treatment stage is often required.

A LPSS sends the wastewater through a grinder pump station to reduce the size of the solids before pumping the wastewater into the network. Each property has its own grinder pump station. It is normal practice for LPSS and STEP systems to provide up to 24 hours storage of continued discharges in the event of mechanical failure elsewhere in the system.

The advantages and disadvantages of each collection system are listed below:

Table 3: LPSS vs STEP Systems		
	Low Pressure Sewer System	Septic Tank Effluent Pumping System
Advantages	<ul style="list-style-type: none"> ∴ Levels of organic materials maintained assisting N removal. 	<ul style="list-style-type: none"> ∴ Removal of some solids resulting in improved pump reliability. ∴ Removal of solids reduces cost of sludge removal at treatment plant. ∴ Allows for easier incorporation of storage tanks at each property, particularly at low flows.
Disadvantages	<ul style="list-style-type: none"> ∴ Higher maintenance costs due to pump wear and solids blockages. ∴ No “pre-treatment” prior to treatment plant resulting in greater solids disposal costs, and higher BOD. 	<ul style="list-style-type: none"> ∴ Solids collection in STEP tanks requires routine removal and ongoing costs. ∴ Removal of solids before network increases treatment costs as carbon dosing is often required.

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4.2 Wastewater Treatment and Disposal

4.2.1 Disposal Method and Land Area Requirements

Potential sites for a WWTP and land disposal site have not been considered in any detail by WBoPDC or PDP at this stage. Given the uncertainty of the location, it is not possible to determine the sensitivity of the receiving environment and the proximity to neighbours.

As such, a relatively conservative approach must be taken. It is assumed that a sub-surface drip irrigation system will be utilised for disposal. This is a relatively low profile form of discharge (compared to a direct discharge to water or an above ground irrigation system).

For the ultimate PDDWF of 125 m³/day and a design loading rate of 3.5 mm/day, this would require a minimum net irrigation area of 3.6 hectares as shown in Table 4.

Table 4: Land Disposal Area			
Wastewater Flow ¹	Net Irrigation Area by Hydraulic Loading ¹	Annual Discharge Depth (mm/yr)	Areal Nitrogen Loading (kg TN/ha/yr)
125 m ³ /d	3.6 ha	750	230
<i>Notes:</i> 1. PDDWF has been used to determine the net irrigation area. 2. ADWF has been used to calculate the annual discharge depth and the areal nitrogen loading rate (30g/m ³).			

The hydraulic loading rate typically needs to be limited to less than 750 mm disposal depth per year to limit nutrient leaching. This will vary from soil to soil and detailed modelling of a water balance during winter conditions will be required prior to applying for resource consent for the discharge.

Final land area requirements will be greater than the disposal area calculated above due to allowances for buffer strips, cut off drains, access tracks, fencing and the WWTP compound. Typically, this would comprise of an additional 10 m around the perimeter of the irrigation field (for drip irrigation) and around 2,000 m² for the WWTP compound (TBC). In total this may equate to an additional 1.5 hectares. Additional buffers may be required around any sensitive areas or areas not suitable for irrigation.

At a conceptual level, prior to the selection and confirmation of a suitable parcel of land, 5 hectares should be allowed for.

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4.2.2 Wastewater Treatment Plant Requirements

To enable disposal via a drip irrigation system, PDP considers that effluent quality for both biochemical oxygen demand (cBOD₅) and suspended solids (TSS) should have typical concentrations of less than 10 g/m³. This requires a relatively high level of treatment, consistent with that provided for the Ongare Point Wastewater Scheme.

A WWTP achieving this quality is typically able to achieve a Total Nitrogen concentration of around 30 g/m³, which has been adopted in the areal nitrogen loading rate in Table 4.

The nitrogen loading rate of 230 kg/ha/year is considered within the range suitable for a cut and carry operation and similar to other schemes in New Zealand. A nitrogen loading rate of this magnitude is likely to have a limited off-site environmental effect and therefore is likely to be granted discharge consent without too much difficulty (subject to further assessment). In comparison to Ongare Point the AEE outlined a range of nitrogen loading rates from 200 to 330 kg/ha/year throughout lifetime of the scheme.

Phosphorus is not expected to be a limiting factor in the selection of a disposal field. *S-Map Online* data extracted for the nearby areas indicate that the soil has a high Phosphorus retention capacity of 83%. Assuming a minimum unsaturated zone depth available for phosphorus retention is 1.0 m, it is likely that there is over 50 years of Phosphorus retention available for WWTP disposal. Therefore, the risk of Phosphorus migration to groundwater is expected to be low.

Other key contaminants such as BOD₅ and TSS will be treated sufficiently in such plants and will not influence disposal options. Pathogens are typically treated well in land disposal systems, but if they are a concern, ultraviolet treatment can be added to the plant discharge.

4.2.3 Potential Disposal Field Locations

Land use around Te Puna commercial area is generally horticultural or rural residential, and in small parcels. Larger areas of undeveloped land close to the Te Puna commercial area are generally limited to steeper land or low lying land in the base of gullies. PDP considers that it is likely that land for a suitable disposal field could be up to 2 km away from the Te Puna Commercial area.

4.3 Alternative Disposal Methods

High level consideration of alternative disposal methods produced five options, which are detailed in the following Sections.

4.3.1 Status Quo

The 'status quo' approach would force those sites who are not complying with their resource consent conditions to become compliant individually. While this option has the least cost involved (from the District Council's perspective), it does not address the issue that some sites will likely not become compliant as their available disposal area will be insufficient. This is already an issue with multiple sites in the area and as their consents come up for renewal.

4.3.2 Surface Water Discharge

It may be feasible to obtain a higher quality of wastewater and discharge to the low lying land in the base of the gullies adjacent to Tauranga Harbour. This will effectively be a surface water discharge owing to the proximity to surface water bodies and high groundwater levels. Some additional treatment will also be obtained by discharging through a natural wetland system and ultimately to the Tauranga harbour. This may become an option to avoid the need to purchase a large area of high value land for a land disposal field. However, this option would require a very high level of treatment and increase the difficulty and complexity of consenting the discharge.

4.3.3 Deep Groundwater Injection

Groundwater injection will also require a high level of treatment and involve complex consenting issues to overcome.

It is noted that the surrounding area water supplies are largely serviced from the public water supply. There are some ground water bores used for horticulture, but generally it has not been economic to provide water supplies for individual properties owing to the depth of bore required. This will be a key consideration in terms of discharge effects.

It would be necessary to obtain a better understanding of the local hydrogeology to confirm the feasibility of this option.

4.3.4 Omokoroa Rising Main Connection

This option considers pumping wastewater approximately 2 km from the Te Puna Area of Benefit into the sewer rising main running from Omokoroa to Bethlehem. This rising main discharges into the Tauranga City Council (TCC) wastewater network and ultimately TCC's Chapel Street WWTP.

Based on information from WBOPDC staff, PDP understands that this rising main will be at capacity when all the planned connections at Omokoroa are functioning. Therefore, connection to this rising main may not be desirable in the long term. It is possible that a similar land disposal system (to that proposed for Te Puna) may be more cost efficient for one of these planned connections. This would then allow the Te Puna system to connect to the sewer line in its place. This cost would be predominately determined by land value at each location.

It may also be possible to implement this option as an interim measure prior to construction of the WWTP and disposal site for Te Puna, even if it is not possible to consider as a long-term option.

4.3.5 Duplicate Rising Main to the TCC Network

If agreement can be reached with TCC, it may be plausible to discharge a separate rising main (approximately 3.5 km length) into the TCC network in Bethlehem. This removes the difficulty and complication of a standalone wastewater treatment and disposal system. The option may be a very cost competitive option if there is sufficient capacity in the downstream Tauranga City Sewer network and treatment facilities.

4.4 Recommended Centralised Treatment Plant and Land Disposal Field

Depending on WBoPDCs consideration of alternative disposal methods, PDP recommends sizing a centralised treatment plant with land disposal for a PDDWF of 125 m³/day. A land disposal site (including the WWTP) would require a total area of approximately 5 hectares (subject to suitability).

Considerations between a pressure sewer and a STEP system should consider the variation in treatment process capability, maintenance costs and the ease of incorporating emergency storage tanks to the collection system.

It is recommended to consider the possibility of connecting a collection system to the Omokoroa rising main as an interim measure prior to construction of the WWTP and disposal site.

5.0 Cost Estimate

A preliminary costing for a community wastewater system has been broken down in Table 5.

Table 5: Preliminary Cost Estimate	
Item	Costs (exc. GST)
Collection System	\$870,000
Wastewater Treatment Plant	\$1,250,000
Disposal Field Construction	\$90,000
Contractors Preliminary and General (15%)	\$330,000
Design and Consenting (15%)	\$380,000
Capital Works Subtotal	\$2,920,000
Land Purchase Costs	\$1,000,000
Project Costs Subtotal	\$3,920,000
Contingency (30%)	\$1,176,000
Total Estimated Project Costs	\$5,096,000
<i>Notes</i> <ol style="list-style-type: none"> 1. Land value is estimated at \$200,000/ha based on rateable land values in the area. 2. Treatment plant costs are estimated at \$10,000/(m3/day) based on previous experience. 3. Disposal field estimate at \$25,000/(ha) based on previous experience. 4. All costs exclude GST. 	

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The alternative discharge option of a wastewater pump station and rising main to pump wastewater to the TCC network (as described in Section 4.3.5) should be considered further by WBoPDC. This may offer cost savings, with a high-level estimated project cost of around \$4M. This option will also reduce the risk associated with a discharge consent process and will be able to better cope with any unaccounted increases in wastewater flow in future.

We note that PDP have prepared the cost estimate for the conceptual purposes of this report. PDP have no control over the cost of labour, material, equipment or services provided by others, or contractor prices, or competitive bidding of future market conditions and inflation. Any opinion of estimated cost is PDP’s opinion based on our experience and represents our judgement as experienced and qualified professional engineers. PDP cannot guarantee that proposals, bids or actual construction costs will not vary from our estimate.

6.0 Proposals

Preliminary proposals were sought from three suppliers to assess footprint and treatment options for a WWTP in the order of 125 m³/day. To date, responses from three suppliers have been received, Innoflow Technologies, Graf NZ Ltd and Hynds in Appendix C.

6.1 Innoflow Technologies

Innoflow Technologies have proposed a three stage treatment plant. Two stages are required to treat to 25 mg/L nitrogen and they claim that they can achieve up to 5 mg/L nitrogen with the third stage. At this level of treatment, hydraulic loading rates will be the governing factor and the additional treatment may be of limited benefit in reducing land requirements

A minimum area of five hectares of favourably contoured land is anticipated to be required. A footprint area of 2000 m² is also required for the treatment plant.

All options proposed by Innoflow Technologies include Step Sewer collection systems and will require chemical dosing to achieve the required nitrogen.

The total costs from Innoflow are estimated at \$5M to \$5.4M exc. GST (including land costs) which is well within the margins of PDP's estimate. This provides some confidence that the scheme is likely to cost in the order of \$5M to \$6M exc. GST.

6.2 Graf New Zealand

Graf NZ Ltd can provide a proprietary Sequencing Batch Reactor (SBR) Plant with a pressure sewer collection system.

They state that they can meet a 30 mg/L total nitrogen standard of treatment without any chemical dosing to limit nitrogen levels, but only with a pressure sewer collection system that retains organic content in the wastewater. In practice, SBR plants have been known to achieve higher levels of treatment than 30 mg/L for commercial developments. A correctly operated SBR plant should not need any chemical dosing to achieve the required level of nitrogen removal but can be difficult to set up for variable effluent loads.

Graf NZ has provided a budget cost of \$1.1M to design and construct an SBR treatment plant. Based on other costs included in Table 5, total costs of \$5.1M are estimated for the Graf NZ SBR treatment plant.

6.3 Hynds

Hynds proposed four 30 m³/day Oxyfin Submerged Aerated Fixed Film Plant modules to treat up to 120 m³/day. However, chemical dosing will be required to achieve reasonable level of nitrogen reduction and the plant will only treat up to 50 m³ BOD per day (when 80 m³/day is expected). No price or any further information was received from Hynds.

The submission from Hynds illustrates the need for specific design and general unsuitability of standard proprietary domestic plants to treat the flows and loads at Te Puna.

7.0 Next Steps

The most important step to move forward with this project is to determine if a local land disposal plant and field is preferable to the options discussed in Section 4.3. If so, the next step is to confirm the availability of an adequate site for the disposal field and treatment plant.

Once the site has been confirmed, a detailed site investigation must be carried out to determine soil type and category. It should also consider a water balance, nutrient modelling, assessment of any slope stability issues, any potential groundwater mounding effects and other groundwater issues to support a resource consent application to discharge effluent to land. It is recommended that the design flow rates will need to be reviewed and agreed upon for this process.

As an interim measure, WBOPDC could consider installing the collection system to pump the non-compliant onsite systems to the Omokoroa Rising Main prior to its capacity being exceeded. This could be particularly beneficial if the land for the proposed treatment plan and disposal field are to the north of State Highway 2.

8.0 Conclusions

The Te Puna commercial business area has varied land uses including accommodation, retail stores, cafes, pubs, a petrol station, a butchery and two kindergartens. Only two sites are currently complying with their consented wastewater flows. All other sites either have no consent or do not appear to be operating in accordance with their consent conditions.

Current consents issued allow for a maximum of 26.11 m³/day. However, the maximum measured water usage of 27.2 m³/day exceeds this figure. Wastewater volumes were also calculated for the existing and ultimate wastewater productions according to AS/NZS 1547 (2012). These are 55 m³/day and 125 m³/day respectively (PDDWF).

Using these volumes, and the anticipated soil category, the requirements for a disposal field was assessed. The required net disposal area is approximately 3.6 hectares (subject to land suitability) with a total site area of 5 hectares expected. The exact area requirements will vary from soil to soil and detailed modelling of a water balance during winter conditions will be required prior to applying for resource consent for the discharge. It is noted that the contaminant loads from the system equate to an equivalent wastewater load from a population of 1300 to 1500 people.

The collection system is recommended to be either a STEP system or a low pressure sewer system. A STEP system has its own advantages; however, a pressure sewer system has the added advantage that it could be connected to the Omokoroa main line in the interim as the treatment site is constructed.

A high level cost estimate has been prepared along with supplier estimates for the wastewater collection, treatment and disposal system. It is estimated that the scheme is likely to cost in the order of \$5M to \$6M exc. GST.

Prior to implementing this system, it is recommended that an alternative discharge option of pumping wastewater to the TCC network via a new rising main should be considered. This may offer cost savings, with a high level estimated project cost of around \$4M exc. GST and may also reduce the risk associated with consenting.

Should the centralised wastewater treatment and disposal system be considered further, then the next step in this process is to confirm the availability of an adequate site for the disposal field. A detailed site investigation would then be required along with confirmation of wastewater flow rates, which would dictate the treatment quality requirements. This would enable a preliminary design and improved cost estimates to be provided.

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9.0 References

British Water. (2005). *Code of Practice: Flows and Loads 2*. London, United Kingdom.

Standards New Zealand. (2012). *NZS 1547: On-site Domestic Wastewater Management*. Wellington, New Zealand.

Watercare. (2018). *Water and Wastewater Code of Practice for Land development and Subdivision: Chapter 5*. Auckland, New Zealand.

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Appendix A: Figures

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Figure A1: Site Location



Figure A2: Existing District Plan Land Zoning



Figure A3: Site Properties and Businesses

Site: 620 SH 2

BP Te Puna
Te Puna Motors

Site: 626 SH 2

Professionals Real Estate
Te Puna Four Square
One residential house

Site: 4 Minden Road

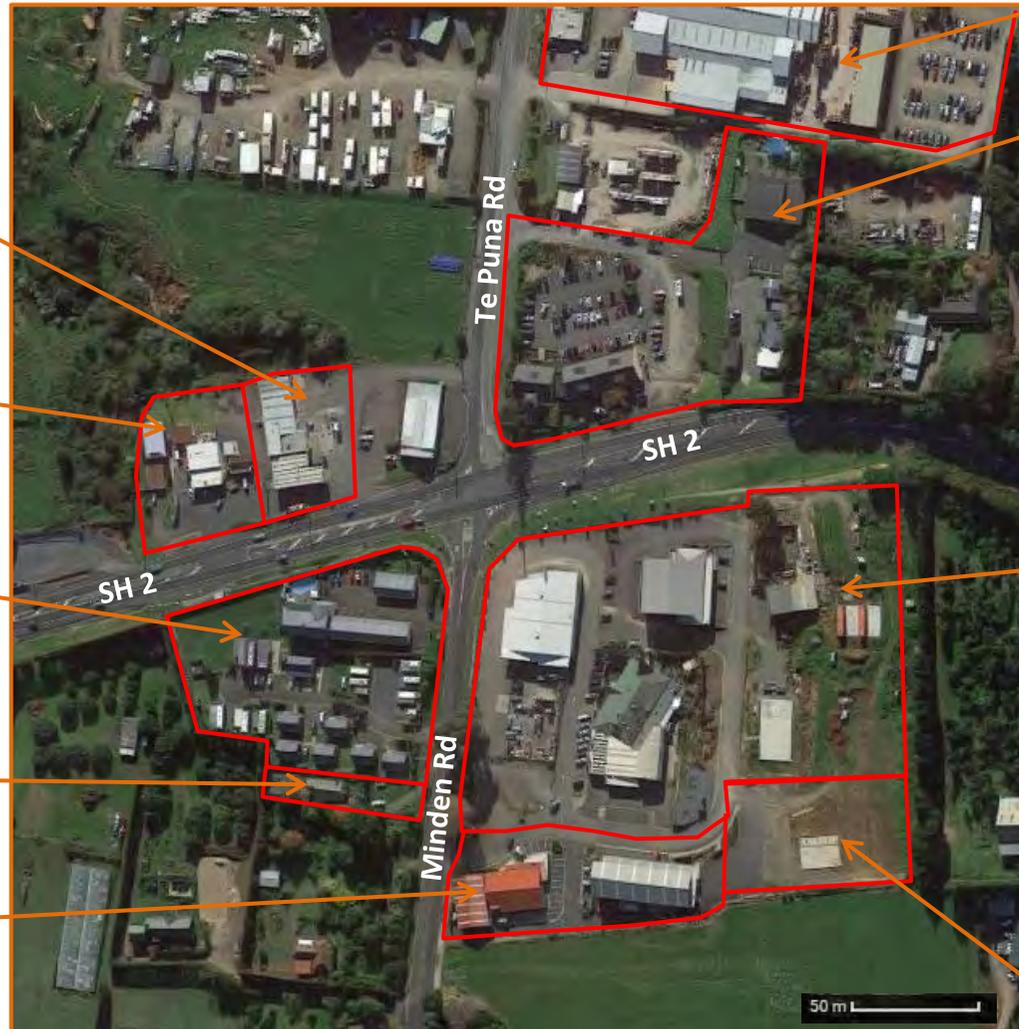
Accommodation Te Puna
Te Puna Motel

Site: 12 Minden Road

One residential house
(lumped with 4 Minden Rd)

Site: 17 Minden Road

Minden Munchies Lunch Bar
Naked Meats
Quarry Commons Office
Te Puna Super Liquor



Site: 1, 7 & 25 Armstrong Rd

Avocado Packing Sheds

Site: 4 Te Puna Road

Above and Beyond Education and
Care Centre
Bespoke Physiotherapy
Dorje Wholesale
Federation Homes
Heaven Boutique
Nourish Café
Ray White
Te Puna ITM

Site: 15 Minden Road

Advanced Housing Systems
Canam Construction
Farmlands
Minden Backpackers
Te Puna Tavern
Top Shot Bar
WaterForce
One residential house

Site: 17B Minden Road

Inspired Kindergartens

These boundaries represent the boundaries created for the purposes of determining waste water loading. They are roughly indicative, but not necessarily accurate representations of the legal property boundaries on the site.

Figure A4: Current Resource Consents Held, Consented Volumes and Measured Water Use

Site	23 Te Puna Road
Resource Consent No.	No consent
Max measured water use	0.75 m ³ /day
Site	620 SH 2
Resource Consent No.	No consent
Max measured water use	1.43 m ³ /day
Site	626 SH 2
Resource Consent No.	No consent
Max measured water use	1.25 m ³ /day
Site	4 Minden Road
Resource Consent No.	5367
Consented Volume	7 m ³ /day
Max measured water use	9.93 m ³ /day



Site	4 Te Puna Road
Resource Consent No.	63442
Consented Volume	3.5 m ³ /day
Max measured water use	13.94 m ³ /day
Site	15 & 17 Minden Road
Resource Consent No.	63934
Consented Volume	14.11 m ³ /day
Max measured water use	5.71 m ³ /day
Site	17B Minden Road
Resource Consent No.	RM18-0060
Consented Volume	1.5 m ³ /day
Max measured water use	No data yet

Figure A5: Treatment Plant and Land Disposal Locations

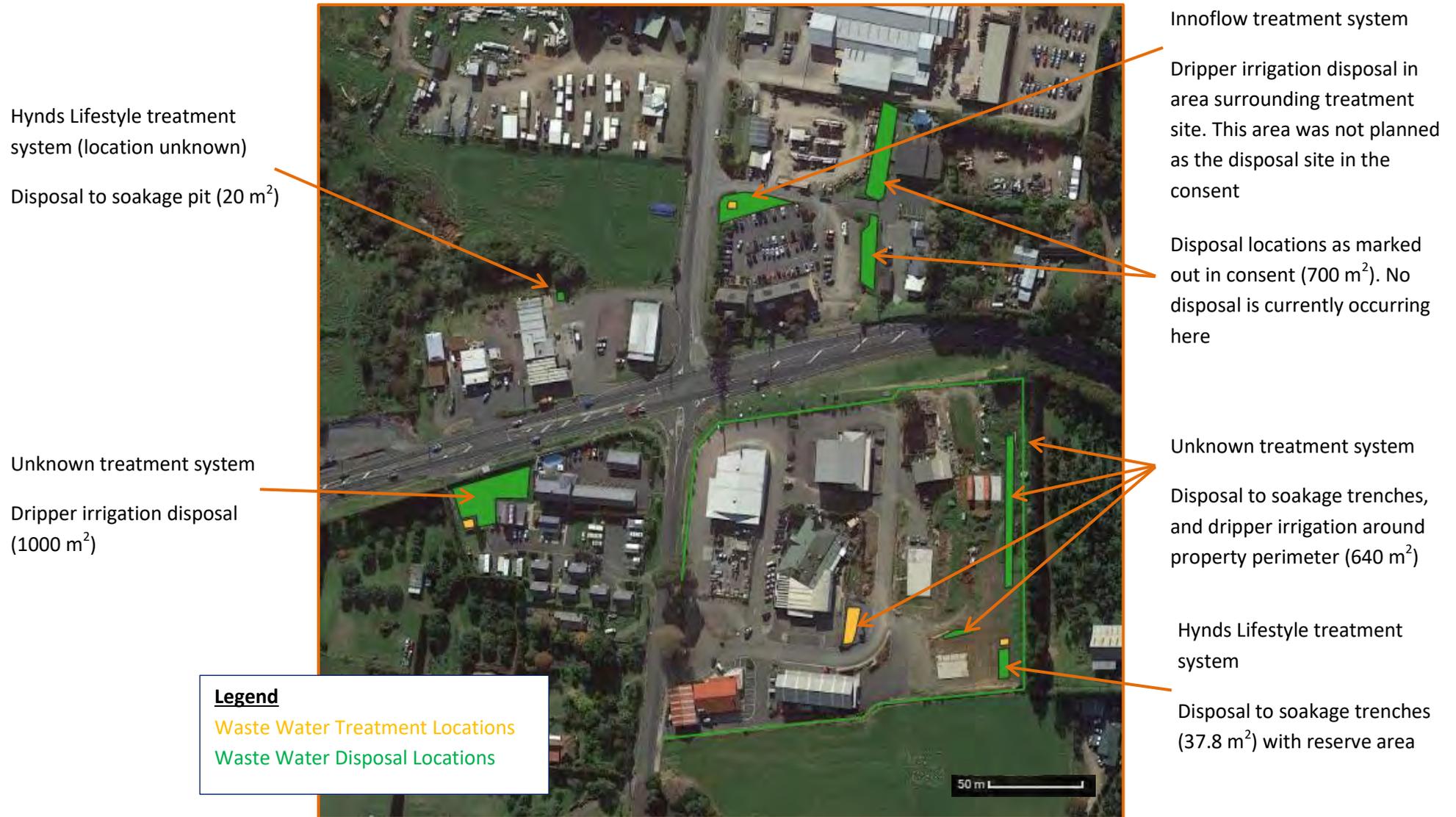
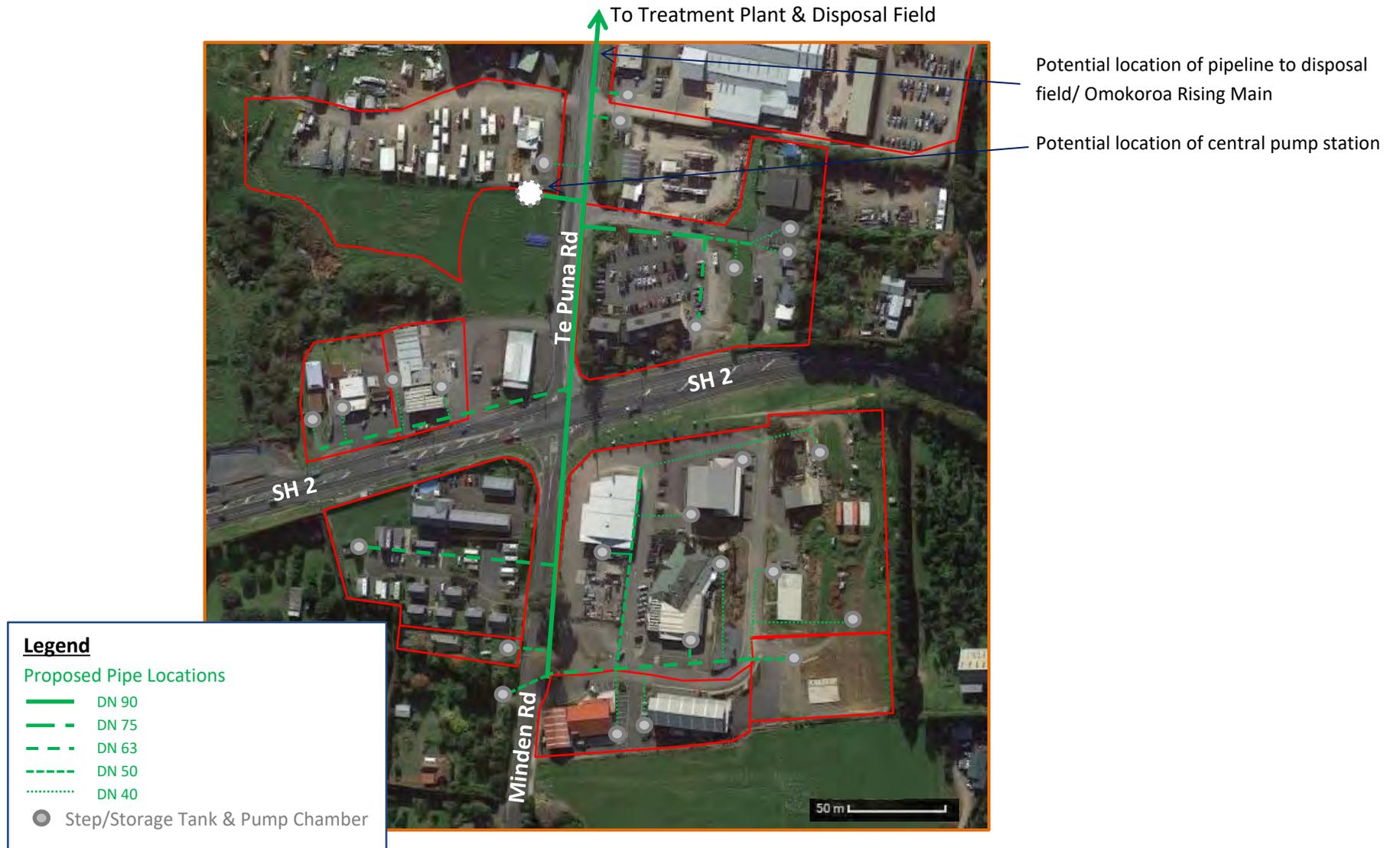


Figure A6: Preliminary Reticulation Network



Appendix B: Wastewater Volume and Strength Calculations

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**Table B1: Waste Water Volume and Land Disposal Area Calculations
From NZS 1547**

Location	Business	Unit	Number of Unit	Volume per Unit (l)	Volume (m3)
15 Minden	Advanced Housing Systems NZ Ltd	staff	5	50	0.25
	Canam Construction	staff	5	50	0.25
	Farmlands	staff	12	50	0.6
	Minden Backpackers	staff	0	50	0
	Minden Backpackers	guest	30	130	3.9
	Mr Groom Mobile Car Valet	staff	1	50	0.05
	Residential	household	225	1	0.225
	Te Puna Taven	customer	200	20	4
	Te Puna Taven	staff	5	50	0.25
	Top Shot Bar	customer	100	20	2
	Water force	staff	7	50	0.35
17 A Minden	Te Puna Super Liquor	staff	3	50	0.15
	Minden muchies lunch bar	staff	2	50	0.1
17 B Minden	Farmer Sustainable Meats - Office	part of Naked Meats			0
	Naked Meats procesing	processing	1	500	0.5
	Naked Meats Retail	staff	8	50	0.4
	Quarry Commons (Office)	staff	8	50	0.4
17B Minden	Inspired Kindergartens	pupils+staff	50	30	1.5
4 Te Puna	Above and Beyond Education	pupils+staff	70	30	2.1
	Dorje	staff	3	50	0.15
	Federation Homes	staff	10	50	0.5
	Heavan Boutique	staff	4	50	0.2
	Nourish - Café	customers	500	15	7.5
	Bespoke Physiotherapy	customers	40	15	0.72
	Bespoke Physiotherapy	staff	5	50	0.25
	Ray White	staff	12	50	0.6
	Retail - spare				0
	Retail - spare				0
	Sky-line Buildings	part of Federation homes			0
Te-Puna ITM (Vacant)				0	
4 Minden	Te Puna Accomodation - Motel	guests	88	220	19.36
	Te Puna Accomodation - Motel	reception	2	30	0.06
	Te Puna Accomodation - Campsites	guests	36	130	4.68
	Residential	household	225	1	0.225
626 SH 2	Residential	household	225	1	0.225
	Four-Square Te Puna	staff	4	50	0.2
	Professionals Real estate	staff	8	50	0.4
620 SH 2	BP Connect	customers	500	5	2.5
	BP Connect	staff	5	50	0.25
	Te Puna Motors	staff	4	50	0.2
SUM					55.045 m³/day

**Table B2: Waste Water Volume and Land Disposal Area Calculations
From NZS 1547, Allowing for Infill**

Business	Unit	Number of Unit	Volume per Unit (l)	Volume (m3)	
Builders Office/ Showhomes	staff	5	50	0.25	
Office-1	staff	5	50	0.25	
Unused future Office	m2	7	50	0.35	
Rural Retail	staff	12	50	0.60	
Mr Groom Mobile car Valet	staff	2	50	0.10	
Backpacker	staff	2	50	0.10	
Backpackers	guest	30	130	3.90	
Residential	household	4	225	0.90	
Bar-1	customer	200	20	4.00	
Bar-1	staff	5	50	0.25	
Bar-2	customer	150	20	3.00	
Bar-2	Staff	6	50	0.30	
Farm Retail	staff	7	50	0.35	
Liquor Store	staff	3	50	0.15	
Food Takeaway (Lunchbar)	staff	2	50	0.10	
Butchers	staff	8	50	0.40	
Butchers	Animals	20	25	0.50	
Office-2	staff	8	50	0.40	
Unused future Office	m2	12	50	0.60	
Kindergarten -2	pupils+staff	50	30	1.50	
Future Increase / Infill	%	30%		5.40	
Daycare	pupils+staff	70	30	2.10	
Retail1	staff	3	50	0.15	
Builders Office/ Showhomes	staff	10	50	0.50	
Retail2	staff	4	50	0.20	
Café with onlicence	customers	500	15	7.50	
Physio & health centre	customers	40	15	0.72	
Physio & health centre	staff	5	50	0.25	
Realestate	staff	12	50	0.60	
Retail - spare	staff	6	50	0.30	
Retail - spare	staff	6	50	0.30	
Future Minmarket	Staff	12	50	4.00	
Motel	guests/resident staff	88	220	19.36	
Motel	reception	2	30	0.06	
Campsites	guests	36	130	4.68	
Residential	household	225	1	0.23	
Residential	household	225	1	0.23	
Mini Market	staff	4	50	0.20	
Realestate	staff	8	50	0.40	
Service Station - large	customers	500	5	2.50	
Service Station - large	staff	5	50	0.25	
Workshop	staff	4	50	0.20	
Avocado Oil factory (Domestic only)		750	40	30.00	
Infill Te Puna Road	%	0.25		24.53	
			SUM	122.65	m³/day
			Design	125.00	m³/day

Table B3: Waste Water Volume and Land Disposal Area Calculations
From NZS 1547, Effluent Strength

Business	Volume (m3)	BOD gms	Ammonia gms	Total Nitrogen gms
Builders Office/ Showhomes	0.25	125	25	42
Office-1	0.25	125	25	42
Unused future Office	0.35	175	35	58
Rural Retail	0.60	300	60	100
Mr Groom Mobile car Valet	0.10	50	10	17
Backpacker	0.10	76	10	17
Backpackers	3.90	1320	240	399
Residential	0.90	240	32	53
Bar-1	4.00	3800	500	831
Bar-1	0.25	190	25	42
Bar-2	3.00	2850	375	623
Bar-2	0.30	228	30	50
Farm Retail	0.35	125	35	58
Liquor Store	0.15	125	15	25
Food Takeaway (Lunchbar)	0.10	200	10	17
Butchers	0.40	304	40	67
Butchers	0.50	125	50	83
Office-2	0.40	200	40	67
Unused future Office	0.60	300	60	100
Kindergarten -2	1.50	1250	250	416
Future Increase / Infill	5.40	2700	540	900
Daycare	2.10	1500	2400	780
Retail1	0.15	1750	350	582
Builders Office/ Showhomes	0.50	75	15	25
Retail2	0.20	250	50	83
Café with onlicence	7.50	100	20	33
Physio & health centre	0.72	10000	1500	2494
Physio & health centre	0.25	760	160	266
Realestate	0.60	125	25	42
Retail - spare	0.30	300	60	100
Retail - spare	0.30	150	30	50
Future Minmarket	4.00	150	30	50
Motel	19.36	300	60	100
Motel	0.06	4400	528	878
Campsites	4.68	50	10	17
Residential	0.23	1584	288	479
Residential	0.23	240	32	53
Mini Market	0.20	240	32	53
Realestate	0.40	152	24	40
Service Station - large	2.50	304	48	80
Service Station - large	0.25	5000	1000	1663
Workshop	0.20	190	30	50
Avocado Oil factory (Domestic)	30.00	152	24	40
Infill Te Puna Road	24.53	28500	3750	6234
	122.65	71080	12873	18195
		60	8	13
	Load per person gms/day			
	Population Equivalent	1362	1610	1315

Appendix C: Treatment Plant Proposals

D
R
A
F
T

Project Name: Te Puna Village - Commercial District
Project Number:

Wastewater Treatment Plant & Land Application System

SCHEDULE OF PRICES
19.03.19

Tenderer : Innoflow Technologies NZ Limited

Item	Description	Unit	Quantity	Rate	Amount
A1	WASTEWATER TREATMENT PLANT AND LAND APPLICATION				
A1.1	Establishment & Engineering: establishment/disestablishment costs, general freight, hiab/crane to place pods, health & safety, insurances, Includes design, design drawings and commissioning of the full system by Innoflow and provision of sign off documentation by drainlaying contractors and electricians. Additionally an electronic management plan and as-built schematic of the system will be provided upon completion of the system.	LS	1	\$53,025.00	\$53,025.00
	COLLECTION TANKS				
A1.2	26 x 6 m³ Collection Tanks (STEP Tanks): Tanks includes (2) 610mm x 450mm risers & lids, interconnecting pipework and junctions, pumps, effluent filters, floats, and control panels. Price includes supply of materials, delivery and installation (all 26 concurrently), excluding gravity drains into each tank and mains power from building to control panels.	LS	26	\$13,797.27	\$358,729.02
A1.3	1 x 12 m³ Collection Tank (STEP Tanks): Tanks includes (2) 610mm x 450mm risers & lids, interconnecting pipework and junctions, pumps, effluent filters, floats, and control panels. Price includes supply of materials, delivery and installation, excluding gravity drains into each tank and mains power from building to control panels.	LS	1	\$25,698.98	\$25,698.98
	1 x 12 m³ Collection Tank (STEP Tanks): Tanks includes (2) 610mm x 450mm risers & lids, interconnecting pipework and junctions, pumps, effluent filters, floats, and control panels. Price includes supply of materials, delivery and installation, excluding gravity drains into each tank and mains power from building to control panels.	LS	1	\$25,698.98	\$25,698.98
A1.4	1 x 25 m³ Collection Tank (STEP Tanks): Tanks includes (2) 610mm x 450mm risers & lids, interconnecting pipework and junctions, pumps, effluent filters, floats, and control panels. Price includes supply of materials, delivery and installation, excluding gravity drains into each tank and mains power from building to control panels.	LS	1	\$27,715.42	\$27,715.42
A1.5	1 x 25 m³ Collection Tank (STEP Tanks): Tanks includes (2) 610mm x 450mm risers & lids, interconnecting pipework and junctions, pumps, effluent filters, floats, and control panels. Price includes supply of materials, delivery and installation, excluding gravity drains into each tank and mains power from building to control panels.	LS	1	\$27,715.42	\$27,715.42
	1 x 75 m³ Collection Tank (STEP Tanks): Tanks includes (2) 610mm x 450mm risers & lids, interconnecting pipework and junctions, pumps, effluent filters, floats, and control panels. Price includes supply of materials, delivery and installation, excluding gravity drains into each tank and mains power from building to control panels.	LS	1	\$55,314.13	\$55,314.13
A1.6	1 x 100 m³ Collection Tank (STEP Tanks): Tanks includes (2) 610mm x 450mm risers & lids, interconnecting pipework and junctions, pumps, effluent filters, floats, and control panels. Price includes supply of materials, delivery and installation, excluding gravity drains into each tank and mains power from building to control panels.	LS	1	\$67,764.73	\$67,764.73
A1.7	Service Connections and Service Laterals. Supply 32 mm PE from tank to mainline, including a service lateral containing check valve and isolating valve and toby box.	LS	31	\$1,557.60	\$48,285.66
	STAGE 1 WWTP				
A1.8	1 x 110 m³ Pre-Anoxic Tank: includes 2 x PVC access risers & lids, and 1 x PF(50Hz)300512 filtrate return pump and associated fittings. Price includes supply of materials, delivery and installation.	LS	1	\$62,814.46	\$62,814.46

Item	Description	Unit	Quantity	Rate	Amount
A1.9	1 x 110 m³ Stage 1 Recirculation Tank: includes 2 x PVC access risers & lids, 1 x flow inducer tower, 2 x PF(50Hz)501012 recirculation pumps and associated fittings, 3-float switch assembly, MM4-FRP splitter valve and all internal plumbing & connection to tanks . Price includes supply of materials, delivery and full installation.	LS	1	\$133,928.90	\$133,928.90
	AdvanTex Packed Bed Reactor: (21 X AX100 Pod). Including all underdrain plumbing connections, activated carbon vent fan. Price includes supply of materials, delivery and full installation.	LS	1	\$796,503.93	\$796,503.93
	STAGE 2 WWTP				
A1.10	New 55 m³ Post-Anoxic Tank: Includes 2 x PVC access risers & lids, 1 x PF500552 mixing pump, 3-float switch assembly and associated fittings. Price includes supply of materials, delivery and installation.	LS	1	\$38,856.51	\$38,856.51
A1.11	New 3 m³ Recirculation Tank: Includes (2) 610mm x 450mm risers & lids. Tank includes Duplex flow inducer tower 4 x PF(50Hz)500712 recirculation pump, MF3P Float switch assembly, MM6-FRP splitter valve and all internal plumbing & connection to tanks . Price includes supply of materials, delivery and full installation.	LS	1	\$60,603.94	\$60,603.94
A1.12	AdvanTex Packed Bed Reactor: (3 X AX100 Pod). Including all underdrain plumbing connections, activated carbon vent fan. Price includes supply of materials, delivery and full installation.	LS	1	\$140,006.13	\$140,006.13
	STAGE 3 WWTP				
A1.13	1 x 55 m³ Dose Tank: Includes 2 x PVC access risers & lids, 2 x PF500552 dosing pumps, 3-float switch assembly and associated fittings. Price includes supply of materials, delivery and installation.	LS	1	\$47,165.70	\$47,165.70
A1.14	New Horizontal Flow Wetland: Complete with polythene liner, media, dosing laterals, and plants (dimensions TBC)	m ²	800	\$219.78	\$175,820.50
A1.15	1 x 55 m³ Recirculation Tank: Includes (2) 610mm x 450mm risers & lids. Tank includes Duplex flow inducer tower 4 x PF500752 recirculation pump, MF3P Float switch assembly, MM6-FRP splitter valve and all internal plumbing & connection to tanks . Price includes supply of materials, delivery and full installation.	LS	1	\$60,603.94	\$60,603.94
	AdvanTex Packed Bed Reactor: (3 X AX100 Pod). Including all underdrain plumbing connections, activated carbon vent fan. Price includes supply of materials, delivery and full installation.	LS	1	\$141,978.63	\$141,978.63
	Chemical Dosing Systems				
A1.16	1 x Carbon Dosing System including 1000 L IBC of MicroC2000 product, dosing pump, and all pipework and controls. Price includes supply of materials, delivery and installation.	LS	1	\$7,470.74	\$7,470.74
A1.17	1 x Alkalinity Dosing System including skid mounted dry chemical feed hopper, auger and eductor, controls and all associated pipework and control fittings. Price includes supply of materials, delivery and installation. Price does not include chemicals (i.e. soda ash supply).	LS	1	\$26,150.63	\$26,150.63
	Ultra Violet Disinfection				
A1.18	Ultra Violet Disinfection Unit: for tertiary treatment of effluent. Price includes supply of materials and installation. Installed in WWTP control building.	LS	1	\$23,781.12	\$23,781.12
	Irrigation				
A1.19	1 x 110 m³ Treated Effluent Storage Tank: includes 2 x PVC access risers & lids, 3 x flow inducer and 3 x PF(50Hz)301512 effluent pump, 3 float switch assembly and associated fittings. Price includes supply of materials, delivery and full installation.	LS	1	\$75,553.11	\$75,553.11
A1.20	30,000 m² (3 Hectares) Land Application System: Supply and install 30,000 lineal metres of pressure compensating drip line. Price includes 3 x 1000 m 63 mm OD header pipes, 3 x 6 sector hydraulic sequencing valves totalling 18 sectors. 3 x pulse water metres. Drip lines spaced at 1.0 m centres with emitters at 0.5 m centres.	LM	30000	\$7.05	\$211,476.41
	Controls & Electrical				
A1.21	Remote Telemetry TCOM Control Panel for Wastewater Treatment Plant: panel with various functions including remote monitoring capability, electronic logging of effluent flows, pump run times and alarm logs with audible and visual alarm features. This new panel will connect to the existing panel so two panels will be installed.	LS	1	\$41,000.00	\$41,000.00
A1.22	Electrical hookup of all internal components of wastewater treatment plant including pumps, floats and water meter to the control panel. Includes supply of material, trenching and electrical sign off documentation.	LS	1	\$26,451.67	\$26,451.67

Item	Description	Unit	Quantity	Rate	Amount
	Control Building and Civil Works				
A1.23	Control Shed: 4 x 5 m control building, fencing, stormwater, access roading, mains power, potable water.	PS	1	\$150,000.00	\$150,000.00
	TOTAL PRICE (excluding GST)				\$2,910,113.66
	<p>This pricing schedule was prepared for: Pattle Delamore Partners Limited by: Innoflow Technologies NZ Limited</p>				

Tags & Exclusion

- 1 Gravity drains into STEP Collection tanks and grease traps is not included.
- 2 Price excludes the small diameter variable grade STEP Effluent Sewer (Reticulation).
- 3 Assumed that sewer invert level (relative to ground level) at first collection tank is no deeper than 650mm. The tanks quoted in this price are suitable for a burial depth of no more than 450mm soil cover.
- 4 Any costs required for stormwater diversion, excavation stabilisation, foundation improvements and groundwater control, such as but not limited to; de-watering, benching, shoring and ground improvements, including any investigation works is not included in our price.
- 5 It is assumed that all tanks shall be founded on natural ground with a minimum bearing capacity of no less than 100 kPA. No cost to achieve this if improvements are required have been allowed in our price.
- 6 No costs have been allowed for drilling, compaction and excavation through unsuitable ground such as rock/boulders, peat/swamp conditions, running sands, or any other material that can not be excavated using standard methods.
- 7 All weather access to the wastewater treatment plant site is required at all times during installation. Price assumes full access to site (position of installation) with a 12 tonne digger and large hiab transporter to excavate holes and place tanks . No allowance has been made for specialist lifting and transport equipment such as cranes if hiab access to place tanks in ground is not available due to safety, collapsing excavation, or any other reason.
- 8 Excavated spoil not used for backfill shall be left onsite next to the wastewater treatment or septic tanks. It is assumed that all soil excavated during tank installations shall be suitable as backfill material. Not costs have been allowed to modify soil or import aggregate for backfill purposes. Furthermore, no costs have been allowed to remove or truckaway excess spoils from the site.
- 9 Reinstatement excludes bark/mulch, topsoiling, turfing/grass seeding and any other landscaping material.
- 10 Price does not include the supply and connection of mains power to the system control panel(s).
- 11 Price assumes an adequate supply of water for filling tanks will be available at no cost to us during installation.
- 12 Price does not include supply and/or installation of a weather proof control shed.
- 13 Demolition/reinstatement of fences or any kind of barrier to access construction site for installation is not included.
- 14 Price assumes permit and council consents will be fully prepared by others prior to works starting.
- 15 Price presented is for budgeting purposes only. Any formal agreement on price will include factors such as fluctuations in USD exchange rates and supplier price increases.
- 16 Price includes surface laying of dripline irrigation. Price does not include supply of mulch, bark or planting. Price does not include any site preparation works such as clearing of the irrigation area, mowing and spraying.
- 17 Price does not include antifoation measures on tanks. These can be provided if needed as an additional cost.
- 18 Price is valid for 4 weeks and there is a 3 month lead time from acceptance of signature of contract.
- 19 20% deposit of contract is due on acceptance of quote. 80% is due upon goods onsite/installation of the system. Late payments shall incur a interest charge.
- 20 Price does not include ongoing maintenance and telemetry management.
- 21 Price does not include compliance and costs associated with operating under a sub-contract agreement with the head civil contractor. Should this be required, Innoflow will need to review the contract and reprice.



Te Puna

Proposed GRAF Advanced Wastewater Treatment Plant

Date: 30 April March 2019

Prepared by: B Robinson

Version 1.1

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1.0 Background

PDP approached Graf New Zealand to register their interest in providing a proposal for the supply of a proprietary wastewater treatment plant for the Te Puna Commercial area for Western Bay of Plenty District Council.

The site consists of a broad range of residential and commercial premises including offices, retail, backpackers, food outlets, service station, motels, camp sites, etc. The effluent from these sites will be domestic waste only.

2.0 Treatment Requirements

2.1 Flows and Loading

- Maximum Flow (based on maximum occupancy) 125 m³/day
- Average Flow rate 75 m³/day
- BOD Loading to be calculated at 81kg/d
- Existing Maximum Flow 33 m³/day
- Average Existing Flow 20 m³/day

(note 60% of the maximum flows come from only 5 properties)

2.2 Final Effluent Requirements

- BOD₅ 20 mg/L
- Suspended solids 20 mg/L
- Total Nitrogen (see note 1) 25 mg/L

Note

Most of the near-by land that may be suitable for a disposal field is currently rural residential or horticultural use at the moment. Therefore, as the disposal field will be based on the level of nitrogen treatment, and therefore there is an interest in advanced treatment options that will result in higher levels of nitrogen treatment to limit the field size.

3.0 Graf SBR Technology

3.1 Graf SBR Technology

Graf are offering an Advanced Sequential Batch Rectifier (SBR) system to treat the waste from the Te Puna commercial business area.

SBR technology is proving to be an optimal process for treating wastewater in small sewage treatment plants. The strict separation of the process phases results in a variety of control options for the purification process. This in turn allows for economic construction, operation and powerful purification capacity of the plants.

Graf implement SBR technology for commercial wastewater treatment plants of sizes from varying 2.7m³/day up to 750 m³ per day.

3.2 Process Description

Structure - Two-stage SBR process

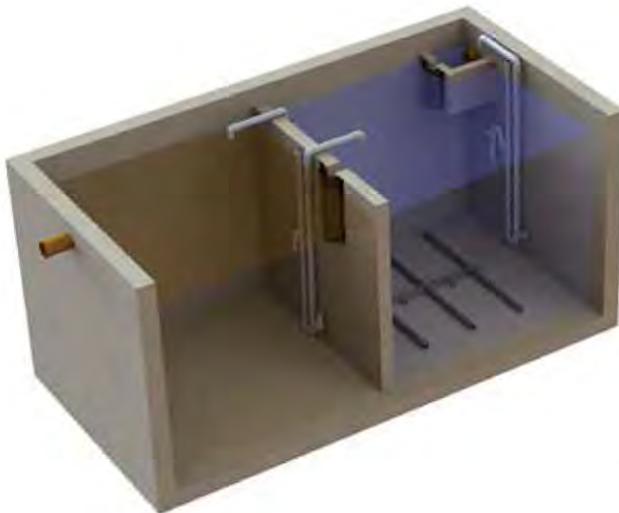
1. Stage/chamber:

sludge storage tank and buffer tank

- storage of primary and secondary sludge
- retention of settling solids and floating substances
- storage of inflow water
- balancing of volume and concentration related fluctuations in the waste water inflow.

2. Stage/chamber: activated sludge stage operated in single, closed reactor in sequenced batch mode (= Sequencing batch reactor)

- biological clarification with activated sludge
- nitrification and denitrification
- phosphate precipitation (optional)



Operating mode

- Real-time control via microprocessor with ex-factory process flow settings
- Standard setting: 4 clarification cycles of 6 hours each per day
- Alternatively, fill-level dependent operating mode can be selected; the fill level is then measured by a pressure sensor integrated in the controller
- Process flows can be changed by competent personnel
- Waste water aeration via membrane diffuser in the tank floor
- Use of air lifter for transport of wastewater/clear water/waste sludge

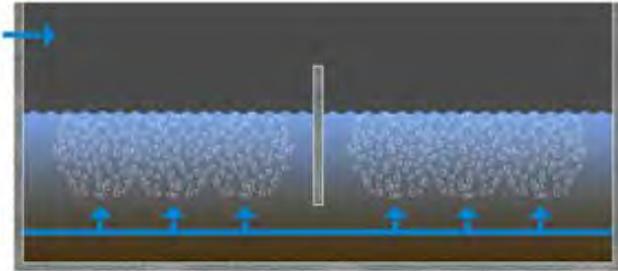
Process flow quality

- Comparable with large, municipal clarification plants
- Dimensioning and selection of the clarification stages can be customised to suit your requirements

Advantages

- Very stable process as compared to hydraulic shock loads and underload
- High operational reliability and low maintenance expenditure
- User-friendly due to automatic operating mode
- Low energy consumption due to micro-bubble aeration
- Low disposal costs, since only the sludge tank and not the complete plant must be emptied periodically
- Stable clarification performance even in winter
- Independent of tank material and geometry
- Various options for adjusting the process via the controller
- Safe, sturdy and long-life product due to the KLARO principle (see page 18)
- Sophisticated technology – market launch in 2001

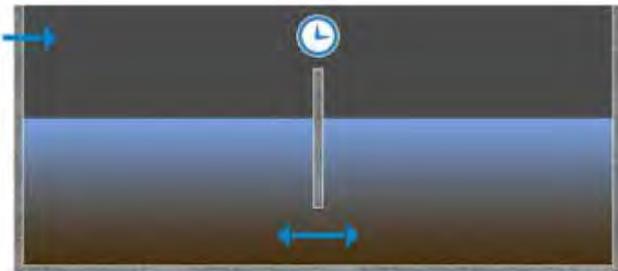
3.3 Graf SBR Cycle



1. Aeration phase

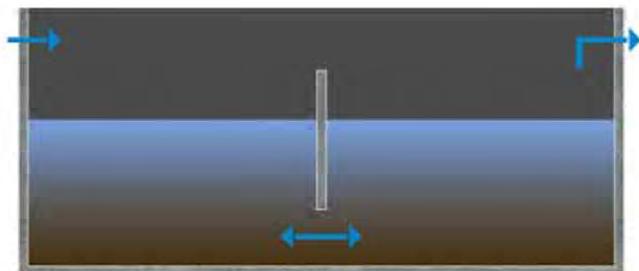
The raw wastewater initially reaches the primary zone of the plant and directly undergoes aerobic treatment. Membrane diffusers on the tank floor ensure that there is sufficient aeration of the entire tank volume. The compressed air required for that is produced by an air compressor located in an external control cabinet. Aeration generally takes place intermittently. This aeration has the following effect:

- The microorganisms of the activated sludge are supplied with oxygen, which is necessary for their metabolic activity and thereby for the reduction of pollutants. The bacteria comes in intensive contact with the food source in the wastewater.
- Mineralisation of the sludge



2. Settle phase

No aeration takes place during the 120 minute settling phase. The activated sludge is allowed to settle. A sludge blanket forms on the tank floor and in the upper region of a clear water zone. Inflowing raw waste water is retained in the primary zone.



3. Clear water extraction

An air lifter in the rear area of the plant pumps out a part of the clarified water from the tank. The special design of this air lifter

- prevents any floating surface sludge from being drawn off along with the clarified water
- incorporates an inflow baffle that minimises the undesired penetration of activated sludge into the air lifter during the aeration phase
- ensures that a minimum (desired) water level is maintained in the plant without any need for additional components

4.0 SBR Plant Layout and Description

4.1 Plant Description

The plant has been separated out into two streams to assist with the variable flow requirements for the Te Puna site. The plant has been designed to cater for the maximum flow rate of 125m³.day. The plant consists of the following layout:

- 2 x Primary Chamber (Total Volume 143.8m³)
- 4 x SBR Chambers (Total Volume 287.6m³)

The plant uses air for its operation and comprises of two Rotatory Vane compressors to run the air lift pumps and air diffusers. The compressors operate for approximately 12hrs/day and have a power consumption of 7.5kW/h

The technology used for the Graf plant allows for the settings of the system to be manipulated so that it can achieve the desired quality output specifications. This is achieved by changing setting for the air mixing and settling phases.

Final Effluent Requirements

Based on the influent parameters set out in the document flow rates (Te Puna Commercial Area Preliminary Wastewater Flows) Graf have designed the plant to perform to the following output requirements.

	BOD ₅	COD	SS	NH ₄ N	Ntot	Ptot	colif. germs
Outlet	< 20 mg/l		< 20 mg/l		< 25 mg/l		

4.2 Footprint

The system comprises of the following dimensions with total footprint area being:

- Total Primary Storage - 7.0 long x 4.0m wide x 2
- Total SBR Treatment Storage - 7.0 long x 4.0m wide x 4

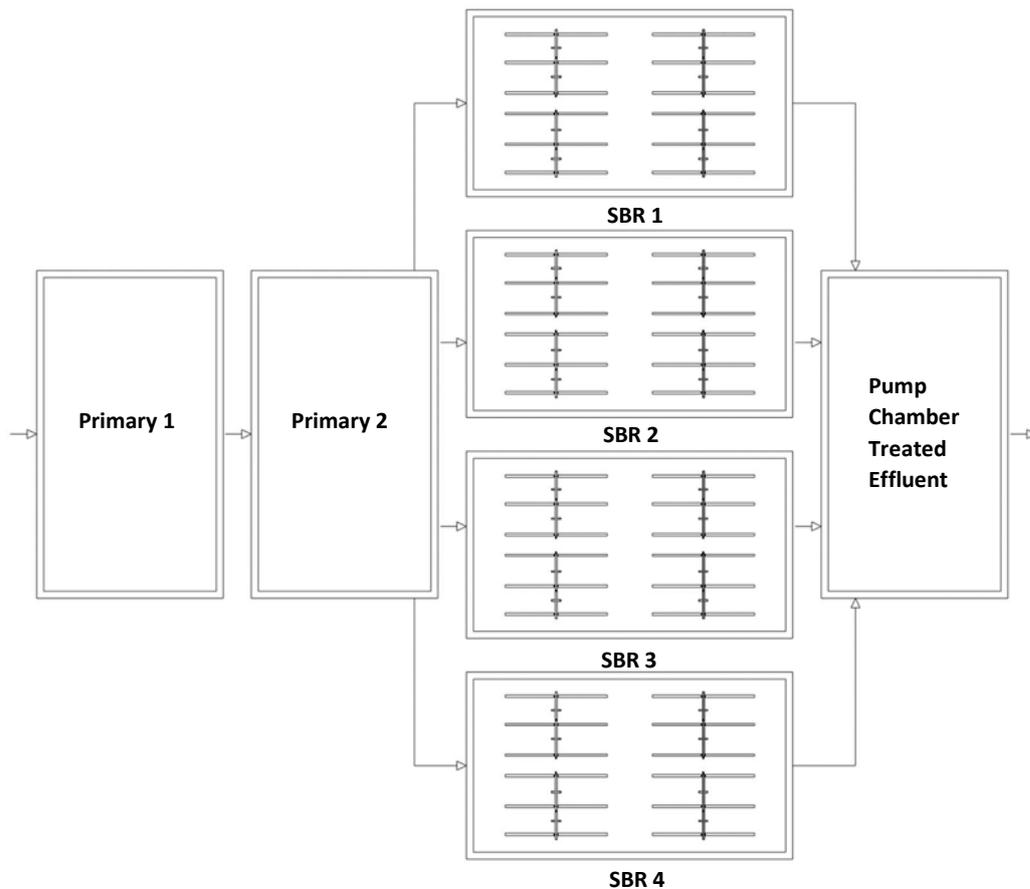
Total Area – External dimensions of tank footprint

- Primary Storage 7.0m x 9.0m – 63.0m²
- SBR Treatment 7.0m x 19.0m = 133.0m²

Table below represents the internal dimensions of the tanks giving the operational area.

Stage	Number	Container, material	Width [m]	Length [m]	Maximum water depth [m]	Maximum volume [kl]
SS + PT + B	2	Rectangular, Concrete	3,70	6,70	2,90	143,8
SBR	4	Rectangular, Concrete	3,70	6,70	2,90	287,6

Proposed Layout Diagram below:



5.0 Costs

5.1 Budget Costs

The retrofit system supplied consists of all of the internal operating equipment and switching controls.

- Graf Equipment Cost -- \$180,000 + GST

Costs for Water Projects to carry out the following:

- Supply Graf SBR Kit
- Wilson Precast Concrete Chambers
- Excavation/Site Prep
- Plant Room
- Transport to site
- Cranage
- Assembly Labour

Total Cost including Graf SBR Kit, installation, tanks and labour -- \$1,089,320.00 + GST

*Does not include the Electrical Connections. Based on a flat site with free and simple access, does not include the disposal of excavation spoil, based on plant being installed without requiring risers. This price is just for the plant and does not include the irrigation field, will price separately.

** This price is based on the bulk of the assembly being done off site and the plant being constructed using precast modules.

6.0 Installation

6.1 Installation by Graf Authorised Installer

The installation of the Graf Wastewater Treatment Plant will be carried out by a fully trained Graf authorised installer which in this instance will be Water Projects. We can seek further costings around the install cost of the system and tanks from this contractor.

6.2 Advanced Treatment

Graf only offer an Advanced SBR treatment system. The SBR will not function if used with a step system as it relies on the raw effluent of solids being transferred directly to the primary chambers for the biological process to work at maximum efficiency.

By using the Graf SBR system, the overall costs can be reduced without the need for additional step tanks.

7.0 Collection System

7.1 Ecoflow Pump Chamber Solutions

Graf in conjunction with Ecoflow can offer a package Simplex or Duplex pump station for the required sites up to sizes of 7.5m³/day.

Note this is for the equipment on private property, the street mains including boundary kits and flushing points will be additional. Ecoflow would normally do a hydraulic design with pipe sizing to enable cost estimate for the street main. A boundary kit will be \$400 for each connection (building), there will be a flushing point at the end of each street and will be \$750 each.

Up to 3.5m³ we have allowed for Simplex system which consists of the following:

- 1 x E/One Extreme Series Grinder pump 0.75kW, single phase
- 1 x E/One Sentry Protect Controller – comes with Over Pressure, Run Dry and Low Voltage protection
- 1 x Simplex Valve Discharge Hose Kit, Hook and Fittings
- 1 x 15m Pump cable including quick disconnect plug for easy removal
- 1 x Graf certified underground storage tank sized to suit emergency storage requirements

Refer Appendices for layout

Up to 7.5m³ we have allowed for Duplex system which consists of the following:

- 2 x E/One Extreme Series Grinder pump 0.75kW, single phase
- 1 x E/One Duplex Protect Controller – comes with Over Pressure, Run Dry and Low Voltage protection
- 1 x Duplex Valve manifold Discharge Hose Kit, Hook and Fittings
- 2 x 15m Pump cable including quick disconnect plug for easy removal
- 1 x Graf certified underground storage tank sized to suit emergency storage requirements

For 25m3 and 30m3 we have allowed for Quadraplex system which consists of the following:

- 4 x E/One Extreme Series Grinder pump 0.75kW, single phase
- 2 x E/One Duplex Protect Controller – comes with Over Pressure, Run Dry and Low Voltage protection
- 2 x Duplex Valve manifold Discharge Hose Kit, Hook and Fittings
- 4 x 15m Pump cable including quick disconnect plug for easy removal
- 1 x Engineered custom polyethylene chamber with sump at one end

Refer Appendices for layout

Budget Proposal

Budget Proposal for Te Puna Commercial Project				
		No	Rate	Total
1.0	Treatment Plant			
	Treatment Plant (std) LS 1			
	Treatment Plant (advanced) LS 1*	1	\$1,089,320.00	\$1,089,320.00
2.0	Collection Tanks			
2.1	Collection tanks – std (up to 2 m3/day) No 26	26	\$6,200	\$161,200
2.2	Collection tanks/pump – 3.5 m3/day No 1	1	\$7,350	\$7,350
2.3	Collection tanks/pump – 4.5 m3/day No 1	1	\$11,450	\$11,450
2.4	Collection tanks /pump – 7.5 m3/day No 1	1	\$11,950	\$11,950
2.5	Collection tanks /pump – 25 m3/day No 1	1	\$28,000	\$28,000
2.6	Collection tanks /pump – 30 m3/day No 1	1	\$35,000	\$35,000
3.0	Disposal Field			
3.1	Supply and install dripper field ha 3 **		n/a	n/a

Table 1.

7.2 Indicative Operational Costs

To be supplied by end of May 2019.

8.0 Web Monitor

The KLARO WebMonitorR comes in useful whenever highest level of operational reliability and stress-relief of the operator are desired at the same time, the plant can be monitored by a maintenance firm via a remote diagnostic system. In the event of a fault, intervention is possible immediately from home via internet.

The KLARO WebMonitor® offers many advantages for the operator and for our partners!

- Higher customer benefit due to monitoring service
- Cost-effective remote diagnosis in the event of a fault
- Higher effectiveness and higher

WebMonitor





Technical data sheet for EPro wastewater treatment plant

Graf Plastics Australia PTY Limited

23 Success Way

Henderson WA 6166

Tel. +61 1300 131 971

Email: info@grafaustralia.com.au

Plant size

1350 EP

Maximum flow

Qd 125,55 kl/d

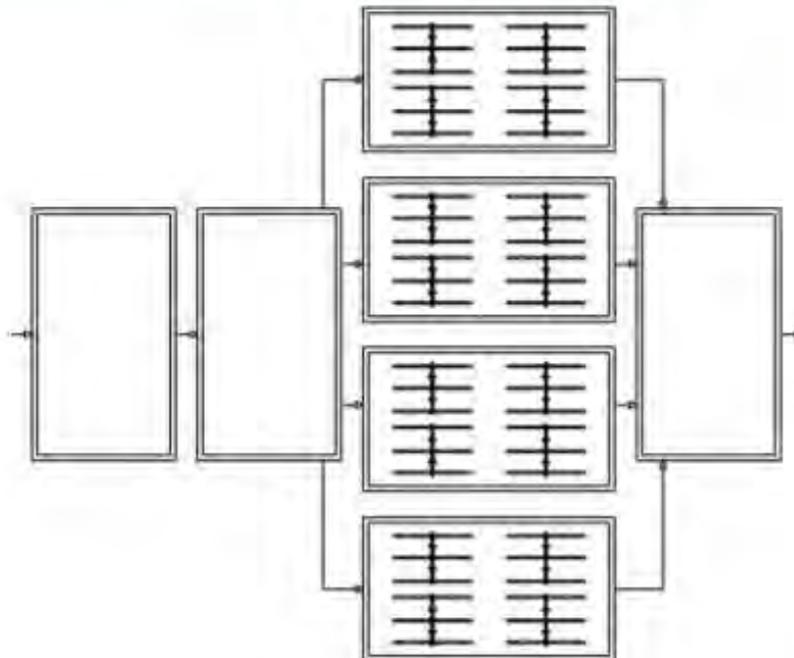
Maximum organic load

Bd 81,00 kg/d

Design according to ATV-A122

Effluent values:

	BOD ₅	COD	SS	NH ₄ N	N _{tot}	P _{tot}	colif. germs
<	20 mg/l		20 mg/l		25 mg/l		
Total tank capacity:							431,3 kl
Air compressor	Type:	Rotary vane				4 x	KDT 3.100
	Installed motor power					4 x	5,50 kW
	Power consumption at 0,3 bar					4 x	3,40 kW
	Motor design					1 bar 50 Hz 3~	380 V
Calculated maximum daily operating time							4 x 13,0 h/d



Symbolic representation

Stage	Number	Container, material	Width [m]	Length [m]	Maximum water depth [m]	Maximum volume [kl]
SS + PT + B	2	Rectangular, Concrete	3,70	6,70	2,90	143,8
SBR	4	Rectangular, Concrete	3,70	6,70	2,90	287,6

Hoses	V1: 8x 25mm	V2: 16x 25mm	V3: 8x 25mm	V4: 8x 25mm
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Calculation for EPro wastewater treatment plant according to ATV-A122

Basic data / project data

Customer	Graf Plastics Australia PTY Limited	Date	29.04.2019
Project	Te Puna	Editor	MUS
Type of waste water	domestic		
Particularities			

Base of calculation

	BOD ₅	COD	SS	NH ₄ N	N _{tot}	P _{tot}	colif. germs
Influent	400 mg/l		467 mg/l		73 mg/l		
Effluent	< 20 mg/l		< 20 mg/l		< 25 mg/l		

Population equivalent					1350	EP
Wastewater			at Q _{EP}		93 l / (EP x d)	125,6 kl/d
Infiltration water					0 %	0,0 kl/d
Total daily inflow				Q _{in}		125,6 kl/d
Daily peak factor						10 n/d
Hourly volume of wastewater						12,6 kl/h
BOD ₅ load				B _{in}	60 g/(EP x d)	81,00 kg/d
BOD ₅ load after primary treatment				B _{in}	40 g/(EP x d)	54,00 kg/d
Treatment cycles per day						16

1. Stage: sludge storage, pre-treatment and buffer

Type of container		Rectangular
Number of containers / proportion of chambers		200%
Width		3,70 m
Length		6,70 m
Water depth		2,00 m
Total area		49,58 m ²
Sludge storage (SS)		
Specific sludge storage volume		250 l / (EP x a)
Removal interval		3,0 months
Required volume	$1350 \text{ EP} \times 250 \text{ l} / (\text{EP} \times \text{a}) \times 3 / 12 \text{ months} =$	84,38 kl
Required water depth		1,70 m
Primary treatment (PT)		
Retention period	$(143,78 \text{ kl} - 84,38 \text{ kl} - 37,18 \text{ kl}) / 12,6 \text{ kl/h} =$	1,77 h
Required volume		18,83 kl
Required water depth		0,38 m
Overall (SS + PT)		
Required water depth		2,08 m
Selected water depth		2,15 m
Buffer (B)		
Percentage of daily load		17%
Required volume	$17\% \times 125,65 \text{ kl/d} =$	20,93 kl
Required water depth		0,43 m
Selected water depth		0,75 m
Selected volume	$30\% \text{ Total daily inflow} =$	37,18 kl
Overall (SS + PT + B)		
Required volume	$84,4 \text{ kl} + 18,8 \text{ kl} + 20,9 \text{ kl} =$	124,13 kl
Existing total volume		143,78 kl
Required water depth	$1,7 \text{ m} + 0,38 \text{ m} + 0,43 \text{ m} =$	2,51 m

Calculation for EPro wastewater treatment plant according to ATV-A122

Basic data / project data

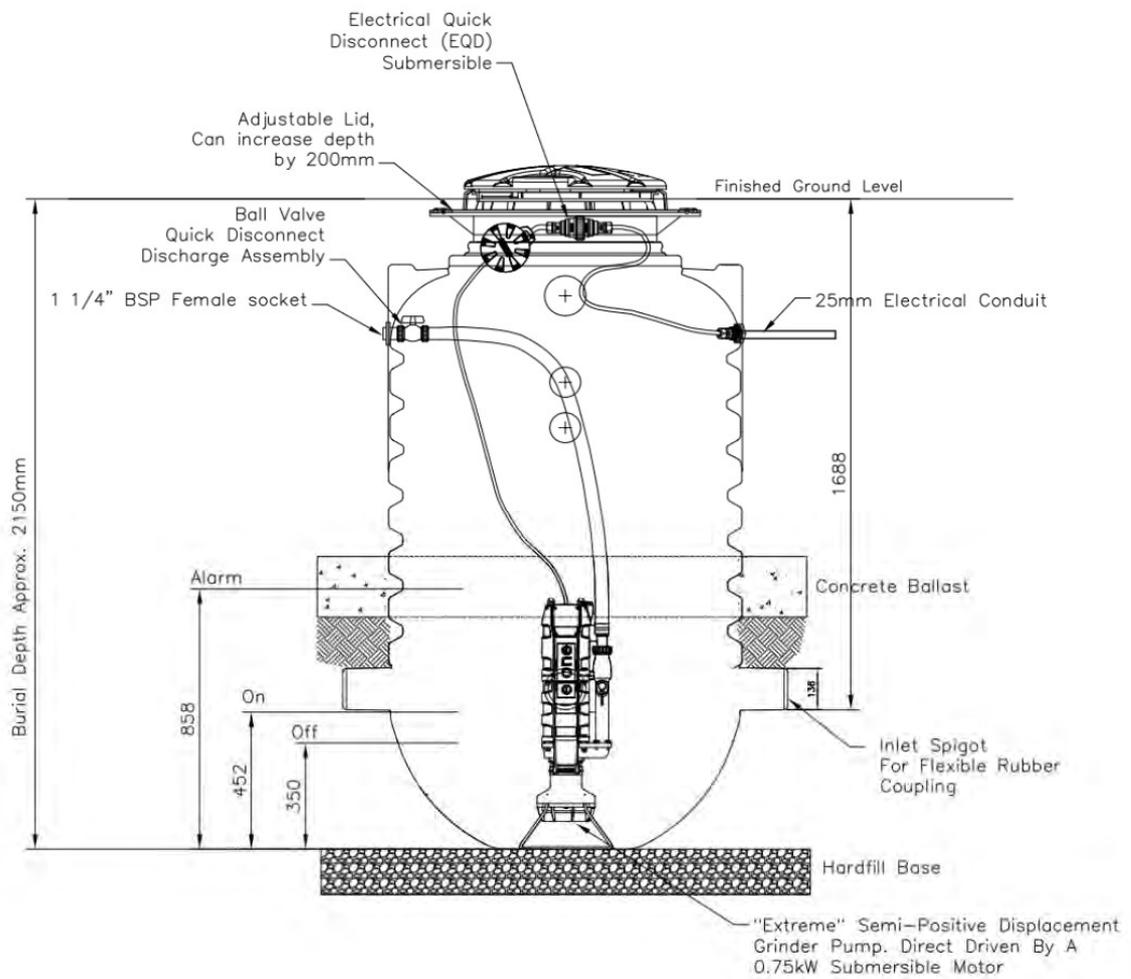
Customer	Graf Plastics Australia PTY Limited	Date	23.04.2019
Project	Te Puna	Editor	MUS
Type of waste water:	domestic		
Particularities			

2. Stage: biological treatment (SBR)

Type of container		Rectangular	
Number of containers / proportion of chambers		400%	
Width		3,70	m
Length		6,70	m
Water depth		Wd max =	2,90 m
Total area			99,16 m ²
Required volume		54 kg/d / 0,2 kg/(d*kl) =	270,00 kl
Required water depth			2,72 m
Volume load BOD ₅	B ₅	54 kg/d / 287,56 kl =	0,19 kg / (kl x d)
BOD Sludge loading	B ₅	≤	0,05 kg/(kg x d)
Sludge index	ISV		100,00 ml/g
Total solids	TS ₃₀	≤	4,00 kg/kl
Oxygen concentration	C ₂₀	≥	2,00 mg/l
Selected water depth Before loading phase		Wd max - 33% x 126,56 kl/d =	2,47 m
Water depth After loading phase		Wd min + 25% x 126,56 kl/d =	2,79 m
Existing total volume			287,56 kl

Simplex 1500l

Simplex 1500L 1200 x 2150mm



ecoflow
Sewer Made Simple
www.ecoflow.co.nz
Email: info@ecoflow.co.nz

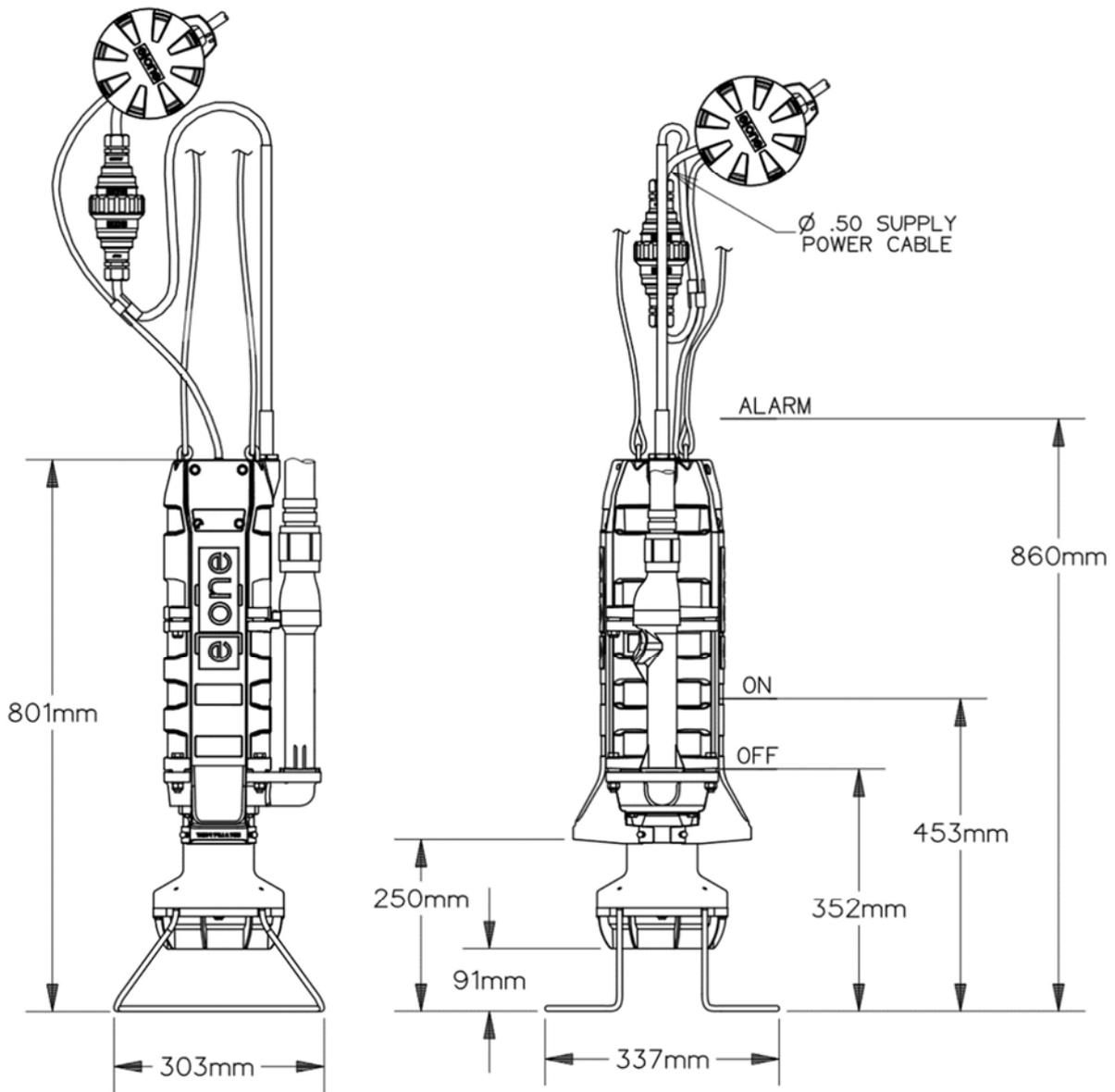
AUCKLAND - (Head Office)
15b Piermark Drive, North Harbour
Albany, Auckland
P.O. Box 300-249, Albany, Auckland
Ph (09) 447-1793 Fax (09) 447-3901

CHRISTCHURCH
15 Anchorage Road, Hornby
Hornby, Christchurch
Ph (03) 349-2506

Simplex 1500L
1200 x 2150

e one
SEWER SYSTEMS

EOne Pump

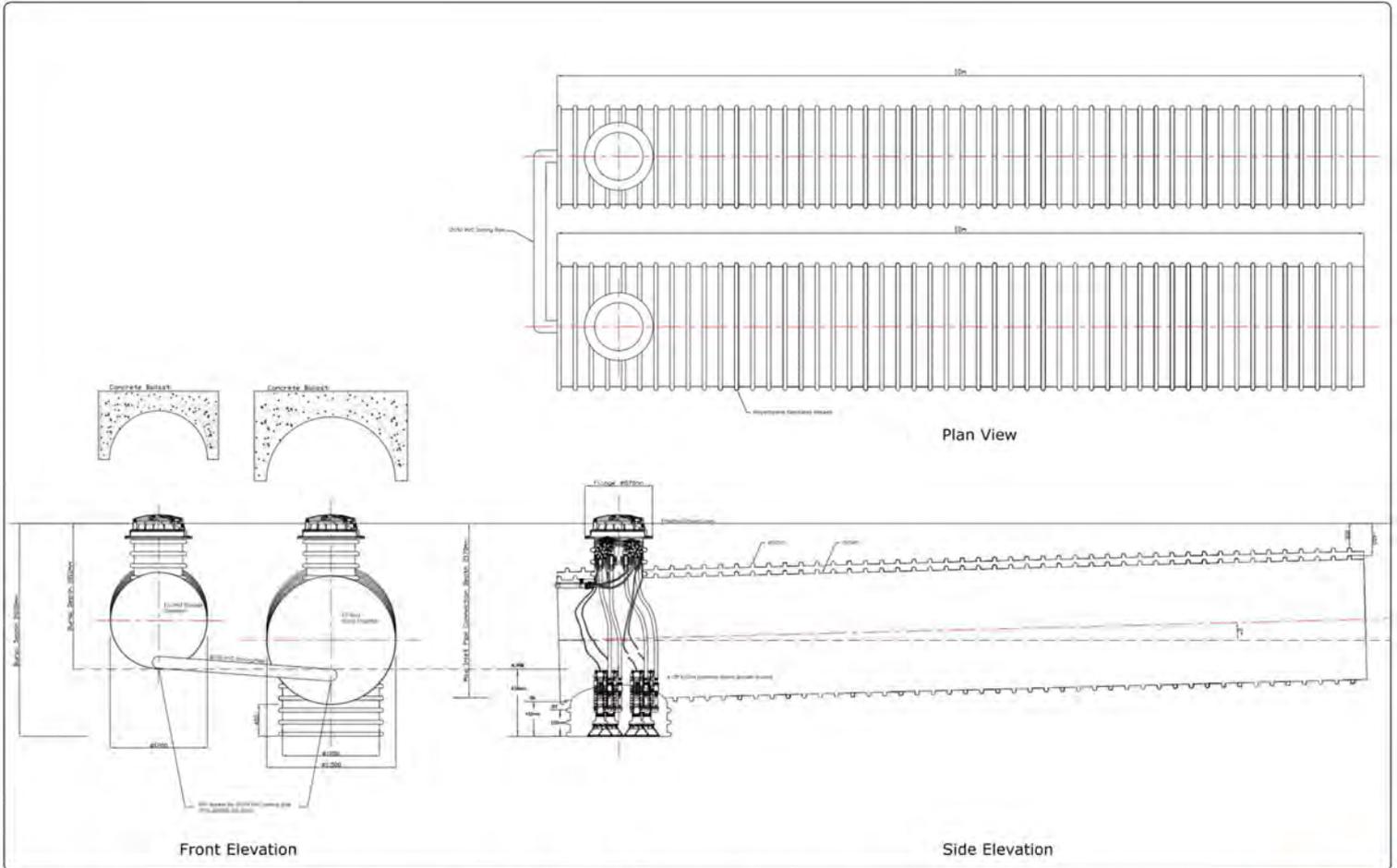


**EXTREME SERIES
WET-WELL PUMP
AUSTRALIA LEVELS**



LNT	GAE	06/08/07	-	
DR BY	CHK'D	DATE	ISSUE	SCALE
 SEWER SYSTEMS				
EXTREME SERIES WET-WELL PUMP AUSTRALIA LEVELS				
ESD 07-0050				

Custom Quad Pump Chamber



AUCKLAND (Head Office)
 150 Parnock Drive, North Harbour
 Albany Auckland
 P.O. Box 200-218, Albany Harbour
 Ph: (09) 447-1193 Fax: (09) 447-3901
www.ecoflow.co.nz
 Email: info@ecoflow.co.nz

CHRISTCHURCH
 11 Ansonage Road, Harewood
 Harewood Christchurch
 Ph: (03) 348-2508

DRAWN	MC	31/08/18
CHECKED		
CLIENT APPROVED		
CLIENT		

TITLE
Custom Quad Pump Chamber
 29m3 Multi-Chamber

REVISION	SCALE	AT	Dwg No.
1	NTS	AT	1



PERFORMANCE

Assumed Influent Values

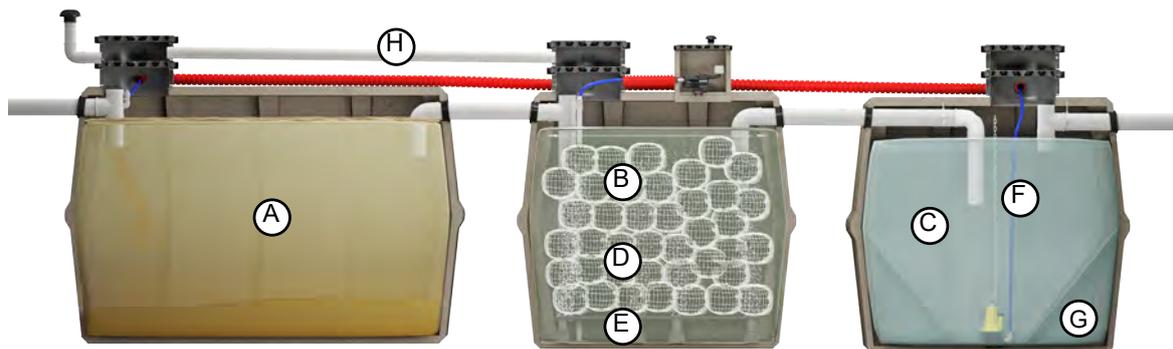
Pollutant load BOD ₅ :	12	kgO ₂ /day
Pollutant load COD :	27	kgO ₂ /day
Pollutant load TSS :	18	kg/day
Hydraulic load :	30	m³/day

Purification performance

BOD ₅ :	20	mg O ₂ /liter
COD* :	90	mg O ₂ /liter
TSS :	30	mg/liter

*if the relation COD/BOD5 is < 2,2

FEATURES



ELECTROMECHANICAL COMPONENTS

Blower

Quantity :	2	pc(s)
Type :	side channel air blower	
Installed power :	3.30	kW
Power consumption :	2.19	kW
SPL (Sound Performance Lab) :	67	dB (A)
On / Off :	46/14	
Voltage :	1x230/3x230/3x400 V	

Air Diffusers

Quantity :	36
Type :	fine bubbles

Sludge recirculation

Type :	Submerged pump
Quantity :	1 pc(s)
Installed power :	0.60 kW
Power consumption :	0.60 kW
On/Off :	21/39

Control panel

Type :	inside - wall mount
Quantity :	1

Legend

A	Primary settling compartment
B	Biological reactor
C	Secondary settling compartment
D	Bacterial support
E	Diffusers
F	Sludge recirculation
G	Settling cone
H	Ventilation

DIMENSIONS | VOLUMES | WEIGHTS

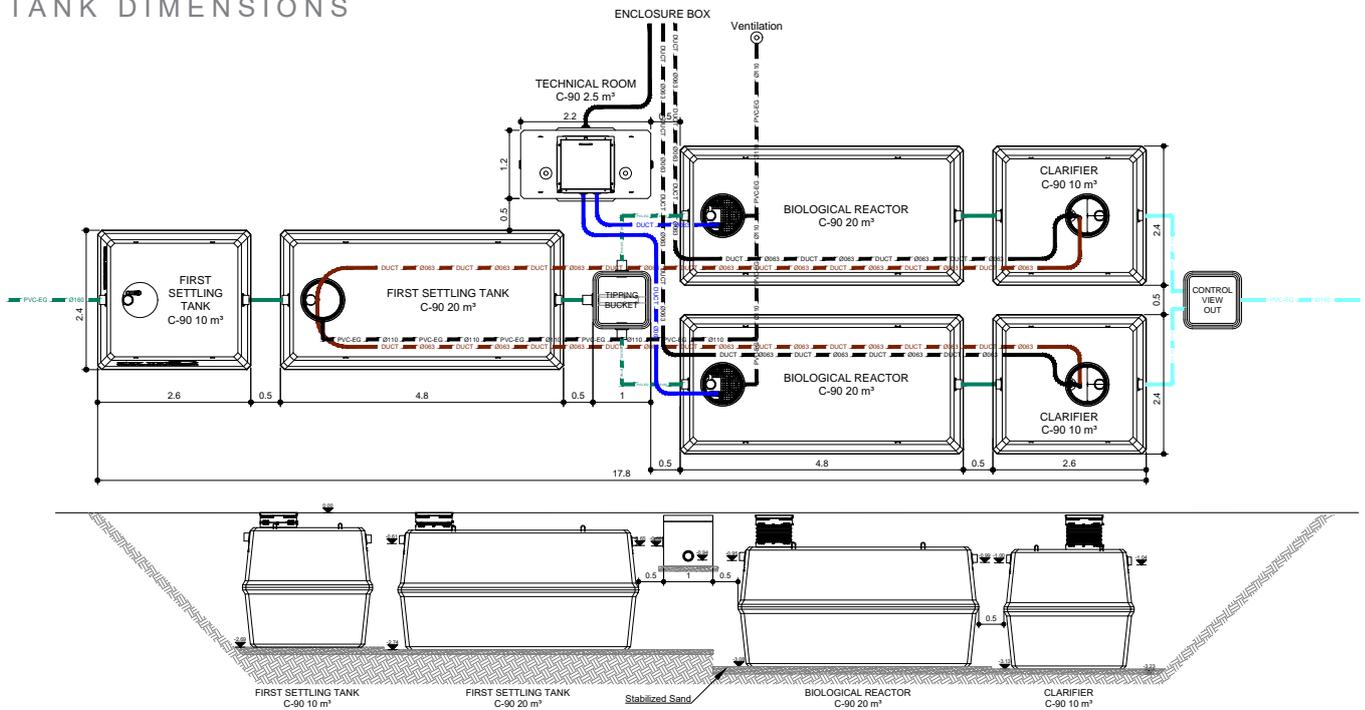
Mesures	Unit	Decanter	Decanter	Control view out	Reactor	Clarifier	Technical room
Quantity :		1	1	1	2	2	1
Total height* :	(cm)	240	240	87	240	240	187
Entry height* :	(cm)	213	213	-	213	213	125
Exit height* :	(cm)	209	209	-	209	209	123
Length :	(cm)	260	480	90	480	260	221
Width :	(cm)	238	238	90	238	238	125
Total volume :	(m ³)	10	20	-	20	10	2.5
Useful volume :	(m ³)	9.83	18.16	0.24	18.16	9.19	-
Weight :	(T)	5.82	9.5	0.60	10.35	5.82	2.9
Quantity of pumps :	(pce)	-	-	-	-	1	0
Manhole(s) :	(cm)	1xØ60	1xØ60	80x80	1xØ60	1xØ60	80x80
Ø In / Out :	(mm)	160/160	160/160	160/2x160	160/160	160/160	110/110

* tolerance de ± 2 cm

Material

Tank(s) : High performance steel reinforced concrete
 Biocarrier : Polypropylene
 Air feed pipes : PVC and air diffuser EPDM

TANK DIMENSIONS



OPERATION

Useful volumes/surfaces

Primary settling compartment :	27	m ³
Biological reactor :	18.06	m ³
Clarifier :	9.40	m ²

Operation

Sampling chamber :	integrated
Fréquence vidange à 70% :	every 7 months
Approximate energy consumption :	1,870 kW (three-phase)
Seasonal energy balance* :	6,814 kW (three-phase)
Maintenance frequency :	annually

Consumables

Blower filter :	annually
Blower membranes :	-
Air diffusers :	every 8 years

OPTIONS

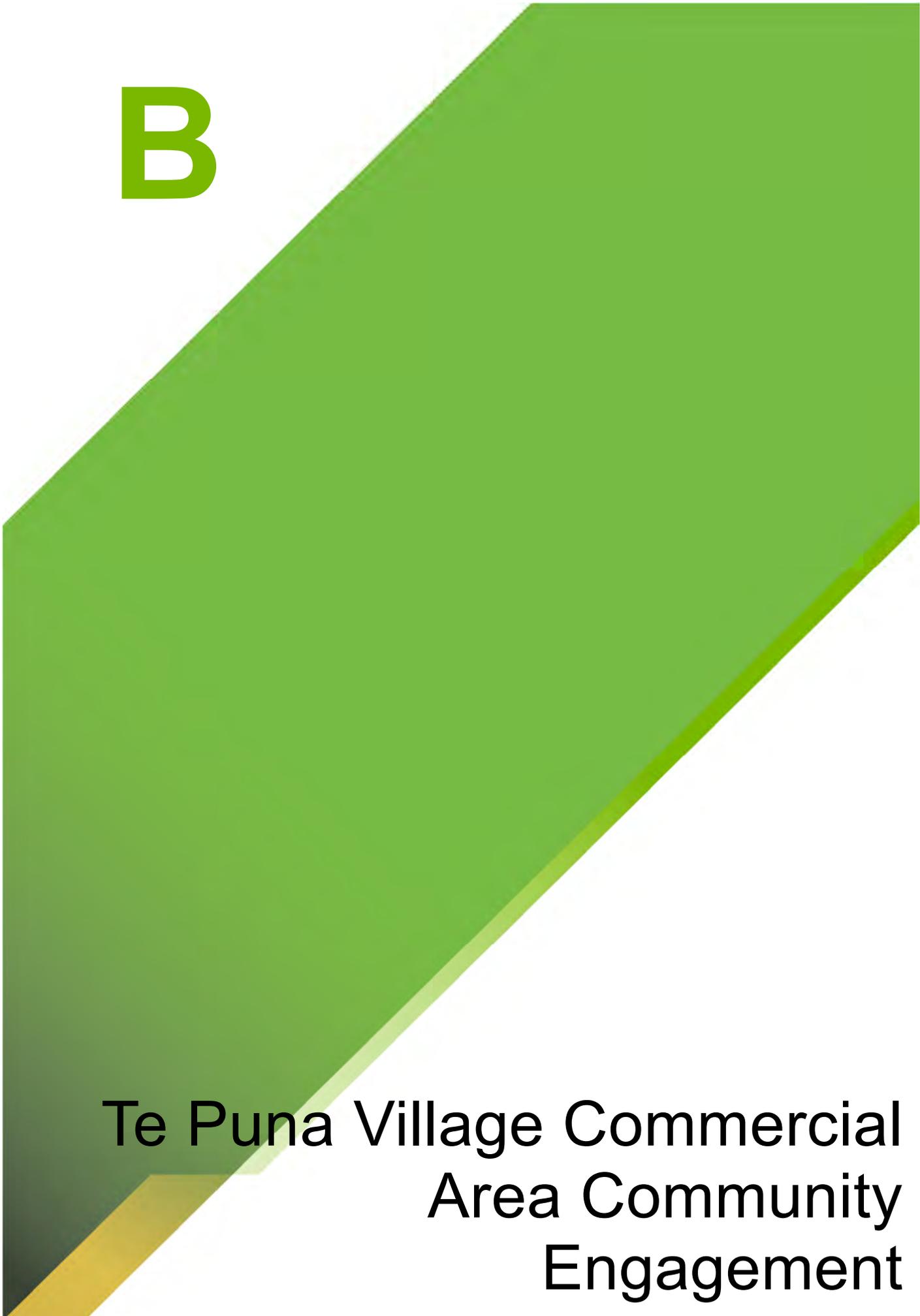
Wall support for blower :	yes
Chambre brisejet avec trappe :	no
PE/concrete tank cover riser :	6 pcs
PE/steel tank cover :	6 pcs
Alarm transmission by SMS :	yes
Outside electrical cabinet :	yes
Sampling chamber :	yes

GUARANTEES

Electromechanical kit :	1 year
Tank(s) :	10 years
Resistance :	B125

*Opening during 6 months, among which 3 months with 50% of load.

Eloy Water reserves the right to modify, or more generally, to update this document at any time without prior notice.



B

Te Puna Village Commercial
Area Community
Engagement

Attachment A:

Te Puna Village Commercial Area

Summary of Community Engagement Outcomes

Q1: How do you use or value the Te Puna Village commercial area?

Key themes:

High utilisation by local community, especially Nourish, ITM, BP, Farmlands, Waterforce, Four Square, Te Puna Deli, Bostock Butchery, Te Puna Vets, Te Puna Liquor Centre.

Value this area providing local services to local community, and not having to drive into Bethlehem and Tauranga for these services due to traffic and convenience.

Mostly consider that the area provides for locals but also recognise some services such as Nourish and retail shops have become a destination (for city folk in particular).

Provides a hub for the community, ability to connect, convenience of local services but also recognise Bethlehem is not far away for things like supermarket and more retail, food outlets.

Q2: What characteristics do you think are important to retain and why?

Key themes:

Village feel important and needs to be retained (and incorporated more into the whole area and new developments). Many referenced Matakana Village (north of Auckland) as an example of what could be achieved. Concern that 'big industry' or large scale development would not be a good fit and would lose community, rural, small scale and village feel in the area.

Easy and accessible and free carparking.

New community centre will be great for this area and contribute to community hub and village atmosphere.

Ensure Te Puna Community Plan is a key consideration of options for commercial zoning alterations, in particular reflecting our identity and maximising opportunities from the Tauranga Northern Link.

Retain what we have but improve standard and appearance of buildings and surrounds. Make what we have attractive!

Compact nature of existing commercial area needs to be retained.

Retain green wedge and rural character of the area.

Retain opportunity to be a service hub to surrounding community and meeting place for locals.

Q3: What do you see are the key issues with the site now and in the future?

Key themes:

Look and feel:

The commercial area needs to be tidied up. General look and vibe of village is not very inviting due to random mix of retailers, building design, rubbish everywhere, and lack of landscaping.

The commercial area is too separated and disjointed with ad hoc development undertaken to date. The whole area lacks cohesiveness and needs a better layout.

Te Puna Station Rd needs tidying up and sediment control of all activity needs attention.

Growth:

Limitations to growth as not much commercial land is available to do this and issues with consents and wastewater. Demand is there to expand existing services and provide new services primarily to the local community.

New businesses should be focused on providing services to the local community.

Differing views as to whether the area needs to grow – Most are concerned that if it does grow it will lose its village appeal and impact on rural character. Some feel that there is demand for further commercial activities in this area and that this should occur within and adjacent to the existing zone (with better controls in place to manage how this occurs).

No overall plan in place for the commercial area. Council needs to stop looking over Te Puna and start planning better for our community.

Council needs to be more open about home based businesses and their role in providing for the local community including rural businesses.

Wastewater:

Non performance of existing systems, high cost involved with onsite treatment and removal, limited land area available to deal with wastewater on site so no longer practical, impact on environment, limiting ability to grow and provide further services to the local community. Councils not working together to look at how this issue can be resolved.

Transport:

Cars need to slow down and speed limit needs to be reduced on all roads in this area especially the State Highway, conflict between cars and trucks on the local roads, issues with access and egress points on Minden Road and internal access roads, need bus shelter, better bus services needed, consider park and ride. Significant increase in traffic creating issues on SH2 and local roads.

Tauranga Northern Link will have an impact. Various thoughts on this, some see it as an opportunity to reduce traffic on SH2 and make the area more appealing and easier and safer to get around. Concern about how the lower area of the Minden will be affected.

Needs to be more pedestrian friendly. SH2 is too busy and there is no safe pedestrian connectivity between the four corners, both on the SH and on the local roads.

Impact on surrounding areas:

The local streams of Oturu, Hakao: how will they be affected and what is considered in planning to enhance natural character.

Hard surface areas and run off from the commercial zone to adjacent streams. Design to ensure there are no unnecessary issues in the future as the existing zoned area continues to be developed.

Impact of lighting, signage, parking on surrounding properties and encroachment of commercial activity into the broader community. Avoid potential for reverse sensitivity particularly with horticulture/rural operations.

Q4: What do you see are the key opportunities with the site now and in the future?

Key themes:

Types of activities in the commercial zone:

Retail shops and more cafes to create community hub vibe.

Family friendly restaurant, compliment existing cafes, provide an evening venue.

Fast food options (small scale).

More convenience type providers would add to the area and help create a village atmosphere i.e. General Store, Medical Centre (pharmacy, doctors, dentist, physio), speciality shops.

Te Puna Markets to support local growers and local small businesses.

Horticulture support hub. Packing sheds, transport vehicles, logistic centres, and support for Kiwifruit and Avocado industry.

Community Centre:

A Community Centre that the community is proud of.

Community events and activities at the new hall.

Potential to consider a visitor/information centre as part of this development.

The hall must have good amenity.

Is the new community hall an opportunity to take a look at a more coordinated approach to addressing wastewater issues?

Pedestrian connectivity:

Better pedestrian connectivity between all four corners of the commercial area and then extending up Te Puna Road and Minden Road. Sealed footpaths.

Complete Te Puna Road footpath to the commercial zone.

Design:

More control over the design and layout of developments, including landscaping requirements (see amenity comments below). This area is a gateway to Tauranga and needs to be attractive and inviting. Opportunity to reflect Te Puna's history through design standards.

Further expand and create village theme. Opportunity to become the Matakana of Tauranga.

Identify opportunities to provide cultural, art and history in new development (eg hall, roundabout) and existing places.

Wastewater:

Develop a community sewer treatment facility. That would be better for the environment and enable efficient use of the zoned land.

Public spaces and amenity:

Provision of a playground and public open greenspace. Could use this area for markets and community events and would add vibrancy to the area.

More beautification, planting and gardens to reflect character of Te Puna rural, heritage and culture.

Transport:

Lowering the speed limit.

Develop park and ride facilities. More carparking if more development.

Improved bus services.

Tauranga Northern Link creates an opportunity to become a destination – need attractive and inviting spaces and places, and the right mix of activities that could achieve this. Maximise opportunities from this development for the commercial area.

Bigger picture considerations:

Develop a long term comprehensive and connected plan for the commercial area.

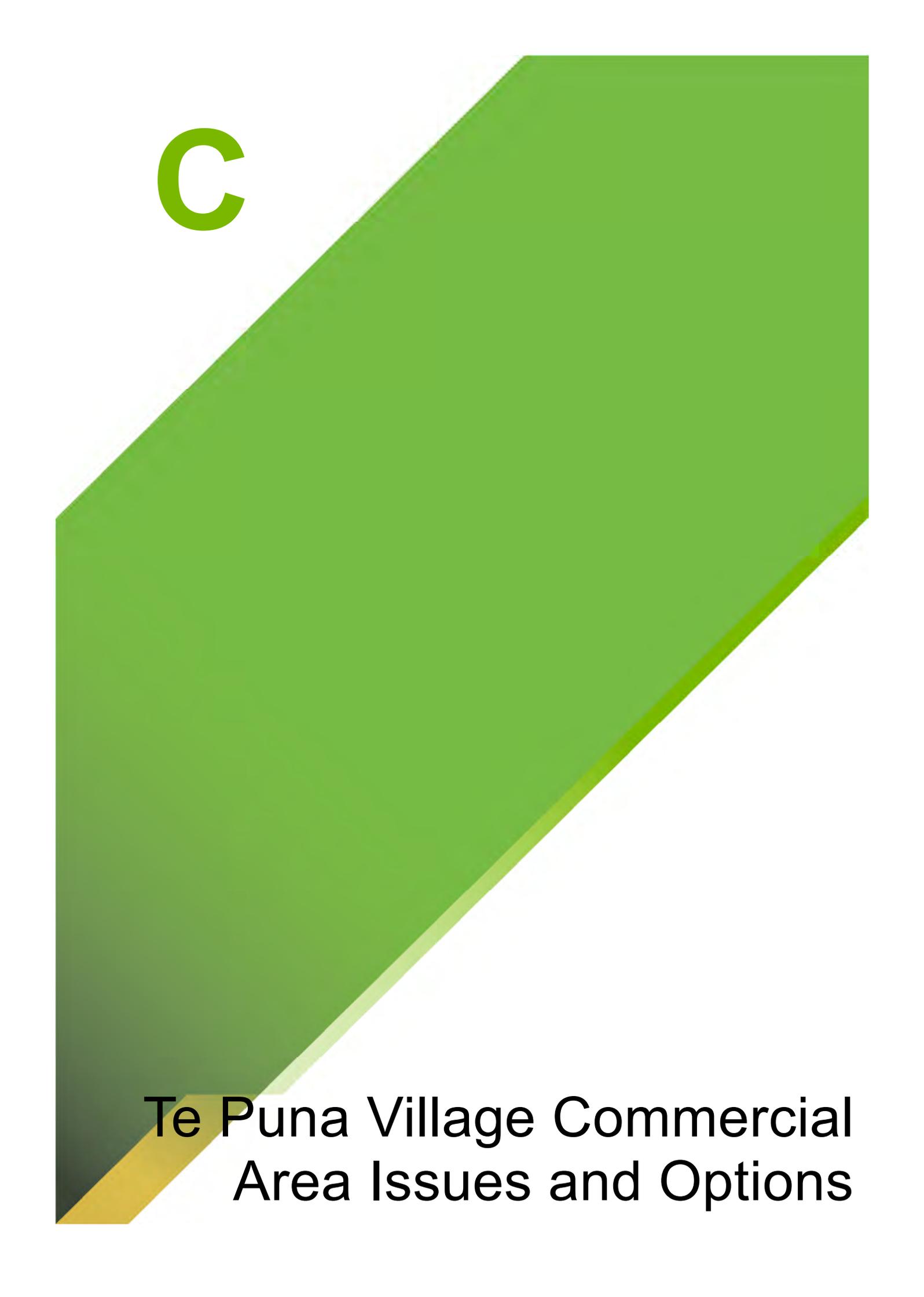
A well planned structure plan is needed.

Incorporate age-in-place affordable housing alongside places for those in need of a transitional home around the commercial zone to give stability, vitality and social dynamics to the area. Develop as a Special Housing Area. Benefit from easy access to community and commercial services. Need this type of lateral thinking.

Need to focus on more than just the commercial zone – time to have a conversation on the relevance of the current rural zones to the community (relevant to Future Development Strategy discussion as well).

Create local employment opportunities.

Greater opportunities for collaboration by Council – work with Pirirakau, the local community and businesses.



C

Te Puna Village Commercial Area Issues and Options

Attachment B:

Te Puna Village Commercial Area

Issues and Options

Scope

The focus is on the commercially zoned land at the intersection of SH2, Te Puna Road and Minden Road. This area is commonly known as Te Puna Village.

The commercial zone is approximately 5.5 hectares in size.

For the majority of the commercial area the adjacent District Plan zone is rural, with the exception of the Post Harvest zone on the corner of Te Puna Road and Armstrong Road.



Issues and Options

Based on the community engagement outcomes, five key issues have been identified:

1. Wastewater
2. Transport
3. Commercial zone
4. Amenity
5. Bigger picture

For each issue, a summary of the community feedback, a brief explanation of the current situation and high-level options for discussion are provided. Further detail on the options will be provided as a next step depending on the direction given, as for some options it is likely that a more comprehensive analysis will be required to inform future decision-making.

Key considerations are outlined after the issues and options section of this attachment.

Issue 1: Wastewater

Community feedback summary

Recognise the non-performance of existing wastewater systems and impact on the environment, high cost of onsite treatment and removal, limited land area available to deal with wastewater on site, and the limitations this all has on the ability to grow business in this area, despite there being demand to do so.

An option identified in the feedback was to develop a community waste water treatment facility. This would be better for the environment and enable efficient use of the zoned land.

Current situation

Te Puna Village commercial zone is not currently serviced by Council's wastewater infrastructure. Council has stated that no reticulation will be provided to this site. It is not currently identified as an urban growth area and is not within a BOPRC maintenance zone. Therefore, landowners need to manage their wastewater in accordance with the BOPRC Onsite Effluent Treatment Plan (OSET).

Within the Te Puna Village a number of wastewater issues have been identified due to failing systems and resultant issue of wastewater not being treated to the required standard and or properties experiencing wastewater overflow. Generally commercial development is not compatible with onsite wastewater disposal, as it needs approximately one third of the site to be set aside for a disposal area, especially with businesses that have high water usage that requires discharge into wastewater systems.

Options for discussion and consideration

Option	Pros	Cons
<p>1A <u>Status quo</u></p> <p>BOPRC to continue with undertaking an on site effluent compliance programme through working with consent holders.</p> <p>Council to ensure all consents in or adjacent to the commercial zone are provided to BOPRC to assess compliance with the OSET Plan and ensure the rules are adhered to.</p>	<p>The wastewater issues are current and need to be resolved in the short term to prevent any potential environmental impact.</p>	<p>Impact on business operations in the area.</p>
<p>1B <u>Investigation into issues/options for a community wastewater scheme for the Te Puna commercial zone</u></p> <p>Work with BOPRC and business/landowners to explore options for a community wastewater scheme including system and land requirements, costing, and funding options.</p>	<p>Potential to provide a long term solution to the wastewater issue.</p>	<p>Likely to require significant investment from the businesses.</p>
<p>1C <u>Investigation into issues/options for connecting the Te Puna commercial zone to the Omokoroa wastewater pipeline</u></p> <p>Analysis and monitoring of Te Puna West and Omokoroa to understand capacity is underway which will provide a basis for a discussion on where any additional capacity could be provided and how.</p>	<p>Potential to provide a long term solution to the wastewater issue, and contribute to costs of pipeline.</p>	<p>Impact on capacity to provide for Omokoroa development.</p> <p>Precedence likely to trigger further requests in Te Puna to connect to reticulated system.</p> <p>Impact on TCC/WBOPDC</p>

Option		Pros	Cons
			contractual arrangements.
1D	<u>Investigate options for strengthening District Plan rules</u> Explore options for how District Plan rules may better manage wastewater in this commercial zone in the future.	Could have more specific requirements for different types of retail activity (if they generate more wastewater).	The wastewater issues are current and need to be resolved in the short term to prevent any potential environmental impact.

Relevant to all options is that if a decision is made through the Future Development Strategy to explore Te Puna urbanisation, then wastewater infrastructure capacity will need to be considered over the next three years. However this is likely to be a long term option (20+ years) and will not solve existing problems.

Issue 2: Transport

Community feedback summary

There are issues with speed limits on SH2, access/egress from the commercial area onto Minden Road, and conflict between vehicles and trucks on Te Puna Road.

Need improved pedestrian connectivity between and within all four corners of the commercial area and then extending up Te Puna Road and Minden Road. This is not safe and does not encourage walking and cycling activity.

Need bus shelters.

Need park and ride facilities.

Tauranga Northern Link should have a positive impact in terms of reducing traffic volumes and providing a safer pedestrian environment. Some concerns about lack of profile and loss of business.

Current situation

A speed limit review of SH2 between Katikati and Bethlehem is intended to be undertaken by NZTA in 2019. This will look at the potential lowering of the speed limit through Te Puna. The Tauranga Northern Link construction timeframes have yet to be confirmed.

The existing gravel walkway from Armstrong Road to the commercial area will be replaced with a concrete path in 2019/20 to connect to the concrete path that extends east of Armstrong Road along Te Puna Road. This is currently being costed by transport staff. There are no current plans by NZTA to improve pedestrian connectivity across SH2 or provide bus shelters or park and ride facilities.

The Omokoroa to Tauranga cycleway will go along Borell Road (from Snodgrass Road), connect into Te Puna Road and then head along Lochhead Road. Along with recreational and

tourism opportunities this cycleway will provide an alternative, safer transport route to SH2. The Te Puna Village could become a popular destination and stop off point for users of the new cycleway.

Options for discussion

Council could choose one or more options.

Option	Pros	Cons
2A	<p><u>Status Quo</u></p> <p>No change.</p>	<p>Does not respond to a key issue raised by the Te Puna community.</p>
2B	<p><u>NZTA/BOPRC discussions regarding pedestrian access within and around the commercial zone.</u></p> <p>Discuss with NZTA/BOPRC options for improving pedestrian access across SH2, bus routes, and park and ride facilities. Determine viability of improvements how this relates to decisions on the Tauranga Northern Link timing.</p>	<p>Community plan supports improved and safe pedestrian connectivity across SH2 and across local roads (council).</p> <p>District Plan Lifestyle zone - consideration will be given to vehicle, walking and cycling connectivity between the Minden and the Te Puna peninsula to retain the integrated character of the community.</p> <p>Could be part of a package of improvements considered as part of Tauranga Northern Link project.</p>
2C	<p><u>Council prioritisation of wider walkway development in Te Puna</u></p> <p>Include consideration of further development of walkways on Te Puna Road and Minden Road to connect people to the commercial area. Te Puna Road is in the prioritisation of the annual work programme for 2019/2020. Minden Road is not in the programme.</p>	<p>Community plan supports improved and safe pedestrian connectivity across SH2 and across local roads (council).</p> <p>Lifestyle zone - consideration will be given to vehicle, walking and cycling connectivity between the Minden and the Te Puna peninsula to retain the integrated character of the community.</p>

Issue 3: Commercial Zone

Community feedback summary

High utilisation by local community, especially Nourish, ITM, BP, Farmlands, Waterforce, Four Square, Te Puna Deli, Bostock Butchery, Te Puna Vets, Te Puna Liquor Centre.

Value this area providing local services to local community, and not having to drive into Bethlehem and Tauranga for these services due to traffic and convenience.

Village feel is important and needs to be retained (and incorporated more into the whole area and new developments). Many referenced Matakana Village (north of Auckland) as an example of what could be achieved. Concern that 'big industry' or large scale development would not be a good fit and would lose community, rural, small scale and village feel in the area.

Limitations to growth as not much commercial land is available to do this and issues with consents and wastewater (from a local business). Demand is there to expand existing services and provide new services primarily to the local community. Need to deal with existing issues first.

New businesses should be focused on providing services to the local community.

Differing views as to whether the area needs to grow – Most are concerned that if it does grow it will lose its village appeal and impact on rural character. Some feel that there is demand for further commercial activities in this area and that this should occur within and adjacent to the existing zone (with better controls in place to manage how this occurs). Industrial to go to Te Puna Station Road.

Retail shops and more cafes to create community hub vibe.

Family friendly restaurant, compliment existing cafes, provide an evening venue.

More convenience type providers would add to the area and help create more of a village atmosphere i.e. General Store, Medical Centre (pharmacy, doctors, dentist, physio), speciality shops

Te Puna Markets to support local growers and local small businesses.

Need to ensure sufficient carparking if it does expand.

New community centre will be great for this area and contribute to community hub and village atmosphere.

Ensure Te Puna Community Plan is a key consideration of options for commercial zoning alterations, in particular reflecting our identity and maximising opportunities from the Tauranga Northern Link.

Manage impacts of commercial (and Post Harvest Zone) activities on surrounding areas e.g., light building design, environmental impacts, amenity, traffic etc.

Current situation

Plans to extend commercial zone and provide for light industrial activity on the north eastern side of Te Puna Road. The landowner has indicated they want to work together to look at

how wider objectives could be achieved through this development (but recognise extent of compromise or trade off in this).

Plans to redevelop the ITM site once they vacate the premises (as the lease has expired).

Potential to extend the commercial zone on Minden Road (southern side) to complete the block to the edge of bank. Part of this is currently zoned rural.

Other than that, we are not aware of any other proposals to extend the commercial zone.

Options for discussion

The ability to commence these options is largely dependent on the outcome of Issue 1: Wastewater. Council could choose one or more options.

Option		Pros	Cons
3A	<p><u>Status quo</u></p> <p>No further work done to explore options for the potential extension of the commercial zone at Te Puna Village.</p>	<p>Concentres activity within existing commercial zone.</p>	<p>Landowner/developers wanting to expand their activities.</p>
3B	<p><u>Explore options for the potential extension of commercial zone on the Te Puna Road northern side.</u></p> <p>Look at options for achieving wider objectives for the site (identified by the community through this process). Consider adjacent landowner issues with any potential expansion. Consider the type of activities that might be accommodated in an expansion. Consider outcome of Issue 4. Previous plans have indicated the need for light industrial as well as commercial.</p>	<p>May help achieve wider objectives for the site, including better layout and landscaping.</p> <p>Assists landowner/developer to realise their objectives and investment.</p> <p>Potential to provide local employment opportunities and more local services to the local community.</p>	<p>Impacts on adjacent landowners and rural character.</p>
3C	<p><u>Explore options for the potential extension of commercial zone on the Minden Road southern side (and to follow property boundaries).</u></p> <p>Look at options for achieving wider objectives for the site (identified by the community through this process).</p>	<p>May help achieve wider objectives for the site.</p> <p>Assists landowner/developer to realise their objectives and investment.</p>	<p>Impacts on adjacent landowners and rural character.</p>

Option		Pros	Cons
	Consider adjacent landowner issues with any potential expansion. Consider the type of activities that might be accommodated in an expansion. Consider outcome of Issue 4.	Potential to provide local employment opportunities and more local services to the local community.	

Issue 4: Amenity

Community feedback summary

The commercial area needs to be tidied up. General look and vibe of village is not very inviting due to random mix of retailers, building design, rubbish everywhere, and lack of landscaping.

More control over the design and layout of developments, including landscaping. This area is a gateway to Tauranga and Te Puna and needs to be attractive and inviting. Opportunity to reflect Te Puna's history and rural character through design standards.

Further expand and create village theme. Opportunity to become the Matakana of Tauranga.

Identify opportunities to provide cultural, art and history in the area.

Provision of a playground and public open greenspace. Could use this area for markets and community events and would add vibrancy to the area.

Current situation

Only design and landscaping or amenity controls are through District Plan objectives, policies and rules.

Opportunity for new hall landscaping to add amenity and incorporate identity elements.

The closest playground is at Te Puna School.

Options for discussion

Council could choose one or more options.

Option		Pros	Cons
4A	<u>Status quo</u> No change to current approach. Not a funding or resourcing priority for Council at this time.		Does not respond to a key issue raised by the Te Puna community.
4B	<u>Public open space</u> Location options include to provide as part of hall development or work with landowners to tidy up vacant	Meets local/visitors needs if integrated with retail/café activities	Cost to establish and to maintain

Option	Pros	Cons
<p>space or consider use of rural land or consider in any expansion/development. Consider playground if safe and appropriate location for this.</p>		
<p>4C <u>Facilitate community project to incorporate/promote village theme and art, heritage, cultural features into commercial zone</u></p> <p>Work with the community and landowners/businesses to come up with a plan for how this can be realised including consideration of design elements and landscaping, and explore options for funding implementation of this.</p>	<p>Aligns with community plan and community feedback through this process.</p>	<p>Costs of process and implementation.</p>
<p>4D <u>Investigate options for strengthening District Plan rules</u></p> <p>Look at how design/landscaping objectives/policies/rules can be strengthened to achieve improved outcomes for commercial zones such as Te Puna.</p>	<p>Aligns with community plan and community feedback through this process.</p>	<p>Only applies to new activities – cannot be retrospective to existing activities</p>

Issue 5: Bigger picture

Community feedback summary

Te Puna Community Plan focus on green wedge and protecting rural character. Pirirakau do not want more residential development in Te Puna.

Comprehensive approach through tools such as a structure plan. The commercial area is too separated and disjointed with ad hoc development undertaken to date. The whole area lacks cohesiveness and needs a better layout.

Consider opportunity to provide housing and social services around the commercial zone – think outside the square.

Current situation

District Plan objectives/policies/rules aim to protect productive land and rural amenity.

The Draft Future Development Strategy raises the question as to whether Te Puna should be considered for urban development in the long term (20-30 years). If the conclusion was to consider such action, then detailed studies would be undertaken over the next three years to see if it would be feasible to urbanise the area, and how it might be achieved. Consideration of any further housing activity in Te Puna (including a potential Special Housing Area around the commercial zone) needs to be a part of the Future Development Strategy process.

No structure plan in place for the Te Puna commercial area.

Options for discussion

Council could choose one or more options.

Option	Pros	Cons
5A <u>Status quo</u> No action taken to specifically respond to these issues.		Does not respond to a key issue raised by the Te Puna community.
5B <u>Structure Plan</u> Develop a structure plan for the Te Puna commercial zone (and potential adjacent land to consider future development). Consider how all key issues raised in this paper could be responded to through the structure plan process. Community engagement essential part of the process.	Provides a comprehensive approach to future development of the Te Puna commercial zone.	Significant resource required to undertake this process. This is not currently prioritised in Councils work programme. Question how much of the current situation can be changed/improved.

Key Considerations

Te Puna Community Plan

The Te Puna Community Plan was developed in 2017, updating the previous 2007 version. The Plan provides an insight into community aspirations for Te Puna and how these might be achieved. The Plan recognises that our commercial areas are extremely important for our resilience (food, services, and resources) but considers that commercial/retail activity should be limited:

- Te Puna is to be kept an essentially rural area by limiting industrial and commercial areas to current locations and focusing on local services.
- This involves recognising the existing commercial activity at Te Puna Village and Clarke Road and consolidating any future development at these locations to serve the local catchment.

It is recognised that Te Puna residents earn their living in a variety of ways, both within and outside of the area, and that there is room alongside farming and horticulture for commercial, retail and home-based businesses:

- Retain and monitor current District Plan controls on home-based businesses.
- Conduct a survey to accurately measure the scale and type of business enterprises in Te Puna.
- The Plan tests the concept and framework for identifying, maintaining and protecting the areas 'rural character' from a community perspective. Bethlehem is recognised as a larger commercial area (with a supermarket) that also plays an important role to the people and businesses of Te Puna.

The Plan outlines future opportunities for commercial activities in the area:

- Maximising opportunities from the Tauranga Northern Link to achieve the best outcomes for local businesses: support and encourage participation in consultation processes with transport agencies to achieve good outcomes for connections and amenity values.
- Preservation and interpretation of landmarks and places of significance, both ancient and modern, will help people recognise and identify Te Puna.

Relevant Council direction to date

In 2015 the Policy and Strategy Committee declined to proceed with a proposed plan change for Te Puna that would increase the commercial zone and include a light industrial zone on the Rex McIntyre land (behind the BP and Four Square).

In 2015 Zariba Holdings made a submission to the 2015-25 Long Term Plan requesting to work with Council to investigate the opportunity to connect the growing Te Puna commercial area and adjacent post-harvest zone to the wastewater pipeline. Zariba noted that the current situation is unsustainable and is restricting economic development. Council's response was that the Tauranga City Council (TCC) agreement for the pipeline was amended to only allow properties to connect to the scheme that are within the Te Puna residential zone and cannot comply with the BOPRC Onsite Effluent Treatment Plan. The Te Puna commercial zone did not meet these requirements (at the time) and therefore cannot connect.

In 2018 further correspondence with developers discussed issues with effluent soakage and the potential this could have on halting further development. The issues are difficult to resolve

as there is little room to provide a land treatment area. Council response was that Council's position has not changed and opportunity to reticulate and connect to Omokoroa pipeline is not an option in short to medium term due to capacity issues (and capacity to be picked up in Omokoroa as an urban growth area). Council suggested consideration of a community scheme with all commercial property owners contributing.

In 2018 a further proposal to extend the commercial zoning was presented to a Policy Committee workshop on 10 April 2018. The landowner was proposing to do this via a Private Plan Change. Council asked staff to produce a paper that discussed the options for the planning for the future of the village, the land around the SH2/Te Puna Road/Minden Road intersection. The outcome was direction to undertake a community engagement exercise with the Te Puna community to understand their expectations for the future of the commercial zone, and appetite for expansion.

Te Puna growth

The Draft Future Development Strategy raises the question as to whether Te Puna should be considered for urban development in the long term (20-30 years). If the conclusion was to consider such action, then detailed studies would be undertaken over the next three years to see if it would be feasible to urbanise the area, and how it might be achieved.

In 2013, the population of Te Puna (Te Puna and Minden Area Units) was 6,834 and projected to be 7,385 in 2018. This is estimated to increase to 8,093 by 2028 (an additional 708 people over the next ten years) with no further growth projected. This equates to 2,954 dwelling units in 2018 and 3,354 dwelling units by 2028.

The Minden Lifestyle zone (operative in 2012) provides opportunities for lifestyle living close to the City of Tauranga with good views over the Harbour and wider Bay of Plenty. This is envisaged as being a lifestyle location with 1730ha that will be developed over a period of up to 40 years. This growth is factored into the above projections.

Commercial zone

The commercial zone for Te Puna was inserted into the District Plan many years ago in recognition of the activities that existed or were planned at that time. The aim of commercial zones throughout the District is to provide a vibrant commercial environment that encourages social and cultural interaction in our communities. The rules are fairly permissive in that retail is retail so there is no consideration of the implications of different types of commercial activity (e.g. book shop vs a butcher).

For an area like Te Puna, there is no set formula used to determine how much commercial land is needed. It is a given that a community of this size should have access to a commercial centre to service the immediate catchment but how big that is and the types of services it provides is largely driven by land use zones, infrastructure capacity and the market response to community demand.

The current mix of services provided by approximately 30 businesses operating within the commercial zone can be categorised as follows:

Type	Businesses
Cafes and bars	Nourish, Te Puna Tavern and Minden Restaurant, Top Shot Bar
Retail food/liquor outlets	Te Puna Four Square, Te Puna Deli, Naked Meats Butchery, Te Puna Liquor Centre, Minden Munchies Lunch bar
Accommodation	Minden Backpackers, Accommodation Te Puna
Service providers	Farmlands, Waterforce, Te Puna Vets, BP Connect, Te Puna Motors
Education	Above and Beyond, Te Puna Kindergarten
Building construction companies	Federation Homes, Supermac Group (portable buildings, industrial construction and equipment hire), Skyline Buildings, Canam Construction, Advanced Housing Systems, ITM.
Real estate	Ray White, Professionals.
Retail (clothes and homeware)	Heaven and Home, Dorje Boutique
Design	Quarry Commons (co-working space and design)

Bethlehem Town Centre is approximately 4.5km from Te Puna Village, a 5-minute car journey depending on traffic. Bethlehem provides a larger commercial area and includes a supermarket, retail clothes and homeware, fast food, restaurants, cafes, and Kmart.

Clark Road Village (zoned rural) is 1km away and has a café, accountancy, gallery and homeware, dog day-care and grooming.

Wastewater

Te Puna Village commercial zone is not currently serviced by Council's wastewater infrastructure. Council has indicated that no reticulation will be provided to this site. It is not currently identified as an urban growth area and is not within a BOPRC maintenance zone. Therefore, landowners need to manage their wastewater in accordance with the BOPRC Onsite Effluent Treatment Plan, or store wastewater for frequent collection by a contractor. On-site effluent treatment systems include septic tanks and associated soakage fields and advanced aerobic systems.

Within the Te Puna Village a number of wastewater issues have been identified due to failing systems and resultant issue of wastewater not being treated to the required standard and or properties experiencing wastewater overflow. BOPRC is aware of these issues and is currently undertaking an on-site effluent compliance programme through working with consent holders directly to ensure compliance.

Any future development in the Te Puna Village needs to carefully consider requirements around on-site wastewater. Generally commercial development is not compatible with onsite wastewater disposal, as it needs approximately one third of the site to be set aside for a disposal area, especially with businesses that have high water usage that requires discharge into wastewater systems. Many commercial wastes need special treatment which can be expensive and the treatment systems require regular servicing.

Council has an agreement with TCC to take the wastewater from Omokoroa only and treat it at their wastewater treatment plant on Chapel Street. This agreement has been amended to allow the connection of properties in Te Puna West. However, this amendment only allows properties to connect to the scheme that:

- Are within the Te Puna West residential zone (in the current District Plan); and
- Cannot comply with the BOPRC OSET Plan.

Council has advised commercial landowners that have requested for this connection to occur, that the designed capacity of this pipeline precludes addition of other areas connecting to the pipeline as the focus is on servicing Omokoroa in the first instance as one of Council's four urban growth areas. The design of the wastewater system for Te Puna West, being a sealed system, meant that very little additional pipeline capacity was required to service this residential catchment. If the monitoring undertaken at Te Puna West shows that a similar system could be utilised for Omokoroa and this could result in capacity in the pipeline, the likely option is for Council to seek greater development density in Omokoroa, rather than connect additional developments.

Transportation

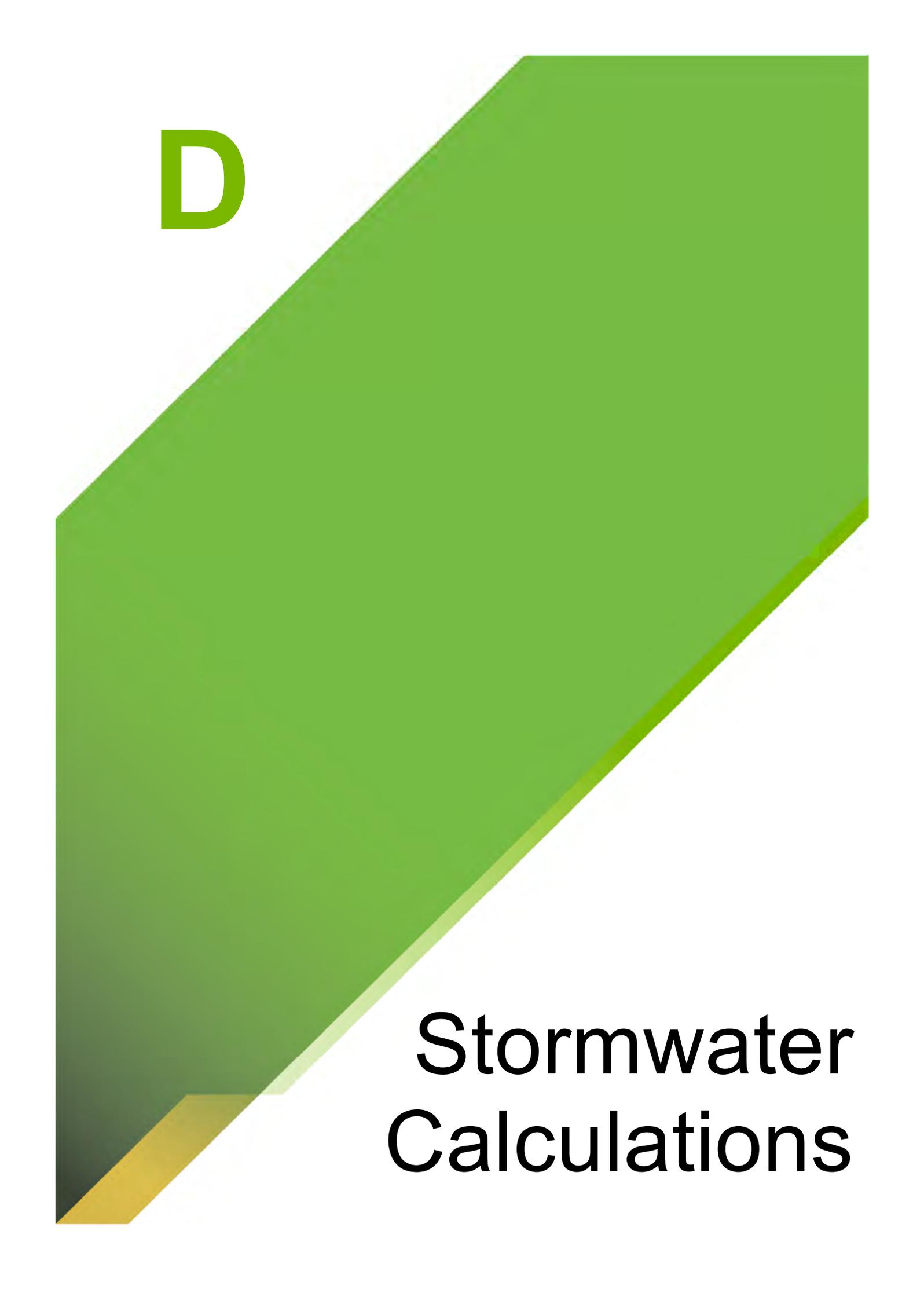
NZTA recently completed the Te Puna/Minden Road intersection upgrade with development of the roundabout. The intent of this was to improve safety at a high risk and increasingly busy intersection, and accommodate future traffic demands as the population grows. The project included purchase of Council land and removal of the hall, as well as purchase of part of the McIntyre land for an access road and now for the future location of the hall. A pedestrian access point was provided near where two bus stops are located (in front of the motel). A small park and ride facility (6-8 carparks) has been allowed for but this is not a formalised space for this purpose.

The roundabout was built to deal with a potential expansion of the commercial zone as well as further intensification of the DMS Post Harvest zone. However, this was done at a time when it was assumed that the Tauranga Northern Link would be commencing construction now which isn't the case.

SH2 in Te Puna has an estimated 20,000 – 22,000 vehicles per day travelling through this area, an increase of 3,000 vehicles per day since 2015. NZTA recently announced that they have confirmed the need for the Tauranga Northern Link and that this will be a two-lane route, one in each direction between Te Puna and Tauranga based on current alignment. Options for additional lanes on SH2 could include a range of uses such as public transport. NZTA will work with Councils to discuss the broader network approach in the context of government focus on safety and mode neutrality. These discussions will need to take into account landuse pattern (current and future) and the role and function of Council's local road network. The construction timing and form of this route is dependent on growth and funding priorities across New Zealand so no timeframes are confirmed at this stage.

SH2 safety improvements between Omokoroa and Te Puna include an upgrade of Omokoroa intersection, and working with partners to improve and encourage public transport use including allowing greater space for public transport and high occupancy vehicles.

A speed limit review of SH2 between Katikati and Bethlehem will be undertaken by NZTA in 2019. This will look at the potential lowering of the speed limit through Te Puna.



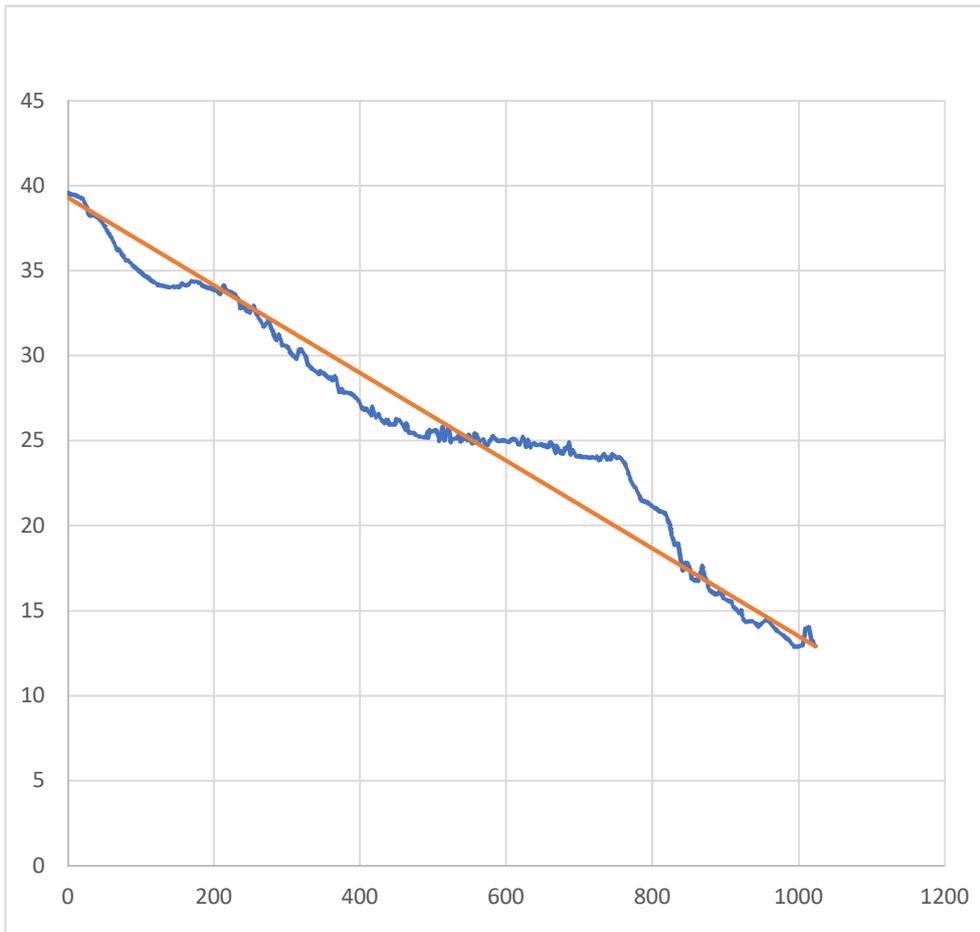
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Stormwater
Calculations

TOC calc

Dam Catchment	37.7627 ha	distance between	Distance	Height
			0	76.5
Length (m)	1023	93.7	93.7	63
Initial height	39.3	240	333.7	47
Lower height	12.9	118	451.7	43
		80	531.7	42
Average Slope	0.025806452	30	561.7	32
		51	612.7	30
		13	625.7	27
Tc (Ramser-Kirpich) minutes	16.56240714			
TC (SCS) (hours)	0.275933073			
TC (SCS) (minutes)	16.55598437			
tp	11.03946384			

AEP Event (%)	Storm Duration (minutes)			
	10	17	30	60
20	122.2	104.8	72.5	52.1
10	147.9	126.8	87.6	61.9
2	199.4	170.1	115.8	83.6
1	218.7	187.2	128.6	92.2



TOC calc

Slope based on equal Average

PVI Station	PVI Elevation
0.000m	39.300m
1023.346m	12.904m

Existing Ground

PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation
0.000m	39.579m	20.696m	39.211m	49.477m	37.679m	80.071m	35.598m
0.242m	39.572m	22.226m	39.088m	50.706m	37.618m	81.320m	35.602m
0.447m	39.564m	23.112m	39.010m	50.941m	37.607m	82.859m	35.603m
0.744m	39.554m	23.928m	38.936m	51.236m	37.570m	84.818m	35.481m
1.348m	39.536m	25.430m	38.796m	52.026m	37.495m	85.874m	35.438m
1.546m	39.533m	25.717m	38.771m	53.680m	37.354m	87.931m	35.356m
1.924m	39.525m	26.015m	38.706m	53.912m	37.334m	88.943m	35.314m
2.730m	39.510m	26.577m	38.589m	54.472m	37.284m	90.565m	35.242m
3.072m	39.506m	27.124m	38.477m	55.628m	37.224m	91.809m	35.194m
3.847m	39.502m	27.349m	38.430m	56.497m	37.195m	92.163m	35.180m
4.150m	39.498m	27.604m	38.417m	57.423m	37.131m	92.944m	35.151m
4.370m	39.493m	27.869m	38.384m	57.535m	37.124m	96.630m	35.013m
4.622m	39.486m	27.887m	38.382m	58.433m	37.042m	97.056m	34.997m
4.836m	39.480m	28.066m	38.386m	59.529m	36.943m	97.837m	34.970m
5.331m	39.476m	28.603m	38.352m	61.457m	36.772m	98.252m	34.954m
5.725m	39.474m	29.265m	38.272m	63.186m	36.641m	98.705m	34.937m
6.172m	39.472m	29.382m	38.254m	63.305m	36.629m	98.731m	34.938m
6.562m	39.471m	30.669m	38.215m	64.121m	36.542m	99.196m	34.945m
6.976m	39.471m	30.911m	38.217m	65.210m	36.446m	100.896m	34.878m
7.398m	39.472m	31.497m	38.221m	66.139m	36.364m	101.127m	34.869m
7.717m	39.474m	32.155m	38.224m	66.683m	36.319m	101.456m	34.859m
7.736m	39.473m	32.606m	38.230m	67.292m	36.267m	101.595m	34.855m
7.954m	39.471m	33.463m	38.241m	67.360m	36.261m	101.992m	34.826m
8.415m	39.463m	34.491m	38.254m	67.581m	36.244m	102.654m	34.777m
8.756m	39.456m	34.821m	38.259m	67.587m	36.244m	103.395m	34.727m
9.142m	39.447m	35.545m	38.255m	67.777m	36.232m	103.448m	34.726m
9.306m	39.444m	35.945m	38.254m	68.039m	36.222m	104.275m	34.711m
10.031m	39.447m	36.452m	38.255m	68.252m	36.219m	105.852m	34.682m
10.132m	39.445m	36.889m	38.254m	68.672m	36.219m	106.229m	34.675m
10.596m	39.433m	37.269m	38.248m	69.317m	36.226m	106.748m	34.667m
11.245m	39.418m	37.768m	38.237m	69.945m	36.225m	106.955m	34.665m
12.027m	39.398m	37.923m	38.234m	71.186m	36.169m	108.147m	34.635m
12.481m	39.387m	38.011m	38.230m	71.295m	36.164m	108.343m	34.629m
12.671m	39.382m	38.285m	38.214m	71.810m	36.127m	108.543m	34.624m
13.016m	39.378m	38.306m	38.214m	72.620m	36.069m	108.756m	34.618m
13.774m	39.372m	39.055m	38.186m	73.402m	36.012m	108.956m	34.612m
14.334m	39.369m	40.235m	38.139m	73.618m	35.997m	109.189m	34.607m
14.887m	39.354m	41.915m	38.072m	74.146m	35.960m	109.437m	34.600m
16.258m	39.316m	41.958m	38.070m	74.175m	35.958m	109.692m	34.594m
17.301m	39.287m	43.097m	38.008m	74.812m	35.915m	110.267m	34.574m
17.878m	39.270m	43.501m	38.000m	75.303m	35.888m	110.570m	34.561m
18.042m	39.270m	44.735m	37.973m	76.014m	35.849m	110.837m	34.549m
18.683m	39.266m	44.773m	37.971m	76.177m	35.840m	111.107m	34.538m
19.342m	39.260m	45.022m	37.957m	76.756m	35.800m	111.752m	34.513m
20.095m	39.252m	45.770m	37.917m	78.647m	35.670m	112.023m	34.501m
20.251m	39.250m	46.546m	37.875m	79.420m	35.616m	112.195m	34.494m
20.268m	39.250m	46.566m	37.873m	79.493m	35.613m	112.290m	34.489m
20.278m	39.249m	47.282m	37.826m	79.599m	35.611m	112.613m	34.474m

TOC calc

PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation
113.974m	34.419m	164.020m	34.152m	195.175m	33.981m	218.799m	33.741m
114.200m	34.415m	164.560m	34.183m	195.385m	33.980m	219.044m	33.723m
115.606m	34.386m	165.904m	34.262m	195.600m	33.976m	219.068m	33.722m
116.336m	34.373m	168.846m	34.410m	195.840m	33.969m	219.261m	33.715m
116.422m	34.371m	170.520m	34.378m	196.948m	33.925m	219.378m	33.713m
116.835m	34.360m	170.822m	34.377m	197.203m	33.916m	219.471m	33.716m
117.454m	34.343m	171.251m	34.370m	197.427m	33.911m	220.110m	33.752m
118.280m	34.320m	173.140m	34.337m	197.637m	33.910m	220.319m	33.759m
119.026m	34.299m	173.338m	34.340m	198.295m	33.916m	220.506m	33.761m
121.208m	34.237m	175.760m	34.380m	198.504m	33.915m	220.960m	33.751m
122.707m	34.194m	177.417m	34.332m	198.724m	33.910m	221.379m	33.753m
123.176m	34.180m	178.404m	34.300m	199.200m	33.895m	221.590m	33.759m
123.652m	34.165m	178.890m	34.305m	199.373m	33.892m	221.821m	33.774m
124.096m	34.150m	180.010m	34.304m	199.420m	33.890m	222.242m	33.783m
124.714m	34.139m	181.051m	34.286m	199.633m	33.886m	222.499m	33.756m
126.944m	34.124m	181.500m	34.272m	199.747m	33.884m	222.712m	33.728m
138.218m	34.045m	182.885m	34.191m	200.261m	33.936m	222.984m	33.702m
138.780m	34.033m	183.014m	34.182m	200.348m	33.944m	223.516m	33.654m
139.211m	34.025m	183.715m	34.124m	200.748m	33.926m	223.756m	33.639m
139.368m	34.023m	183.988m	34.118m	201.855m	33.873m	223.971m	33.633m
139.546m	34.023m	184.936m	34.093m	202.398m	33.847m	224.181m	33.637m
139.586m	34.024m	185.261m	34.088m	202.971m	33.819m	224.849m	33.673m
139.813m	34.029m	185.675m	34.086m	203.003m	33.818m	225.062m	33.680m
140.212m	34.035m	186.469m	34.087m	205.139m	33.750m	225.211m	33.680m
140.399m	34.042m	187.556m	34.056m	206.296m	33.722m	225.261m	33.681m
140.658m	34.044m	187.962m	34.040m	206.614m	33.710m	225.458m	33.680m
143.537m	34.069m	188.195m	34.028m	206.992m	33.694m	226.067m	33.646m
143.812m	34.067m	188.298m	34.028m	207.949m	33.648m	226.271m	33.642m
145.321m	34.053m	188.965m	34.030m	208.288m	33.631m	226.378m	33.642m
146.297m	34.045m	189.259m	34.030m	208.368m	33.628m	227.128m	33.593m
147.141m	34.045m	189.531m	34.029m	208.674m	33.617m	227.341m	33.598m
148.338m	34.046m	189.811m	34.028m	208.838m	33.612m	227.603m	33.624m
150.064m	34.049m	190.114m	34.025m	208.917m	33.632m	228.440m	33.611m
150.286m	34.059m	190.504m	34.022m	209.199m	33.675m	228.726m	33.581m
150.462m	34.064m	190.653m	34.014m	209.561m	33.706m	229.113m	33.557m
151.078m	34.029m	190.988m	33.996m	210.620m	33.756m	229.495m	33.523m
151.300m	34.028m	191.211m	33.987m	211.697m	33.834m	230.245m	33.451m
152.450m	34.035m	191.236m	33.988m	212.122m	33.890m	230.614m	33.427m
152.795m	34.051m	191.437m	33.992m	212.562m	33.971m	231.795m	33.399m
153.708m	34.119m	191.497m	33.990m	213.339m	34.138m	232.108m	33.378m
155.379m	34.240m	191.710m	33.987m	214.388m	34.062m	232.691m	33.327m
155.544m	34.239m	191.921m	33.986m	214.807m	34.028m	232.981m	33.311m
156.181m	34.233m	192.353m	33.989m	215.301m	33.953m	233.963m	33.293m
157.213m	34.215m	192.773m	33.988m	215.833m	33.868m	234.452m	33.263m
158.946m	34.183m	192.986m	33.985m	215.848m	33.866m	234.903m	33.133m
160.581m	34.152m	193.647m	33.970m	217.315m	33.846m	235.574m	32.956m
160.705m	34.152m	193.856m	33.968m	217.745m	33.829m	235.885m	32.867m
162.571m	34.150m	194.740m	33.978m	217.990m	33.811m	236.131m	32.793m

TOC calc

PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation
236.209m	32.793m	280.044m	31.489m	316.386m	30.335m	357.003m	28.696m
236.327m	32.794m	280.475m	31.427m	316.456m	30.343m	357.575m	28.682m
236.617m	32.796m	281.425m	31.252m	317.064m	30.359m	358.024m	28.649m
236.726m	32.802m	281.827m	31.216m	317.837m	30.355m	358.036m	28.648m
237.251m	32.819m	282.343m	31.218m	318.082m	30.356m	358.520m	28.623m
237.838m	32.824m	282.856m	31.109m	318.303m	30.364m	360.159m	28.725m
239.718m	32.869m	283.458m	31.028m	318.405m	30.372m	361.758m	28.573m
240.895m	32.879m	283.592m	31.013m	318.721m	30.356m	362.224m	28.559m
241.576m	32.884m	284.193m	30.974m	319.146m	30.343m	362.890m	28.578m
242.418m	32.850m	284.353m	30.968m	319.355m	30.333m	363.205m	28.590m
243.093m	32.703m	285.675m	30.926m	320.131m	30.277m	364.491m	28.662m
245.708m	32.591m	286.126m	30.923m	320.435m	30.258m	365.772m	28.804m
246.314m	32.599m	288.588m	31.205m	321.482m	30.217m	365.809m	28.799m
247.618m	32.617m	288.817m	31.232m	322.733m	30.130m	366.855m	28.665m
248.335m	32.601m	291.070m	30.946m	325.023m	29.985m	367.228m	28.618m
248.901m	32.549m	292.787m	30.613m	325.612m	29.980m	367.349m	28.603m
248.994m	32.541m	293.348m	30.610m	325.849m	29.978m	367.537m	28.569m
249.902m	32.730m	296.023m	30.621m	328.709m	29.454m	368.201m	28.451m
250.166m	32.691m	297.926m	30.566m	328.721m	29.452m	369.648m	28.193m
253.213m	32.844m	298.134m	30.571m	328.847m	29.447m	370.528m	28.037m
254.738m	32.937m	299.197m	30.560m	329.745m	29.464m	370.568m	28.035m
256.552m	32.653m	300.581m	30.497m	331.423m	29.363m	371.316m	27.969m
257.971m	32.438m	301.356m	30.473m	333.400m	29.256m	371.880m	27.856m
258.780m	32.401m	301.980m	30.480m	335.205m	29.198m	371.915m	27.849m
259.282m	32.372m	303.004m	30.368m	335.278m	29.196m	372.952m	27.925m
259.543m	32.351m	303.399m	30.307m	335.727m	29.183m	375.264m	28.060m
260.753m	32.239m	304.049m	30.191m	337.182m	29.141m	375.821m	27.882m
263.532m	32.078m	304.325m	30.190m	337.573m	29.138m	377.132m	27.841m
264.008m	32.040m	304.729m	30.175m	337.613m	29.132m	378.228m	27.844m
265.493m	31.888m	305.206m	30.150m	337.626m	29.133m	378.525m	27.843m
266.754m	31.787m	305.399m	30.137m	337.941m	29.117m	379.232m	27.826m
267.494m	31.721m	305.727m	30.124m	341.852m	28.984m	380.855m	27.815m
267.590m	31.714m	306.471m	30.093m	343.764m	28.925m	381.096m	27.815m
267.931m	31.712m	307.632m	30.019m	343.794m	28.923m	381.444m	27.814m
269.907m	31.827m	307.906m	30.022m	343.989m	28.913m	381.569m	27.814m
271.125m	31.893m	309.377m	30.013m	344.562m	28.948m	381.964m	27.813m
271.893m	31.939m	310.091m	29.989m	344.905m	28.960m	382.385m	27.812m
273.844m	32.048m	310.739m	29.944m	345.334m	29.048m	383.515m	27.809m
273.983m	32.056m	311.590m	29.869m	345.556m	29.092m	384.251m	27.807m
274.917m	32.030m	311.786m	29.867m	345.634m	29.087m	384.661m	27.805m
275.376m	32.014m	312.268m	29.850m	348.492m	29.006m	385.102m	27.803m
275.735m	32.001m	312.669m	29.829m	349.877m	28.979m	386.069m	27.797m
276.568m	31.850m	313.309m	29.824m	349.957m	28.974m	386.896m	27.791m
276.939m	31.778m	313.378m	29.815m	350.071m	28.971m	387.127m	27.781m
277.945m	31.578m	313.516m	29.833m	350.155m	28.965m	388.011m	27.738m
277.979m	31.571m	314.752m	30.087m	351.062m	28.906m	388.259m	27.728m
279.241m	31.510m	315.001m	30.124m	352.080m	28.872m	388.712m	27.711m
279.848m	31.509m	315.966m	30.273m	353.925m	28.808m	389.491m	27.714m

TOC calc

PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation
389.558m	27.714m	430.156m	26.162m	466.984m	25.469m	507.657m	25.047m
390.705m	27.671m	430.211m	26.160m	467.569m	25.478m	507.898m	25.000m
391.808m	27.626m	431.066m	26.165m	467.795m	25.477m	507.998m	24.982m
391.949m	27.620m	431.127m	26.165m	468.343m	25.467m	508.107m	24.978m
392.990m	27.578m	431.401m	26.153m	468.665m	25.465m	508.208m	24.969m
394.430m	27.520m	433.119m	26.070m	470.155m	25.475m	508.309m	24.961m
394.868m	27.502m	433.504m	26.035m	470.394m	25.474m	508.351m	24.978m
395.971m	27.448m	433.589m	26.029m	470.768m	25.478m	510.811m	25.248m
397.337m	27.382m	433.686m	26.030m	471.355m	25.482m	512.336m	25.794m
398.053m	27.347m	434.007m	26.071m	472.576m	25.477m	513.625m	25.821m
398.570m	27.297m	434.177m	26.091m	472.729m	25.479m	514.646m	25.392m
400.625m	27.095m	434.405m	26.114m	472.891m	25.472m	515.432m	25.004m
401.379m	27.020m	435.505m	26.254m	473.244m	25.455m	515.736m	25.021m
402.003m	26.959m	435.571m	26.262m	473.732m	25.427m	516.531m	25.370m
402.506m	26.910m	435.948m	26.259m	474.026m	25.414m	517.321m	25.519m
403.190m	26.908m	437.584m	26.231m	474.274m	25.409m	519.252m	25.538m
403.820m	26.898m	437.590m	26.231m	475.821m	25.343m	521.047m	25.854m
404.004m	26.891m	438.083m	26.232m	476.142m	25.347m	521.789m	25.609m
404.248m	26.880m	438.302m	26.234m	476.196m	25.347m	523.794m	24.949m
404.525m	26.872m	438.983m	26.119m	480.956m	25.253m	524.211m	24.901m
404.667m	26.877m	439.376m	26.044m	482.467m	25.248m	525.024m	25.094m
404.886m	26.877m	439.783m	25.960m	482.504m	25.246m	525.809m	25.070m
405.082m	26.871m	440.083m	25.946m	483.265m	25.221m	530.895m	25.177m
405.998m	26.825m	440.314m	25.934m	486.410m	25.217m	532.096m	25.132m
406.105m	26.824m	440.861m	25.941m	487.597m	25.218m	534.202m	25.354m
406.409m	26.834m	441.782m	25.971m	488.136m	25.211m	535.846m	25.326m
406.834m	26.850m	443.988m	25.957m	489.886m	25.201m	537.064m	25.013m
407.255m	26.867m	444.401m	25.954m	490.685m	25.183m	537.354m	24.940m
407.516m	26.874m	446.967m	25.950m	491.896m	25.493m	538.184m	24.967m
408.138m	26.894m	447.937m	25.942m	492.878m	25.267m	544.389m	25.198m
409.001m	26.845m	449.230m	26.266m	493.007m	25.242m	546.789m	25.024m
411.398m	26.704m	449.373m	26.268m	493.029m	25.221m	548.131m	25.317m
414.540m	26.516m	450.157m	26.281m	493.095m	25.157m	548.208m	25.334m
414.922m	26.505m	452.260m	26.249m	493.363m	25.216m	548.513m	25.339m
415.019m	26.501m	453.498m	26.168m	494.298m	25.492m	548.887m	25.325m
415.372m	26.496m	453.938m	26.161m	494.935m	25.663m	550.081m	25.253m
415.550m	26.562m	458.019m	25.970m	496.521m	25.551m	550.413m	25.257m
416.699m	26.991m	462.161m	25.618m	497.165m	25.488m	550.642m	25.179m
421.785m	26.383m	462.770m	25.635m	499.023m	25.552m	551.334m	24.980m
421.813m	26.383m	462.859m	25.679m	499.513m	25.525m	551.396m	24.971m
421.853m	26.382m	463.529m	26.010m	499.870m	25.573m	551.743m	24.908m
421.952m	26.381m	464.467m	25.861m	500.669m	25.581m	553.015m	24.818m
422.610m	26.423m	465.228m	25.740m	500.903m	25.589m	553.074m	24.821m
425.063m	26.588m	466.449m	25.545m	501.702m	25.623m	553.085m	24.821m
425.483m	26.574m	466.698m	25.506m	504.719m	25.605m	555.068m	24.857m
426.509m	26.450m	466.914m	25.473m	505.368m	25.482m	555.318m	24.858m
428.446m	26.236m	466.931m	25.472m	505.763m	25.406m	556.079m	25.435m
429.549m	26.187m	466.939m	25.471m	506.471m	25.270m	557.514m	25.420m

TOC calc

PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation
560.060m	25.315m	595.154m	25.028m	636.179m	24.800m	658.190m	24.709m
561.750m	25.138m	596.204m	25.033m	637.319m	24.819m	658.626m	24.746m
563.140m	24.952m	596.703m	25.012m	637.746m	24.856m	658.998m	24.771m
563.732m	24.936m	597.647m	24.970m	637.923m	24.875m	659.275m	24.794m
566.666m	25.054m	597.746m	24.971m	638.333m	24.839m	659.904m	24.852m
566.779m	25.052m	599.115m	24.960m	638.546m	24.818m	660.099m	24.871m
567.471m	25.050m	600.743m	24.944m	638.552m	24.817m	660.549m	24.898m
568.078m	25.061m	600.749m	24.944m	639.934m	24.768m	660.775m	24.909m
568.451m	25.105m	601.044m	24.942m	640.502m	24.750m	661.177m	24.917m
568.655m	25.105m	601.087m	24.942m	640.707m	24.752m	661.421m	24.918m
568.699m	25.095m	602.920m	24.918m	641.808m	24.762m	661.605m	24.896m
570.390m	24.885m	603.132m	24.915m	642.058m	24.764m	662.067m	24.840m
570.598m	24.855m	605.732m	24.996m	642.282m	24.764m	662.285m	24.815m
570.879m	24.779m	606.475m	25.021m	642.385m	24.765m	662.703m	24.771m
571.567m	24.765m	606.984m	25.038m	642.708m	24.758m	663.126m	24.731m
573.728m	24.738m	607.603m	25.059m	643.391m	24.744m	663.338m	24.708m
574.407m	24.738m	608.236m	25.080m	643.547m	24.745m	664.053m	24.620m
574.973m	24.747m	608.548m	25.091m	644.547m	24.750m	664.483m	24.571m
576.406m	24.928m	609.090m	25.109m	646.269m	24.798m	667.395m	24.268m
576.735m	24.963m	609.259m	25.108m	646.461m	24.797m	667.414m	24.268m
577.481m	25.030m	609.779m	25.105m	646.843m	24.781m	667.451m	24.267m
578.234m	25.076m	611.118m	25.103m	647.074m	24.774m	667.503m	24.267m
578.256m	25.077m	612.206m	25.100m	647.289m	24.773m	667.540m	24.266m
579.637m	25.041m	612.300m	25.100m	647.520m	24.775m	668.257m	24.702m
581.120m	25.239m	613.645m	25.025m	648.322m	24.789m	668.298m	24.727m
581.320m	25.268m	614.279m	24.953m	648.743m	24.785m	668.467m	24.716m
581.640m	25.235m	615.318m	24.838m	649.217m	24.763m	669.101m	24.687m
581.885m	25.211m	615.422m	24.833m	649.466m	24.754m	669.520m	24.659m
583.231m	25.181m	616.282m	24.798m	649.700m	24.746m	670.163m	24.608m
583.830m	25.165m	616.539m	24.831m	650.628m	24.722m	671.003m	24.550m
583.901m	25.164m	616.722m	24.813m	651.263m	24.694m	671.224m	24.531m
584.171m	25.155m	616.908m	24.793m	651.326m	24.695m	671.959m	24.456m
584.457m	25.142m	618.436m	24.797m	651.694m	24.700m	672.626m	24.396m
584.833m	25.120m	618.870m	24.799m	652.025m	24.701m	672.837m	24.380m
585.223m	25.094m	622.268m	25.252m	652.303m	24.698m	673.257m	24.358m
587.221m	24.978m	624.441m	25.141m	652.593m	24.690m	673.685m	24.341m
587.746m	25.026m	626.571m	24.698m	652.893m	24.679m	674.524m	24.284m
588.962m	25.002m	627.026m	24.656m	653.728m	24.699m	674.902m	24.270m
589.213m	24.997m	627.145m	24.661m	653.748m	24.699m	675.385m	24.338m
589.667m	24.992m	627.707m	24.685m	654.109m	24.695m	675.594m	24.349m
589.882m	24.990m	629.295m	25.060m	654.542m	24.682m	676.018m	24.345m
590.513m	24.988m	630.696m	24.891m	655.100m	24.661m	676.473m	24.354m
591.238m	24.984m	632.886m	24.602m	655.735m	24.634m	676.858m	24.312m
591.365m	24.980m	633.006m	24.602m	656.887m	24.617m	677.079m	24.271m
591.521m	24.975m	633.049m	24.599m	657.013m	24.616m	677.134m	24.257m
592.256m	25.006m	633.079m	24.598m	657.199m	24.613m	677.587m	24.239m
594.086m	25.029m	633.332m	24.621m	657.273m	24.620m	677.809m	24.258m
594.383m	25.027m	635.107m	24.744m	657.535m	24.646m	678.239m	24.309m

TOC calc

PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation
678.658m	24.367m	706.648m	24.046m	757.219m	23.966m	788.667m	21.432m
679.301m	24.463m	706.862m	24.044m	757.380m	23.963m	789.155m	21.423m
679.720m	24.520m	707.899m	24.036m	758.427m	23.892m	789.394m	21.420m
679.935m	24.546m	708.977m	24.023m	758.987m	23.854m	789.705m	21.416m
680.072m	24.559m	709.685m	24.037m	760.091m	23.779m	789.931m	21.411m
680.868m	24.516m	710.065m	24.039m	760.301m	23.766m	790.460m	21.401m
681.085m	24.504m	712.966m	24.003m	760.856m	23.734m	790.683m	21.399m
681.506m	24.485m	714.614m	23.983m	762.193m	23.659m	790.896m	21.402m
681.739m	24.474m	714.868m	23.982m	762.971m	23.614m	791.158m	21.409m
683.181m	24.623m	714.948m	23.982m	763.246m	23.602m	791.668m	21.398m
684.033m	24.676m	714.971m	23.982m	763.751m	23.542m	791.972m	21.390m
685.080m	24.779m	718.526m	24.048m	763.884m	23.524m	792.109m	21.385m
686.329m	24.896m	721.813m	23.964m	766.023m	23.231m	792.114m	21.385m
686.371m	24.878m	723.617m	24.082m	766.664m	23.144m	792.809m	21.398m
687.932m	24.189m	726.702m	23.840m	767.230m	23.066m	793.204m	21.380m
688.107m	24.186m	727.636m	23.941m	767.757m	22.992m	794.426m	21.325m
688.608m	24.183m	728.048m	23.986m	768.348m	22.911m	795.346m	21.301m
689.932m	24.469m	729.546m	23.882m	769.247m	22.789m	796.360m	21.273m
690.307m	24.453m	732.143m	24.095m	769.701m	22.746m	797.948m	21.228m
691.442m	24.405m	733.603m	24.215m	770.273m	22.691m	798.840m	21.180m
691.865m	24.375m	733.890m	24.196m	770.889m	22.631m	799.360m	21.154m
693.237m	24.278m	735.363m	24.091m	771.535m	22.569m	799.660m	21.147m
694.175m	24.212m	735.743m	24.060m	772.238m	22.504m	801.867m	21.095m
694.793m	24.168m	736.353m	24.046m	772.361m	22.492m	802.582m	21.065m
695.362m	24.130m	737.526m	23.942m	772.415m	22.488m	803.241m	21.038m
695.499m	24.121m	738.175m	23.883m	773.492m	22.412m	804.233m	21.021m
696.371m	24.076m	739.508m	23.960m	773.977m	22.377m	804.777m	21.017m
696.584m	24.075m	739.744m	23.972m	774.056m	22.372m	804.999m	21.014m
697.150m	24.073m	741.479m	24.020m	775.300m	22.313m	805.064m	21.013m
697.247m	24.074m	741.757m	24.005m	776.769m	22.244m	805.739m	20.998m
698.817m	24.092m	743.474m	23.873m	777.978m	22.187m	805.949m	20.992m
699.895m	24.104m	743.557m	23.892m	778.815m	22.101m	806.343m	20.977m
700.665m	24.112m	745.087m	24.229m	780.453m	21.933m	807.714m	20.923m
700.856m	24.113m	745.311m	24.224m	781.139m	21.869m	807.921m	20.915m
701.128m	24.101m	748.154m	24.104m	782.650m	21.729m	808.683m	20.883m
701.591m	24.081m	751.056m	23.970m	784.160m	21.568m	808.922m	20.875m
701.922m	24.076m	751.084m	23.970m	784.963m	21.520m	809.490m	20.857m
702.364m	24.067m	751.114m	23.971m	785.593m	21.480m	809.663m	20.852m
702.631m	24.061m	751.248m	23.974m	785.678m	21.478m	810.784m	20.841m
703.092m	24.050m	752.019m	23.988m	786.222m	21.462m	811.191m	20.840m
703.157m	24.050m	752.983m	24.006m	786.422m	21.456m	812.251m	20.834m
703.441m	24.050m	754.026m	24.013m	786.497m	21.454m	812.738m	20.822m
703.755m	24.050m	754.284m	24.020m	786.644m	21.451m	813.416m	20.810m
705.213m	24.050m	754.396m	24.023m	787.153m	21.444m	815.218m	20.776m
705.282m	24.050m	754.484m	24.021m	787.693m	21.438m	815.718m	20.766m
705.295m	24.050m	754.680m	24.017m	787.924m	21.436m	815.919m	20.756m
705.304m	24.050m	754.923m	24.010m	788.367m	21.434m	816.230m	20.742m
705.311m	24.050m	755.127m	24.005m	788.560m	21.433m	816.856m	20.726m

TOC calc

PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation	PVI Station	PVI Elevation
817.161m	20.718m	842.543m	17.549m	873.929m	16.895m	904.782m	15.600m
817.559m	20.710m	843.133m	17.603m	875.088m	16.662m	904.909m	15.581m
818.669m	20.601m	843.201m	17.611m	875.822m	16.512m	905.099m	15.557m
819.458m	20.515m	844.990m	17.798m	876.431m	16.388m	905.345m	15.554m
820.738m	20.380m	845.376m	17.826m	876.931m	16.319m	907.455m	15.550m
820.996m	20.352m	845.690m	17.833m	877.720m	16.196m	907.891m	15.545m
821.196m	20.328m	846.836m	17.812m	877.798m	16.197m	908.219m	15.534m
821.980m	20.240m	847.751m	17.790m	878.290m	16.198m	908.389m	15.524m
822.179m	20.219m	847.860m	17.772m	878.751m	16.189m	908.563m	15.499m
822.388m	20.200m	848.385m	17.691m	879.231m	16.175m	908.927m	15.447m
822.627m	20.183m	848.881m	17.638m	879.735m	16.157m	910.328m	15.247m
823.143m	20.157m	849.425m	17.606m	880.270m	16.145m	910.373m	15.241m
823.388m	20.151m	850.028m	17.588m	880.731m	16.142m	912.779m	15.145m
823.611m	20.151m	850.955m	17.586m	880.858m	16.133m	913.290m	15.125m
823.818m	20.096m	850.968m	17.586m	881.586m	16.094m	913.996m	15.098m
824.013m	20.042m	851.604m	17.469m	881.897m	16.080m	914.584m	15.075m
824.207m	19.982m	851.872m	17.399m	882.411m	16.069m	915.563m	15.037m
824.617m	19.850m	852.249m	17.273m	883.038m	16.059m	915.579m	15.036m
824.749m	19.808m	852.976m	17.028m	883.475m	16.054m	915.962m	15.007m
825.136m	19.815m	853.276m	16.928m	883.796m	16.054m	917.458m	14.921m
825.377m	19.735m	853.374m	16.914m	883.843m	16.055m	918.376m	14.874m
825.616m	19.653m	853.942m	16.875m	884.210m	16.044m	918.970m	14.864m
825.825m	19.579m	856.045m	16.843m	884.537m	16.040m	919.892m	14.932m
825.894m	19.555m	857.168m	16.819m	884.972m	16.025m	920.310m	14.952m
826.426m	19.466m	857.963m	16.790m	885.844m	15.989m	921.180m	15.010m
826.870m	19.392m	858.837m	16.748m	886.049m	15.981m	921.383m	15.015m
827.366m	19.313m	859.834m	16.812m	886.108m	15.982m	921.580m	15.005m
827.599m	19.275m	860.977m	16.846m	886.366m	15.980m	921.799m	14.974m
827.808m	19.239m	861.822m	16.828m	888.139m	15.980m	922.035m	14.933m
828.202m	19.175m	861.837m	16.827m	889.426m	15.982m	922.271m	14.886m
830.132m	18.870m	862.100m	16.798m	889.649m	15.982m	922.935m	14.743m
832.709m	18.916m	862.458m	16.743m	892.758m	16.150m	923.180m	14.694m
833.493m	18.930m	862.645m	16.739m	893.188m	16.177m	923.811m	14.578m
834.665m	18.971m	862.985m	16.794m	893.391m	16.193m	924.562m	14.503m
835.005m	18.966m	866.468m	17.316m	893.573m	16.211m	924.854m	14.474m
835.361m	18.935m	867.187m	17.429m	893.784m	16.164m	925.236m	14.467m
835.720m	18.873m	867.769m	17.524m	895.156m	15.890m	925.429m	14.460m
836.122m	18.776m	868.368m	17.625m	895.660m	15.925m	925.611m	14.452m
836.702m	18.613m	868.521m	17.651m	896.020m	15.914m	925.800m	14.443m
837.485m	18.381m	868.730m	17.593m	896.854m	15.768m	927.368m	14.360m
838.446m	18.088m	868.970m	17.520m	897.445m	15.735m	927.702m	14.347m
839.724m	17.688m	869.223m	17.443m	898.001m	15.709m	927.832m	14.337m
840.048m	17.634m	869.615m	17.331m	898.536m	15.692m	928.056m	14.333m
840.603m	17.562m	871.582m	16.773m	900.938m	15.652m	928.330m	14.340m
841.159m	17.471m	872.444m	16.836m	901.840m	15.630m	929.243m	14.343m
841.342m	17.405m	873.055m	16.873m	903.721m	15.578m	935.299m	14.392m
841.456m	17.363m	873.428m	16.888m	903.836m	15.576m	936.587m	14.371m
842.145m	17.471m	873.767m	16.895m	904.561m	15.589m	941.749m	14.236m

TOC calc

PVI Station	PVI Elevation	PVI Station	PVI Elevation
942.007m	14.229m	1005.906m	12.954m
942.342m	14.221m	1008.012m	13.562m
942.408m	14.218m	1009.135m	13.927m
942.665m	14.209m	1010.191m	13.985m
943.061m	14.189m	1010.407m	13.989m
943.375m	14.174m	1013.411m	14.065m
943.630m	14.150m	1013.837m	14.012m
944.556m	14.056m	1014.124m	14.015m
945.662m	14.122m	1014.256m	13.981m
945.846m	14.134m	1017.507m	13.354m
946.029m	14.157m	1018.417m	13.187m
946.100m	14.155m	1020.418m	13.194m
946.170m	14.156m	1022.257m	12.920m
946.594m	14.160m	1023.346m	12.904m
947.775m	14.169m		
948.429m	14.210m		
948.684m	14.225m		
954.164m	14.419m		
956.458m	14.499m		
956.486m	14.500m		
959.899m	14.336m		
962.480m	14.211m		
969.649m	13.866m		
970.030m	13.847m		
970.070m	13.843m		
970.235m	13.827m		
970.354m	13.824m		
971.095m	13.779m		
974.237m	13.693m		
978.786m	13.568m		
979.375m	13.553m		
982.567m	13.409m		
983.093m	13.380m		
983.314m	13.386m		
984.179m	13.374m		
984.231m	13.374m		
986.623m	13.299m		
989.751m	13.099m		
989.887m	13.090m		
990.782m	13.043m		
992.770m	12.979m		
993.323m	12.895m		
994.579m	12.892m		
995.748m	12.885m		
995.865m	12.885m		
998.800m	12.895m		
1002.442m	12.930m		
1004.990m	12.954m		

Rational method

Predevelopment

Subcatchment	Area	runoff coefficient	C x A
A	59187	0.4	23674.8
B	62490	0.35	21871.5
C	85735	0.85	72874.75
D	69625	0.35	24368.75
E	2342	0.45	1053.9
F	19551	0.45	8797.95
G	13102	0.3	3930.6
H	7862	0.45	3537.9
I	6963	0.3	2088.9
J	50567	0.85	42981.95
Sum	377424		205181

weighted c= 0.54

C	0.54
I	187.165
A	37.7424

Q=2.78CIA 10675.95 l/s

Flow difference = 1956.159 l/s

Post Development

Subcatchment	Area	runoff coefficient	C x A
A	59187	0.4	23674.8
B	28721	0.35	10052.35
B developed	63352	0.78	49414.56
C	85735	0.85	72874.75
D	69625	0.35	24368.75
E	2342	0.45	1053.9
F	19551	0.45	8797.95
G	13102	0.3	3930.6
H	7862	0.45	3537.9
I	6963	0.3	2088.9
J	50567	0.85	42981.95
Sum	407007		242776.41

weighted c= 0.60

C	0.60
I	187.165
A	40.7007

Q=2.78CIA 12632.11 l/s

HEC HMS

Predevelopment

Subcatchment	Area	% impermeable	Area x %imper
A	59187	5%	2959.35
B	62490	10%	6249
C	85735	80%	68588
D	69625	1%	696.25
E	2342	15%	351.3
F	19551	15%	2932.65
G	13102	0%	0
H	7862	15%	1179.3
I	6963	0%	0
J	50567	85%	42981.95
Sum	377424		125937.8

weighted % impermeable= 33%

Excluding site 314934 119688.8

weighted % impermeable= 38%

HEC HMS results

Peak runoff 12.38 m3/s

Post Development

Subcatchment	Area	% impermeable	Area x %imper
A	59187	5%	2959.35
B	28721	1%	287.21
B developed	63352	75%	47514
C	85735	80%	68588
D	69625	1%	696.25
E	2342	15%	351.3
F	19551	15%	2932.65
G	13102	0%	0
H	7862	15%	1179.3
I	6963	0%	0
J	50567	85%	42981.95
Sum	407007		167490.01

weighted % impermeable= 41%

impermeable area change 41552.21

Excluding site 314934 119688.8

weighted % impermeable= 38%

Peak inflow 13.492 m3/s

Peak storage 8.288 m3

Peak discharge 10.526 m3/s

Flow difference 1.112 m3/s

Rational method

Predevelopment

Subcatchment	Area	runoff coefficient	C x A
B	62490	0.35	21871.5
Sum	62490		21871.5
		weighted c=	0.35
C	0.35		
I	170.1		
A	6.249		
Q=2.78CIA	1034.255		l/s
Flow difference =	1777.804		l/s

Post Development

Subcatchment	Area	runoff coefficient	C x A
B	28721	0.35	10052.35
B developed	63352	0.78	49414.56
Sum	92073		59466.91
		weighted c=	0.65
C	0.65		
I	170.1		
A	9.2073		
Q=2.78CIA	2812.059		l/s

HEC HMS

Predevelopment

Subcatchment	Area	% impermeable	Area x %imper
B	62490	10%	6249
Sum	62490		6249
		weighted % impermeable=	10.0%

Post Development

Subcatchment	Area	% impermeable	Area x %imper
B	28721	1%	287.21
B developed	63352	75%	47514
Sum	92073		47801.21
		weighted % impermeable=	51.9%

Developed TePuna site only

impermeable area change 41552.21

Outlet (orifice) Sizing

Outlet 1 2y event control

diameter	1.05				m3/s
radius	0.525			Predev	4.41
area	0.865901	1.731803		Post dev	4.351
invert level	11.35				
centre elevation	11.875				
number of barrels	2				

Area= 1.153519

Predev flow (Q)	12.205 m3/s
80% predev	9.764
h_i	2.375

Summary Results for Reservoir "Existing Pond"

Project: Te Puna Attempt 4 Simulation Run: WBoP 2y 24hr
Reservoir: Existing Pond

Start of Run: 01Jan2000, 00:00 Basin Model: 20190911 seperated catchment
End of Run: 02Jan2000, 00:00 Meteorologic Model: WBoP 2y 24hr
Compute Time: 13Sep2019, 14:06:32 Control Specifications: 24h run

Volume Units: MM 1000 M3

Computed Results

Peak Inflow: 4.416 (M3/S)	Date/Time of Peak Inflow: 01Jan2000, 12:00
Peak Discharge: 4.223 (M3/S)	Date/Time of Peak Discharge: 01Jan2000, 12:20
Inflow Volume: 113.04 (MM)	Peak Storage: 4.655 (1000 M3)
Discharge Volume: 113.10 (MM)	Peak Elevation: 14.599 (M)

Summary Results for Reservoir "Proposed pond"

Project: Te Puna Attempt 4 Simulation Run: WBoP 2y 24hr
Reservoir: Proposed pond

Start of Run: 01Jan2000, 00:00 Basin Model: 20190911 seperated catchment
End of Run: 02Jan2000, 00:00 Meteorologic Model: WBoP 2y 24hr
Compute Time: 13Sep2019, 14:06:32 Control Specifications: 24h run

Volume Units: MM 1000 M3

Computed Results

Peak Inflow: 4.915 (M3/S)	Date/Time of Peak Inflow: 01Jan2000, 12:00
Peak Discharge: 4.110 (M3/S)	Date/Time of Peak Discharge: 01Jan2000, 12:20
Inflow Volume: 117.88 (MM)	Peak Storage: 2.985 (1000 M3)
Discharge Volume: 117.55 (MM)	Peak Elevation: 12.622 (M)

Outlet (orifice) Sizing

Outlet 2	10yr event control			
diameter	0.825			m3/s
radius	0.4125		Predev	7.953
area	0.534562	1.069123	Post dev	7.35
invert level	12.625			
centre elevation	13.0375			
number of barrels	2			

Summary Results for Reservoir "Existing Pond"

Project: Te Puna Attempt 4 Simulation Run: WBoP 10y 24hr
Reservoir: Existing Pond

Start of Run: 01Jan2000, 00:00 Basin Model: 20190911 seperated catchment
End of Run: 02Jan2000, 00:00 Meteorologic Model: WBoP 10y 24hr
Compute Time: 13Sep2019, 14:12:55 Control Specifications: 24h run

Volume Units: MM 1000 M3

Computed Results

Peak Inflow: 7.953 (M3/S)	Date/Time of Peak Inflow: 01Jan2000, 12:00
Peak Discharge: 7.617 (M3/S)	Date/Time of Peak Discharge: 01Jan2000, 12:20
Inflow Volume: 195.16 (MM)	Peak Storage: 5.156 (1000 M3)
Discharge Volume: 190.74 (MM)	Peak Elevation: 14.684 (M)

Summary Results for Reservoir "Proposed pond"

Project: Te Puna Attempt 4 Simulation Run: WBoP 10y 24hr
Reservoir: Proposed pond

Start of Run: 01Jan2000, 00:00 Basin Model: 20190911 seperated catchment
End of Run: 02Jan2000, 00:00 Meteorologic Model: WBoP 10y 24hr
Compute Time: 13Sep2019, 14:12:55 Control Specifications: 24h run

Volume Units: MM 1000 M3

Computed Results

Peak Inflow: 8.732 (M3/S)	Date/Time of Peak Inflow: 01Jan2000, 12:00
Peak Discharge: 7.532 (M3/S)	Date/Time of Peak Discharge: 01Jan2000, 12:20
Inflow Volume: 200.72 (MM)	Peak Storage: 5.141 (1000 M3)
Discharge Volume: 200.46 (MM)	Peak Elevation: 13.376 (M)

Outlet (orifice) Sizing

Outlet 3	100yr event control				m ³ /s
	diameter	0		Site Predev flow	1.984
	radius	0		Peak flow out of pond	11.843
	area	0	0	Contribution from rest of catchment	9.859
	invert level	0		80% of site predev	1.5872
	centre elevation	0			
	number of barrels	1		Rest of catchment + 80% of site predev	11.4462

Summary Results for Reservoir "Existing Pond"

Project: Te Puna Attempt 4 Simulation Run: WBoP 100y 24hr
Reservoir: Existing Pond

Start of Run: 01Jan2000, 00:00	Basin Model: 20190911 seperated catchment
End of Run: 02Jan2000, 00:00	Meteorologic Model: WBoP 100y 24hr
Compute Time: DATA CHANGED, RECOMPUTE	Control Specifications: 24h run

Volume Units: MM 1000 M3

Computed Results

Peak Inflow: 12.380 (M3/S)	Date/Time of Peak Inflow: 01Jan2000, 12:00
Peak Discharge: 11.843 (M3/S)	Date/Time of Peak Discharge: 01Jan2000, 12:20
Inflow Volume: 302.89 (MM)	Peak Storage: 5.663 (1000 M3)
Discharge Volume: 293.58 (MM)	Peak Elevation: 14.769 (M)

Summary Results for Reservoir "Proposed pond"

Project: Te Puna Attempt 4 Simulation Run: WBoP 100y 24hr
Reservoir: Proposed pond

Start of Run: 01Jan2000, 00:00	Basin Model: 20190911 seperated catchment
End of Run: 02Jan2000, 00:00	Meteorologic Model: WBoP 100y 24hr
Compute Time: 13Sep2019, 14:13:44	Control Specifications: 24h run

Volume Units: MM 1000 M3

Computed Results

Peak Inflow: 13.492 (M3/S)	Date/Time of Peak Inflow: 01Jan2000, 12:00
Peak Discharge: 10.526 (M3/S)	Date/Time of Peak Discharge: 01Jan2000, 12:30
Inflow Volume: 308.95 (MM)	Peak Storage: 8.288 (1000 M3)
Discharge Volume: 308.52 (MM)	Peak Elevation: 14.238 (M)

New pond sizing

Attenuation Pond Sizing - volume calcs Including reduction for the EDV ponds being held within the total pond

Full level Area target 4000 m2

RL	Width	Length	Area	Adjusted area (excluding EDV)	Volume	RL	Area (1000m ²)
11.25	45.2	45.2	2047.2	1777.2		11.25	1.77716
11.5	46.7	46.7	2185.1	1915.1	461.5384	11.5	1.915147
11.75	48.2	48.2	2327.6	2057.6	496.5975	11.75	2.057633
12	49.7	49.7	2474.6	2204.6	532.7817	12	2.20462
12.25	51.2	51.2	2626.1	2356.1	570.0908	12.25	2.356107
12.5	52.7	52.7	2782.1	2512.1	608.525	12.5	2.512093
12.75	54.2	54.2	2942.6	2672.6	648.0842	12.75	2.67258
13	55.7	55.7	3107.6	2837.6	688.7683	13	2.837567
13.25	57.2	57.2	3277.1	3007.1	730.5775	13.25	3.007053
13.5	58.7	58.7	3451.0	3451.0	807.2617	13.5	3.45104
13.75	60.2	60.2	3629.5	3629.5	885.0708	13.75	3.629527
14	61.7	61.7	3812.5	3812.5	930.255	14	3.812513
14.25	63.2	63.2	4000.0	4000.0	976.5642	14.25	4
					8336.115		

EDV Pond Sizing - volume calcs

Full level Area target 900 m2

RL	Width	Length	Area	Volume	RL	Area (1000m ²)
11.25	18.0	18.0	324.0		11.25	0.324
11.5	19.5	19.5	380.3	88.03125	11.5	0.38025
11.75	21.0	21.0	441.0	102.6563	11.75	0.441
12	22.5	22.5	506.3	118.4063	12	0.50625
12.25	24.0	24.0	576.0	135.2813	12.25	0.576
12.5	25.5	25.5	650.3	153.2813	12.5	0.65025
12.75	27.0	27.0	729.0	172.4063	12.75	0.729
13	28.5	28.5	812.3	192.6563	13	0.81225
13.25	30.0	30.0	900.0	214.0313	13.25	0.9
				1176.75		

New pond sizing

EDV Pond Sizing - volume calcs

Full level Area target 650 m2

RL	Width	Length	Area	Volume	RL	Area (1000m ²)
11.25	13.5	13.5	182.1		11.25	0.182118
11.5	15.0	15.0	224.9	50.87133	11.5	0.224853
11.75	16.5	16.5	272.1	62.11765	11.75	0.272088
12	18.0	18.0	323.8	74.48897	12	0.323824
12.25	19.5	19.5	380.1	87.9853	12.25	0.380059
12.5	21.0	21.0	440.8	102.6066	12.5	0.440794
12.75	22.5	22.5	506.0	118.3529	12.75	0.506029
13	24.0	24.0	575.8	135.2243	13	0.575765
13.25	25.5	25.5	650.0	153.2206	13.25	0.65
				784.8677		

Bund area Pond 1

Width	Length	Area
33.0	33.0	189

Area of the EDV pond + the bund width of 3m

This area remains the same as the depth changes.

Sloping sides on the main pond = sloping sides on the EDV pond

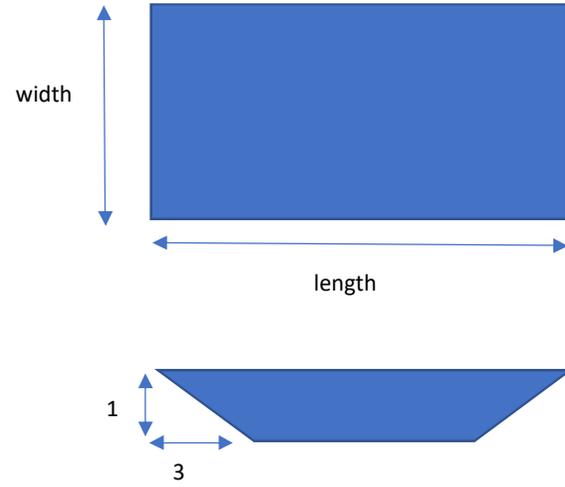
Bund area Pond 2

Width	Length	Area
28.5	28.5	80.98529

Total 269.9853

New pond sizing

Ponds assumed to be a square shape to calc the volume with a 1:3 slope on the sides



Existing Pond details

Existing Pond Details

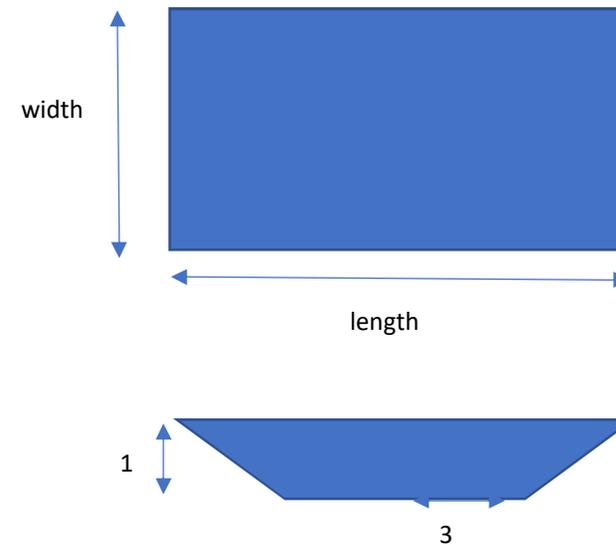
Pond Sizing - volume calcs

Invert of pipe:	11.5
outlets:	2x dia 300mm
diameter	0.3
radius	0.15
area	0.070686
invert level	11.75
centre elevation	11.9
number of barrels	2

Full level Area 3000 m2

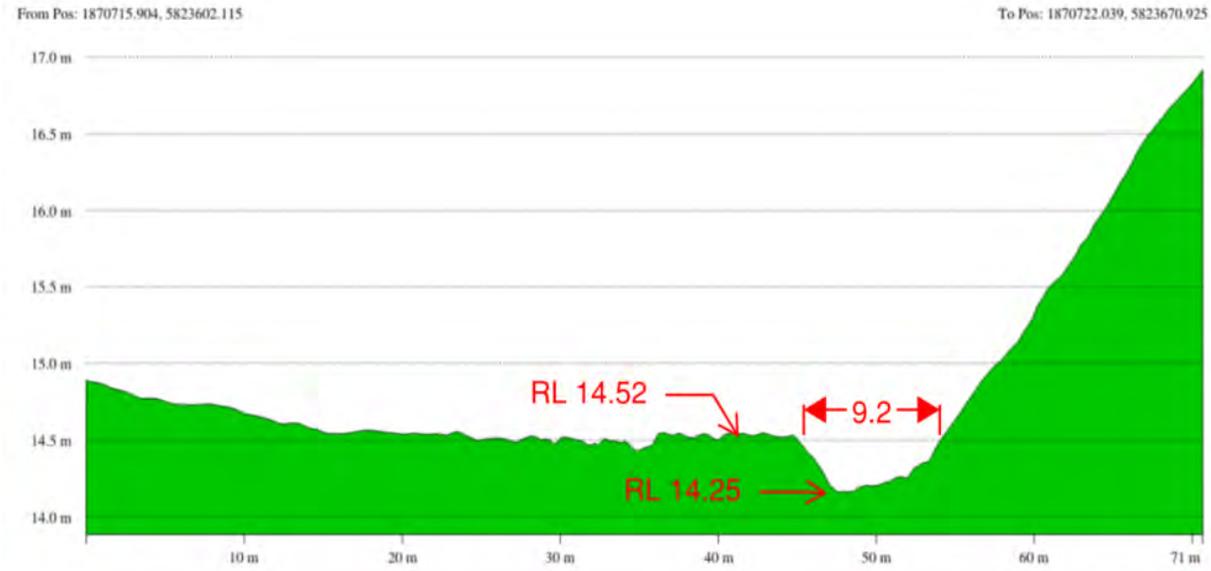
RL	Area		RL	
11.25			11.25	0
11.5	0.0		11.5	0
11.75	0.0	0	11.75	0
12	328.2	41.025	12	0.3282
12.25	443.3	96.4375	12.25	0.4433
12.5	549	124.0375	12.5	0.549
12.75	649	149.75	12.75	0.649
13	941	198.75	13	0.941
13.25	1401	292.75	13.25	1.401
13.5	1687	386	13.5	1.687
13.75	2079	470.75	13.75	2.079
14	2716	599.375	14	2.716
14.25	3434.0	768.75	14.25	3.434
14.5	4067.0	937.625	14.5	4.067
				4065.25

Pond assumed to be a square shape to calc the volume with a 1:3 slope on the sides



Existing Pond details

Outlet shape



7.3.4 Calculating water quality volumes

The Rational Formula does not calculate volumes of run-off but rather calculates peak discharges for various storm intensities. Calculate the water quality volume to be treated by using the 90% storm. The City of Christchurch has a simple method of determining the first flush volume in their Waterways, Wetlands and Drainage Guide (2003) where the water quality volume (their first flush volume) and the following approach is based on that method but also accounts for pervious flow contribution.

Calculating the water quality volume is done by the following two calculations.

$$A_{wq} = 0.9 (\text{imp. \%}/100) \times \text{total site area} + 0.15 (\text{pervious \%}/100) \times \text{total site area}$$

Where total site area = m²

$$\text{The water quality volume } V_{wq} = (90\% \text{ storm}) A_{wq}$$

Where 90% storm depth is in metres (m)

Use this method to calculate the water quality volume storage.

	Area 1	Area 2
Site area (m ²)	23881	39552
Impervious %	90%	0.75
A _{wq} =	19702	28181 m ²
90% storm (m)	0.033	0.033
V _{wq} =	650	930 m ³
Total =		1580

Extended detention

7.4.2 Stream erosion control

The following recommendations are made to address stream channel erosion.

(a) Erosion control criteria

There are three different approaches that can be taken to address stream channel erosion:

- Check the two year stream velocities against Table 7.4 to ensure that velocities are non-erosive. If they are non-erosive in the post-development condition assuming ultimate development of the catchment under the appropriate district plan land use, then no extended detention is required.
- Implement extended detention or volume control according to the following:
 - If the stream is stable under the existing development condition, design detention or retention storage for a 24-hour release of an equivalent volume to the water quality storm.
 - **If the stream is not stable, multiply the water quality volume by 1.2 to determine the extended detention volume. That volume is then stored and released over a 24-hour period.**
- Conduct a shear stress analysis for a specific site doing the following:
 - Conduct catchment modelling, i.e. continuous simulation, using land use, initial losses and time of concentration for the catchment in the pre-development condition without the proposed project. Another simulation will then have to be done for the catchment with the development in place.
 - Input climate information including evaporation data and long-term rainfall.

EDV = 780 1116 m³

Total = 1896

A large green trapezoidal shape with a yellow triangle at the bottom left corner. The green shape is a trapezoid with a vertical left edge, a horizontal top edge, a horizontal right edge, and a diagonal bottom edge. The yellow triangle is at the bottom left corner, with its hypotenuse following the diagonal edge of the green trapezoid.

E

Wastewater
Treatment Systems

Oasis Clearwater Aerated Wastewater Treatment Systems

Keep your part of the world green with the most widely used domestic wastewater system.



Oasis Clearwater

ENVIRONMENTAL SYSTEMS

www.oasisclearwater.co.nz

The Oasis Clearwater Aerated Wastewater Treatment System range is the most extensively used and proven on the market today. These systems offer high performance, minimal running costs and are very unobtrusive once installed. Ideal for rural, residential and coastal areas where access to sewer mains are not possible. If you want an environmentally friendly method of keeping your part of the world green then an Oasis Clearwater Aerated Wastewater Treatment System is the perfect choice.

Here's Why:

The Oasis Clearwater Aerated Wastewater Treatment System incorporates five chambers and processes to efficiently and effectively process and treat your home wastewater into a clear and odourless liquid suitable for the irrigation of landscaped areas. The Oasis Clearwater Aerated Wastewater Treatment Systems range in size so as to provide the most optimal solution for your home and property.

First Chamber - Primary Chamber (anaerobic and septic)

Wastewater from the home is piped to this chamber. Here, anaerobic and other oxidising bacteria break down suspended solid material. This chamber also receives activated aerated sludge from the clarifying chamber that stimulates the bacteria and enhances the level of solids digested.

Second Chamber - Secondary Primary Chamber (anaerobic and septic)

Wastewater is able to flow freely from the first primary chamber into this chamber. This allows for mixing of the partially treated wastewater and prepares it for the processes that follow.

Third Chamber - Aerobic Chamber (aeration and oxygenation)

Semi-treated wastewater flows from the secondary primary chamber to the aeration chamber through the proprietary effluent filter. The oxygen for this chamber is supplied via a fine air diffuser powered by an air blower. The aeration chamber contains submerged 'Bio-block' media with a surface area of 80 squares metres. The enhanced aerobic bacterial action results in a high level of aerobic treatment.

Fourth Chamber - Clarifying Chamber (settling)

Treated wastewater passes from the aerobic chamber to the clarifying chamber. Any remaining particles of suspended solids settle to the bottom of the chamber allowing largely clean odourless wastewater to pass to the pumping chamber. The suspended solids that sink to the bottom of the chamber are drawn back, via a venturie, to the first primary chamber for further processing.

Fifth Chamber - Pumping Chamber

Treated wastewater flows into the pumping chamber where it is pumped out at pre-set rates for dose loading into disposal field often under gardens, landscaping, or other suitable areas.

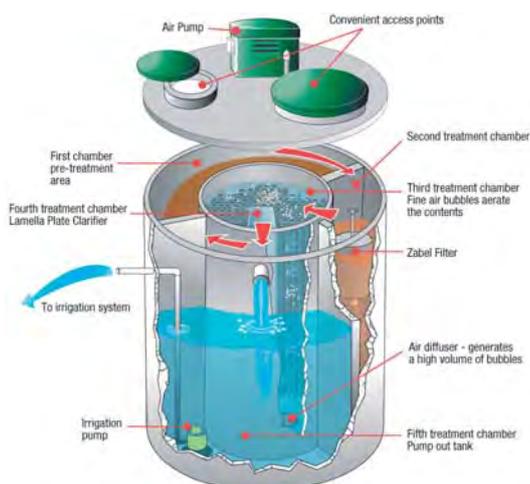
Disposal Field

Disposal fields vary in type and size depending on a range of factors. Disposal fields can be surface pinned, sub-surface (most common) or raised beds, your local council and environmental conditions will determine the method. The size of the disposal field is determined by the soil type of your property and the size of your home. Your local Oasis Clearwater Distributor will offer you the best advice on this aspect of your Wastewater Treatment System.



Advantages & Features

- High Quality Concrete or Fibreglass Construction
- Independently tested and certified to exceed New Zealand Standards
- Quiet and economical to operate
- Total running cost per day range between \$0.50 and \$0.75 depending on system selection
- Minimal maintenance
- Visually unobtrusive
- Efficiency, Effectiveness and Reliability proven over time and throughout the country
- Nation-wide 24hour backup support and service



System Range

System capacity per day	Treatment	Suitability – With On-Site Tank Supply		Suitability – With Reticulated Or Bore-Water Supply	
		Dwelling Size	No. Of Persons	Dwelling Size	No. Of Persons
Concrete					
Oasis Clearwater Series 2000	2,000 litres	0-4 Bedrooms	0-10 Persons	0-3 Bedrooms	0-8 Persons
Oasis Clearwater Series 2500	2,500 litres	0-5 Bedrooms	0-12 Persons	0-4 Bedrooms	0-10 Persons
Oasis Clearwater Series 3000	3,000 litres	0-6 Bedrooms	0-14 Persons	0-5 Bedrooms	0-12 Persons
Fibreglass					
Oasis Clearwater Series 1500	1,500 litres	0-3 Bedrooms	0-8 Persons	0-2 Bedrooms	0-6 Persons
Oasis Clearwater Series 2000	2,000 litres	0-4 Bedrooms	0-10 Persons	0-3 Bedrooms	0-8 Persons
Oasis Clearwater Series 3000	3,000 litres	0-6 Bedrooms	0-14 Persons	0-4 Bedrooms	0-10 Persons
Retrofit*					
Oasis Clearwater Series 1500	1,500 litres	0-3 Bedrooms	0-8 Persons	0-2 Bedrooms	0-6 Persons

*The RetroFit system works in conjunction with existing septic tanks where appropriate to convert septic systems to treatment systems.

*The above table offer a general guide to system to dwelling suitability. An exact system specification and capacity calculation can be done very quickly by your Oasis Clearwater representative.

Physical Parameters

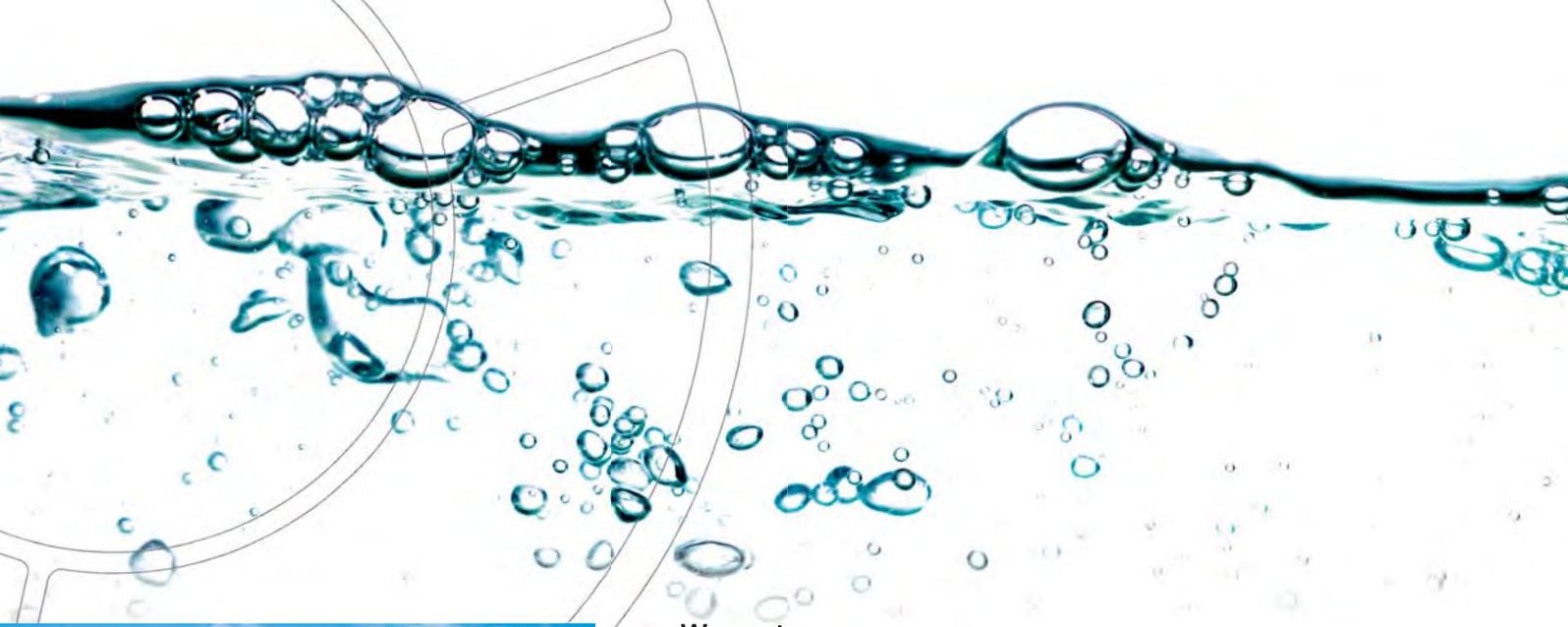
- Height 2500mm
- Diameter 2500mm
- Weight 7.5 tonnes
- Control Panel Audio & Visual Alarm
- Supply Voltage 240 Volts
- Aerator 80 Watts
- Pump 600 Watts

*The Concrete Oasis Clearwater Series 3000 is a two tank system

Installation

Oasis Clearwater Aerated Wastewater Treatment Systems are installed by fully trained and experienced Oasis Clearwater Distributors. An Oasis Clearwater Distributor will work with you from the initial site evaluation through all the compliance aspects before installation and final commissioning. Installation of the system and the disposal field typically takes a day and the system commissioning less than an hour. It is important that the home owner attends the system commissioning with the Oasis Clearwater Distributor.





Oasis Clearwater

ENVIRONMENTAL SYSTEMS

Manufacturer

Oasis Clearwater Environmental Systems
20 Illinois Drive, Rolleston 7675
PO Box 16276, Hornby, Christchurch 8441
Phone 0800 627 472
www.oasisclearwater.co.nz

Warranty

Oasis Clearwater warrants each Aerated Wastewater Treatment System to be free from defects in material and workmanship for a period of two (2) years from the date of sale to the ultimate consumer. Oasis Clearwater warrants each Aerated Wastewater Treatment System concrete pre-cast tank for a period of ten (10) years from the date of sale to the ultimate consumer. The warranty on mechanical and electrical equipment is void if flooding occurs. Reasonable care in locating the system at installation and sensible landscaping reduces the risk of flooding.

The warranty on mechanical and electrical equipment is void if the system is not serviced at least every six (6) months by an Oasis Clearwater authorised Distributor and or Service Agent.

Customer Care

An Oasis Clearwater Aerated Wastewater Treatment System will provide you with many years of reliable performance however as they are a 'living' system they do require care and maintenance. This care includes discipline in use by the homeowner in accordance with the guidelines set out in the Oasis Clearwater Aerated Wastewater Treatment System Owners Manual and servicing on a six monthly basis by an Oasis Clearwater authorised Distributor and or Service Agent.

Certification

NZ TP58 Approval – 3rd Edition
AUS/NZS 1547:2012 – On Site Waste Water
AUS/NZS 1546 s 1:1998 – Septic Tank Manufacture

For more information please contact your

Distributor



DECENTRALISED SEWAGE



Low energy, low sludge onsite treatment

Above ground BioGill bioreactors turbo charge nutrient removal for sewage.

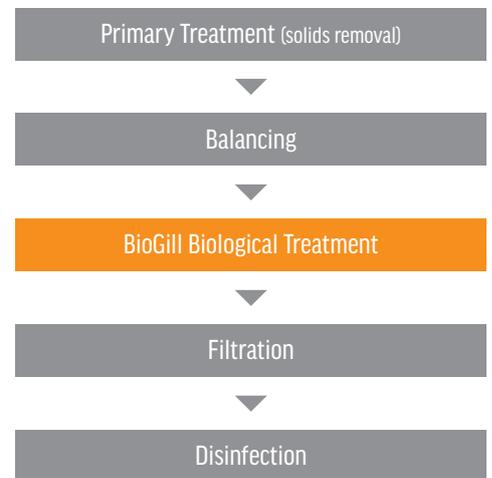


WATER. SCIENCE. NATURE

BioGill bioreactors are the perfect technology to supplement under performing systems or as a complete substitute for the biological treatment in decentralised and municipal sewage systems. The technology can easily increase the efficiency and durability of a sewage treatment process, at low cost and low energy.

Ideal for treating sewage from residential and commercial buildings, restaurant centres, resorts and small communities, BioGill technology is based on a key premise of concentrating and maximising microbiology. The result is a biological treatment process for sewage treatment that is highly effective at reducing BOD, COD and nitrogen, at low cost and low energy.

With primary treatment upstream to remove solids, BioGill bioreactors are ideal for the biological secondary stage of the sewage treatment train.



BIOGILL BENEFITS



Effective treatment of high soluble BOD/ COD



Simultaneous Nitrification/ De-nitrification



Easy to operate



Low sludge output



Low aerosols/ odour



Low energy



Natural and eco friendly

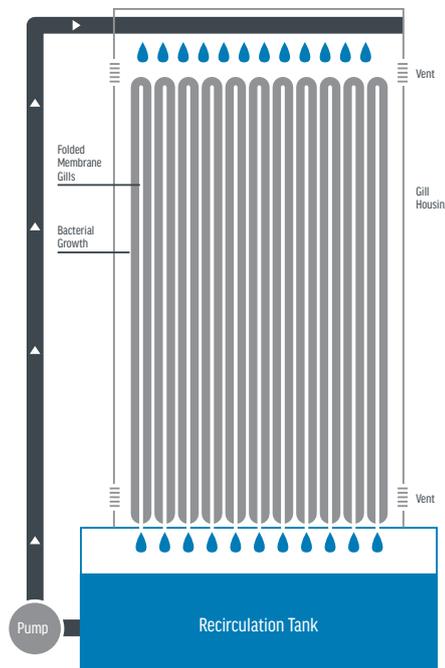
HOW BIOGILL WORKS

At the technology's core is a uniquely designed Nano ceramic membrane, or "gill", that provides the ideal support media to grow a thick and healthy treating biomass. As the biomass on the membrane is suspended, with one side receiving the high nutrient waste stream and the other an abundant air supply, growth and metabolic performance is maximised.

The patented membranes are arranged in multiple, suspended vertical loops with water delivered to the top of each loop. Wastewater flows down the surface of the gills where the metabolic activity of the bacteria generates a convective air flow, moving upward in the air side between each set of loops. No blowers or aerators are used to provide oxygen for the biomass.

Compared with other aerobic wastewater treatment processes, the BioGill bioreactor offers more efficient, above ground aeration of organic material in the waste stream. BioGill membranes can achieve biomass density as high as 50,000 mg/L or better.

This loading of microorganisms, Nature's best recyclers, turbo charges nutrient removal from sewage, leading to optimum nitrogen and soluble BOD/COD reductions.



Suspended biomass vertically supported and surrounded by oxygen – a key feature of the BioGill technology.



BioGill bioreactors were retrofitted to an existing STP in Manila to improve BOD reduction and reduce energy consumption.

RESULTS

BioGill bioreactors are ideal for the aerobic biological stage of treating sewage. Expected treatment results include:

- BOD reduction up to 98% in 24 hours
- Energy consumption of 0.3kWh/m³

The technology is successfully treating sewage onsite at number of sites including:

Reduced energy at existing STP PHILIPPINES <i>Reduction in energy demand by 80.25%. Up to 89% BOD reduction</i>	89%
Decentralised sewage + resort commercial kitchen FIJI <i>Up to 96% BOD reduction in 24 hours</i>	96%
Retrofit to existing STP MEXICO <i>Up to 95% BOD reduction in 24 hours</i>	95%
Retrofit to existing STP AUSTRALIA <i>Up to 98% BOD reduction in 12 hours</i>	98%

Note: Typical batch times range between ½ to 1 day.

For further information please contact:

Apex Environmental Limited
P: 03 929 2675
E: sales@apexenvironmental.co.nz
www.apexenvironmental.co.nz



Case studies and technical reports are available.

Document prepared by

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aurecon

*Bringing ideas
to life*

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Angola, Australia, Botswana, China,
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Namibia, New Zealand, Nigeria,
Philippines, Qatar, Rwanda, Singapore, South Africa,
Swaziland, Tanzania, Thailand, Uganda,
United Arab Emirates, Vietnam, Zambia,



A large green geometric shape, possibly a stylized letter 'F' or a decorative element, with a diagonal cut. The shape is primarily green, with a yellow triangle at the bottom left corner. A white letter 'F' is positioned in the top left area of the green shape.

F

Pirirakau
Correspondence

Appendix F
Pirirakau Correspondence

Claire Steele

From: Julie Shepherd <julie.shepherd@xtra.co.nz>
Sent: Sunday, 24 January 2021 2:01 PM
To: Aaron Collier
Cc: annaliese@supermac.co.nz
Subject: Re: FW: Te Puna Springs Plan Change

Kia ora Aaron,

It suddenly dawned on me that this was incomplete from my end.

Thank you for the consultation with Pirirakau.

I am confirming support for the future initiative of Rex and the Te Puna Springs Plan Change.

On the provision of;

- Naming
- Puna intent to pip above ground as a feature
- Earthworks require a Pirirakau cultural monitor to observe stripping.

Nga mihi

Julie

Julie Shepherd

Pirirakau Environment Manager

Pirirakau Incorporated Society

0272105522

On 19 November 2020 at 11:01 Aaron Collier <aaron@collierconsultants.co.nz> wrote:

Kia ora Julie – just following up on the below as we are now keen to lodge by the end of the month.

Nga Mihi

Aaron Collier | aaron@collierconsultants.co.nz

Planner | Director

M. 021 744 707

From: Aaron Collier <aaron@collierconsultants.co.nz>
Sent: Wednesday, 4 November 2020 10:57 am
To: 'julie.shepherd@xtra.co.nz' <julie.shepherd@xtra.co.nz>
Cc: finance@supermac.co.nz; Annaliese Michel <annaliese@supermac.co.nz>;
finance@supermac.co.nz; Claire Steele <Claire.Steele@aurecongroup.com>
Subject: Te Puna Springs Plan Change

Kia ora Julie

Thank you for meeting with us yesterday to discuss the Plan change and the updated masterplan. It was good to catch up to discuss the future of the site, the plan change process and where we are heading.

It seems like an eternity since we had the last workshop but there has been a long delay as we have waited for the Council to advance a wastewater solution. As we discussed, there is now a commitment from WBOPDC staff to proceed with a connection so on this basis we are finalising and submitting the plan change process. I'm sure you will agree that Rex has waited long enough!

I think its really important that there is a feeling of "placemaking" created for the site and Rex is committed to ensure good development outcomes, future employment opportunity for locals and the creation of further business land to cater for the local needs of Te Puna.

Rex is happy to work with Pirirakau at the time of development on the branding of the site and to determine an appropriate design response for the spring area for matters such as sign/information boards/cultural markers, road naming etc. We will keep in touch on this and progress as we go. Rex is also happy for the public to obtain water/have access to the spring. We will need to ensure that this can occur in a safe manner as discussed but I am sure there are various options that we can look at once we get into the subdivision and development phase. We will be looking to approach WBOPDC to purchase the site as discussed, and would like Pirirakau's support for this and involvement in how the spring site might be planned and developed. I suspect we will have to make a submission to the annual plan process for funding for this and would appreciate your support/maybe a joint submission to Council.

Attached are links to the draft plan change application and the latest structure plan.

<https://www.dropbox.com/t/oatyQpXwTLl0cKwM>

<https://www.dropbox.com/t/9vwiw9V3DY0bn4wd>

Once you have reviewed these we would appreciate it if you could please send Rex a letter of support that we can include with the application. Please also invoice us for your time for this and the engagement we have had.

We are looking to formally lodge with WBOPDC at the end of the month.

Please give me a call if you need to chat about anything further.

Nga Mihi

Aaron Collier | aaron@collierconsultants.co.nz

Planner | Director

Collier Consultants Ltd | PO Box 14371 Tauranga Mail Centre 3143 | New Zealand

M. 021 744 707

From: julie.shepherd@xtra.co.nz <julie.shepherd@xtra.co.nz>

Sent: Tuesday, 27 October 2020 11:27 pm

To: Aaron Collier <aaron@collierconsultants.co.nz>

Subject: RE: Old New Zealand Limited

Kia ora Aaron

I am available 1 pm Tuesday 3rd November if that suits? Can you bring the Applicant with you too?

Nga mihi

Julie

On 27/10/2020 11:06 AM, Aaron Collier <aaron@collierconsultants.co.nz> wrote:

Kia ora Julie – sorry I've let this slip. When would a good time be to catch up at Nourish?

Nga Mihi

Aaron Collier | aaron@collierconsultants.co.nz

Planner | Director

Collier Consultants Ltd | PO Box 14371 Tauranga Mail Centre 3143 | New Zealand

M. 021 744 707

From: Julie Shepherd <julie.shepherd@xtra.co.nz>
Sent: Wednesday, 30 September 2020 9:29 pm
To: Aaron Collier <aaron@collierconsultants.co.nz>
Subject: RE: Old New Zealand Limited

Kia ora Aaron

Hope you are well also.

propose a few days times next week or the following to meet, we can catch up at Nourish.

Nga mihi

Julie

On 23 September 2020 at 06:10 Aaron Collier
<aaron@collierconsultants.co.nz> wrote:

Kia ora Julie. I hope all is well with you. We must catch up at some stage for a coffee to discuss Te Puna and Rex's site as he wants to get the plan change moving. I assume Aurecon would have sent you a copy of the documents?

Nga Mihi

Aaron Collier | aaron@collierconsultants.co.nz

Planner | Director

Collier Consultants Ltd | PO Box 14371 Tauranga Mail Centre 3143 | New Zealand

M. 021 744 707

Claire Steele

From: Harriet McKee
Sent: Tuesday, 25 June 2019 1:15 PM
To: Claire Steele
Subject: FW: Te Puna Plan Change

Follow Up Flag: Follow up
Flag Status: Flagged

Harriet McKee M.App Sci (Env.Man.), BA (Geog)
Manager, Environment and Planning, Aurecon
T +64 7 5786183 M +64 21743756
Harriet.McKee@aurecongroup.com

DISCLAIMER

From: Luke Balchin
Sent: Thursday, 30 May 2019 12:05 PM
To: Harriet McKee <Harriet.McKee@aurecongroup.com>
Subject: FW: Te Puna Plan Change

Luke Balchin
Consultant, Environment and Planning, Aurecon
T +64 7 577 5163
Luke.Balchin@aurecongroup.com

DISCLAIMER

From: Pirirakau Hapu <pirirakau.hapu@gmail.com>
Sent: Tuesday, 20 March 2018 10:51 AM
To: Luke Balchin <Luke.Balchin@aurecongroup.com>
Cc: Phillip Martelli <phillip.martelli@westernbay.govt.nz>
Subject: Re: Te Puna Plan Change

Kia ora Luke

In consideration of the proposed plan change of extending the commercial zone outlined as the proposed area included within these emails.

We acknowledge the extended commercial zoning provides for activity consistent with the current activities in this location.

In this regard, we do not oppose the zone change but we would require consultation on future commercial activities within the newly created commercial zone.

Pirirakau seek to collaborate with WBOPDC, SmartGrowth strategies and Landowners to ensure the rural character of Te Puna is sustained.

Nga mihi

Julie Shepherd
Pirirakau Incorporated Society

On Wed, Mar 14, 2018 at 7:45 AM, Luke Balchin <Luke.Balchin@aurecongroup.com> wrote:

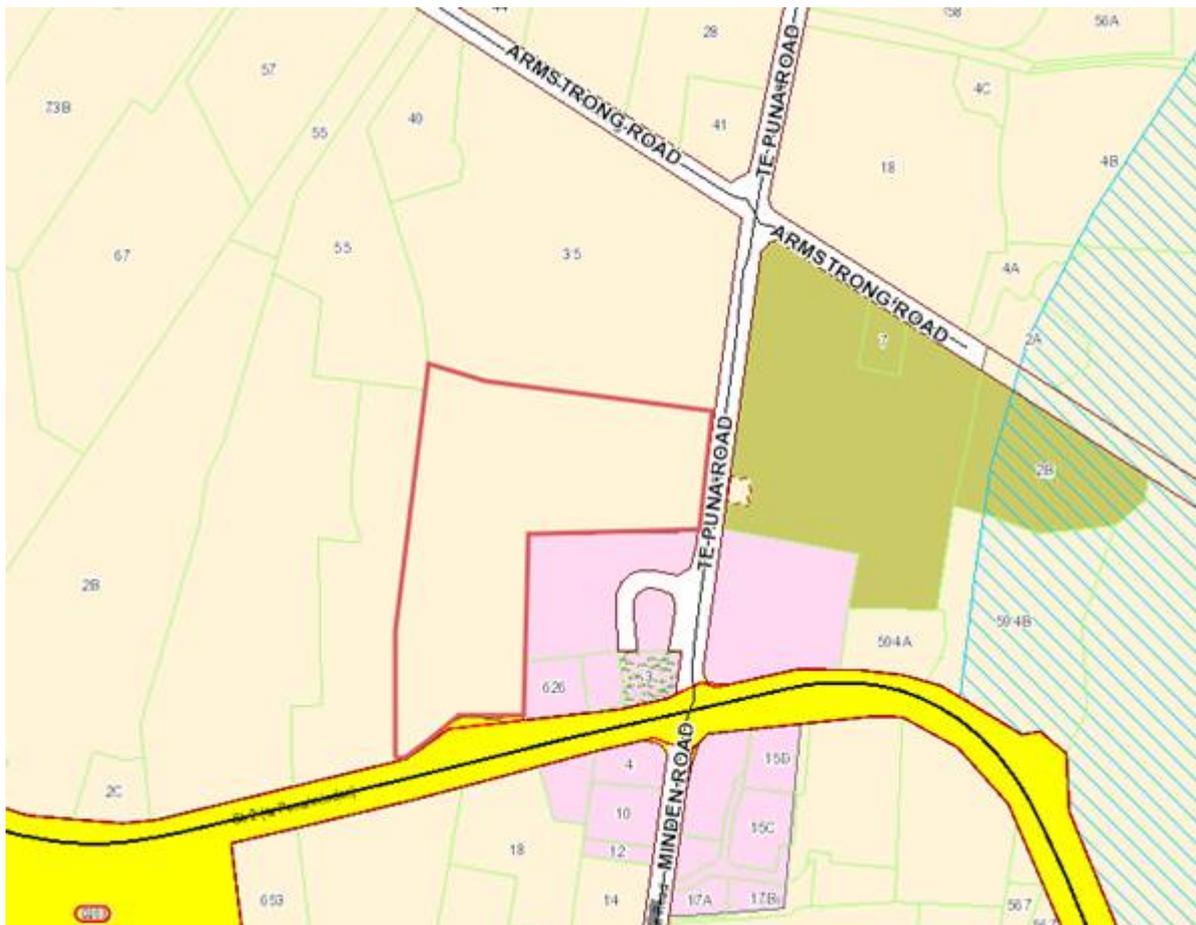
Kia ora Julie,

Sure, I am following up on behalf of Harriet McKee. Harriet may have recently sent you a similar email.

We are working with our client Rex McIntyre on a the proposed Plan Change for his site in Te Puna. The site is located behind the existing BP service station. The site is currently zoned Rural and Commercial and we are proposing an extension to the Commercial zoning over the site.

We would like to meet with you to discuss the proposal. Please let me know if you would like to meet and indicate any dates and times that are convenient for you.

The site which a commercial extension is sought is identified on the following plan with a red outline, the existing commercial land in the area is identified in pink:



Nga mihi,

Luke Balchin

Consultant, Environment and Planning, Aurecon

T [+64 7 577 5163](tel:+6475775163)

Luke.Balchin@aurecongroup.com

DISCLAIMER

From: Pirirakau Hapu [mailto:pirirakau.hapu@gmail.com]

Sent: Tuesday, 13 March 2018 2:41 PM

To: Luke Balchin <Luke.Balchin@aurecongroup.com>

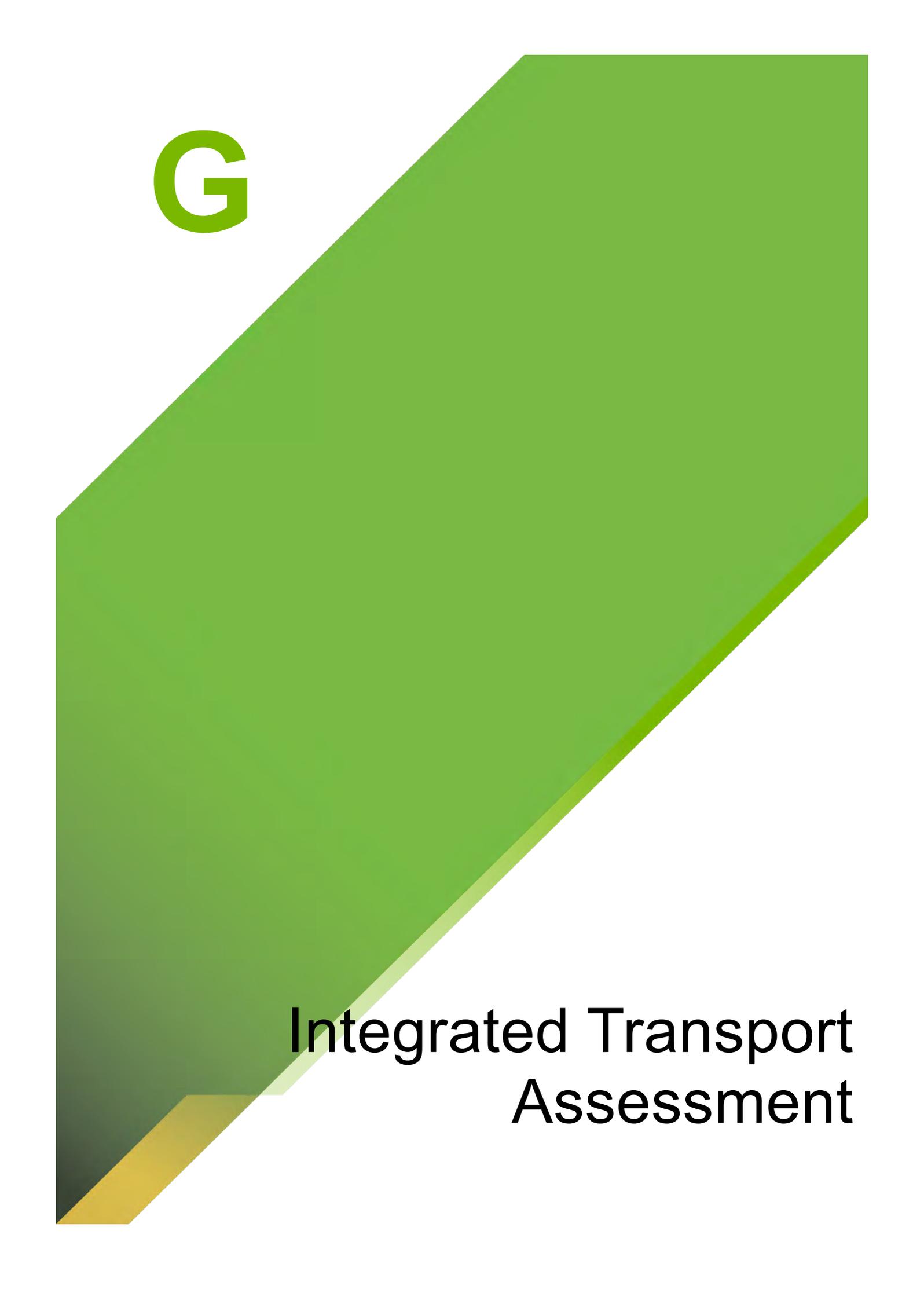
Subject: Te Puna Plan Change

Kia ora Luke

I am at uni today but I have listened to your voicemail. Can you email me info please. Is this in regard to the proposed zone change for a limited area to allow a service station?

Nga mihi

Julie



G

**Integrated Transport
Assessment**

Appendix G

Integrated Transport Assessment

Te Puna Springs Plan Change

Integrated Transport
Assessment

Te Puna Springs Limited

Reference: 251282

Revision: 0

13 August 2019

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Document control record

Document prepared by:

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Client		Te Puna Springs Limited					
Client contact			Client reference				
Rev	Date	Revision details/status	Author	Reviewer	Verifier (if required)	Approver	
0	13 August 2019	Final for issue	A Fosberry	R Inman		A Fosberry	
Current revision		0					

Approval			
Author signature		Approver signature	
			
Name		Name	
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1 Introduction

Western Bay of Plenty District Council has initiated this request for a Plan Change, which extends the adjacent existing fully utilised Commercial area.

The proposal relates to rezoning approximately 5.91 hectares of Rural and Commercial zoned land at 23 Te Puna Road, Te Puna, to new Commercial Business zone. Additional permitted activities proposed include:

- Rural Contractors Depot;
- Offices (ancillary to activities occurring on site);
- Prefabricated Building Manufacturing;
- Places of Assembly – Te Puna Hall;
- Warehousing and Storage.

The following transport assessment has been undertaken to determine the transport effects of the rezoning. The applicant is the owner and occupier of the land.

The location of the land associated with the rezoning, is shown below in Figure 1 below;

Figure 1 – Locality of site within the local road network



Source: Western Bay of Plenty MAPi

2 Proposal

The site is west of Te Puna Road, between the intersection with SH 2 and the intersection of Armstrong Road and lies north of SH 2.

The Plan Change schematic is provided in Figure 2 below:

Figure 2 – Plan Change Schematic



The development has been divided into areas to distinguish the development differences. The areas are divided as follows:

- 1, 2, 5, 6, 7 and 8 are commercial. Area 8 is already consented for vehicle machinery sales;
- 3 is the replacement Te Puna Hall;
- 4 is Village Green and Spring;
- 9 is shelter belt;
- 10 is street trees;
- 11 is a 5m landscape buffer strip; and

- 12 is traffic calming on the private road.

The proposed internal road connects with Te Puna Road at the same location as the existing access to the site, approximately opposite the access to DMS (orchard management and post-harvest operator) Te Puna.

At the southern side near SH 2, the proposed internal road is shown to connect to the new slip road that has been constructed as part of the SH 2/Te Puna Road roundabout works. This is the same location as the earlier proposal for the Te Puna Hall, which has now been moved to area 3.

The Te Puna hall was previously located on the corner of Te Puna Road and SH 2, but was removed to accommodate the intersection upgrade.

3 Recent Consents

Resource Consent RC10232 was issued to Te Puna Springs Estate Limited in December 2016.

The consent included a Garage, Workshop and Vehicle Machinery Sales premises (The Boat Place) as shown on Figure 3 below. The transport related data from this earlier consent is included within this report as the consented area is included within the proposed plan change.

Figure 3 – Previously consented plan



4 Transport Environment

SH 2 and Te Puna Road were upgraded as part of the SH2/Minden Road/Te Puna Road roundabout project.

The Te Puna Road upgrade works extend to the new intersection that provides access to the rear of the current commercial area. The works on SH 2 extend beyond the western boundary of the plan change area and include a left turn in/left turn out intersection for SH 2 traffic to access the commercial area. Right turns in and out of the SH 2 slip road are prohibited. The upgrade layout is shown below in Figure 4. Updated aerials are not available.

Figure 4– Te Puna Improvements



Source: WSP-OPUS

The new intersection north of the roundabout is a four-way intersection, with right turn bays and a left turn slip lane into the BP service station. This creates a wide intersection where the road marking is worn. Therefore, for long term visibility and a reduced maintenance burden, there is a benefit to Council in applying thermoplastic markings.

4.1 Te Puna Road traffic data

Traffic data collected in May 2018, immediately north of the existing Supermac access provides:

- A 5-day average daily northbound flow of 1714 vpd;
- A 5-day average daily southbound 1876vpd;
- Combined two-way 3590vpd;
- Northbound morning peak 196 vph;
- Southbound morning peak 246 vph;
- Morning peak hour 8.00am to 9.00am;
- Northbound evening peak 181vph – 5.00pm to 6.00pm;

- Southbound evening peak 182vph – 4.00pm to 5.00pm;
- Northbound 85%ile speed 75km/h;
- Southbound 85%ile speed 74km/h;
- HCV's Northbound 12.8%, HCV's southbound 12.1%.

4.2 SH 2 traffic data

The NZ Transport Agency counts traffic at a telemetry site on SH 2 near Snodgrass Road (west of Te Puna). The following data has been supplied by them from this site:

- A 5-day average two-way flow in 2018 of 23133 vpd;
- A 5-day average two-way flow in 2019 of 23166 vpd;
- A 5-day average AM peak in 2018 between 7am and 8am of 1942 vph;
- A 5-day average AM peak in 2019 between 7am and 8am of 1880 vph

4.3 Public Transport

SH 2 Te Puna is one of the pickup and drop off locations for the Baybus commuter service and for the inter-regional Intercity service.

Formal bus bays have been constructed on SH 2 as part of the roading improvement works as shown in Figure 4 above, immediately to the east of the SH 2 left in, left out access.

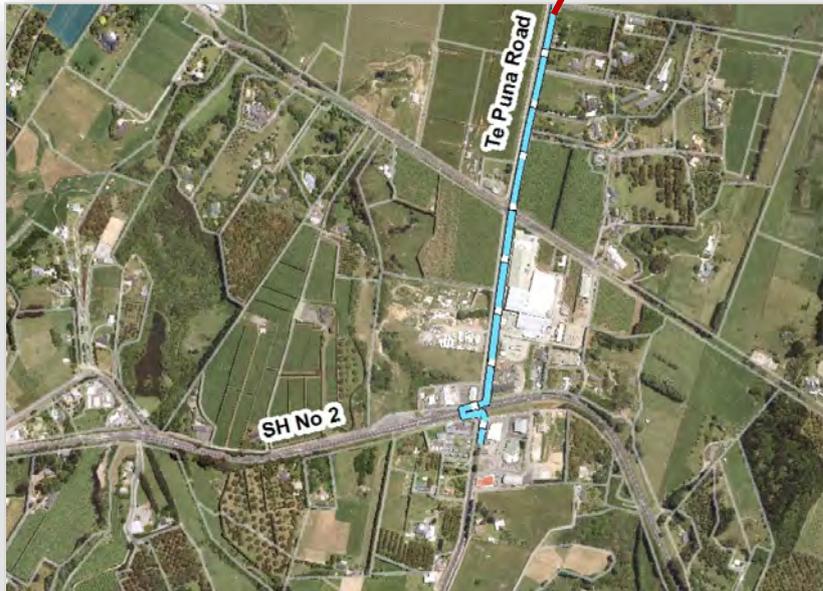
The following commuter and shopper buses stop at this location:

- Route 80 – Katikati – Tauranga Express (6 daily return services)
- Route 81 – Omokoroa – Tauranga Commuter
- Route 85 – Katikati – Omokoroa - Tauranga Shopper (links to Route 80)

4.4 Walking and cycling

There are currently no formal cycle provisions on road or off road in the vicinity of the proposed development. The major planned cycleway in the region is the proposed Omokoroa to Tauranga Cycle Trail, which runs generally parallel to SH2 in an east-west direction, but approximately 2km further north of the site. A future cycle route/connection is proposed to run along Te Puna Road and Minden Road to connect to the trail through the intersection of SH 2/Te Puna Road /Minden Road in a north-south direction as illustrated by Figure 5. Currently the connection is a concrete footpath.

Figure 5 – Proposed Tauranga Cycle Trail connector route shown in light blue within the context of the Omokoroa to Bethlehem route



Source: WBoPDC website

Local pedestrian facilities have been provided to accommodate people who live on the southern side of SH 2 to access the commercial area.

Footpath has been constructed on the SH 2 frontage of the Motel and accommodation (southern side) with a central refuge in the SH 2 median island on the western side of the roundabout, for those people crossing SH 2. The path extends to the bus stop and shelter. On the northern side, the footpath extends from the bus stop, around the commercial site frontage into Te Puna Road and continues north, on the western side of Te Puna Road. On the north western corner of the SH 2, Te Puna Road roundabout, there is a pedestrian access from the footpath to the commercial area (Four Square, BP service station). A pedestrian refuge has also been constructed on Te Puna Road on the northern side of the SH 2 roundabout for pedestrian crossing east west. On the eastern side there is no footpath connection from the pram crossing to the café. In discussion with the NZ Transport Agency they advised that this section of footpath was not part of the SH 2 Te Puna Road upgrade and was to be constructed by others.

4.5 Safety

The new Te Puna roundabout has been constructed to address the safety issues at the intersection. The project has been road safety audited.

The implemented works have reduced the number of access points onto SH 2 and constructed a Safe System intersection design (roundabout) at the intersection of SH 2/Te Puna Road /Minden Road.

Most of the available recorded crash data will be related to the previous configuration and construction period. It has therefore been deemed not relevant and has not been sourced. Roundabouts provide a “Safe System” intersection by reducing speed and altering the angle of impact of crashes that do occur, thus reducing the severity.

4.6 Speed Limits

The legal posted speed limit on Te Puna Road and Minden Road is 80km/h. Actual speed of vehicles on the approach and departure to the SH 2 roundabout are expected to be lower because of the speed at which drivers are negotiating the roundabout.

The NZ Transport Agency is considering permanent speed limit changes on SH 2 as part of the National Speed Management Strategy. SH 2 is currently posted at 60km/h (temporary) as part of the safer speed strategy.

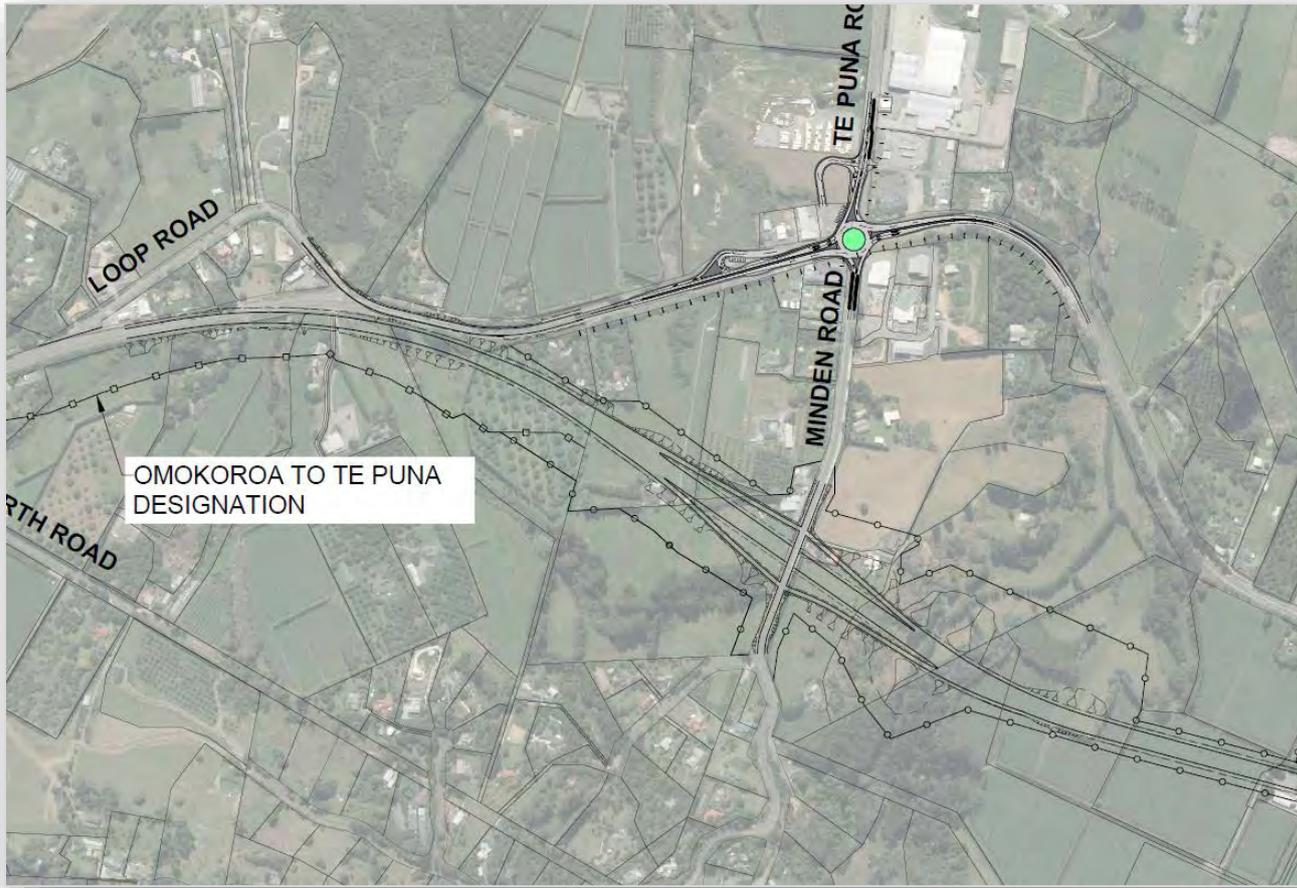
The slip road from SH 2 into the BP service station is posted at 30km/h (temporary) to discourage rat-running to bypass the queues on SH 2.

4.7 Future Road Improvements

Safety improvement works are under way on SH 2 with some projects south of Waihi having been completed.

Tauranga Northern Link (TNL) was to commence construction in late 2018 with completion in 2022. The existing SH 2 alignment from Loop Road east to Tauranga was to become a local road and not connect to the TNL at Loop Road. Those wishing to access the Te Puna area from the west, were to exit the TNL at the Minden Interchange and vice versa. Refer Figure 6 below:

Figure 6 – Western extent - TNL



Source: NZTA website

Construction of the TNL and closure of SH 2 at Loop Road would result in a significant reduction in traffic volumes west of Te Puna Road, reducing the risk to pedestrians crossing SH 2. There is currently no indication of when the TNL will be constructed.

5 Liaison with NZ Transport Agency and WSP-OPUS

Background information has been sought from both the NZ Transport Agency and WSP-OPUS in relation to the road designation, Notice of Requirement, future commercial considerations included in the improvement works and relocation of the community hall.

WSP-OPUS have provided the following data to assist us;

- Te Puna Memorial Hall, Traffic Impact Assessment, 28 June 2016;
- Semi-trailer truck tracking curves and proposed road marking within the existing commercial area, to demonstrate adequate room for large vehicles to manoeuvre within the available area clear of the BP service station.

The NZ Transport Agency have confirmed that expected future traffic volumes from the Te Puna Plan Change and traffic from the Te Puna Business Estate on Te Puna Station Road, were included in the traffic modelling for the SH 2/Minden Road/Te Puna Road roundabout.

In consultation with the NZ Transport Agency, advised that provided the land uses to be included as part of the Plan Change, are similar to those that were considered when the SH 2 roundabout was modelled, then the NZ Transport Agency are comfortable that the roundabout is designed with adequate capacity.

6 Traffic Generation

The activities within the proposed Plan Change are generally commercial and include:

- The Te Puna Hall;
- The previously consented activities in RC 10232 of Garage and Workshop (1234m²) and Vehicle Machinery Sales premises (The Boat Place - 325m²);
- Rural Contractors Depot
- Offices (ancillary to activities occurring on site)
- Prefabricated Building Manufacturing
- Warehousing and Storage

The building Ground Floor Area's (GFA) used in the traffic generation assessment have been provided by Boffa Miskell and are shown in Figure 7 below. Building locations are indicative and will vary depending on access location, internal circulation and carpark layout. The total GFA for the commercial activities excluding the Te Puna Hall and The Boat Place is 8635m².

Figure 7 – Assumed GFA's



6.1 Trip generation rates

Referencing TRR 453 Trips and parking related to land use (November 2011):

- Commercial premises and offices typically generate 26.1 vehicle movements per day per 100m² GFA, and 2.5 vehicle movements per hour per 100m² GFA;
- Manufacturing premises typically generate 30 vehicle movements per day per 100m² GFA, and 2.7 vehicle movements per hour per 100m² GFA;
- Warehousing premises typically generate 2.4 vehicle movements per day per 100m² GFA, and 1 vehicle movement per hour per 100m² GFA.

Referencing the RTA Guide to Traffic Generating Developments (October 2002):

- Business parks peak hour vehicle trips (PVT) = 1.1 vehicles per hour two-way per 100m² of total gross leasable area

The term Business Park refers to developments that permit a range of land-use types in an integrated complex. The developments generally incorporate a number of individual units of similar size. The developments typically include elements of industrial, manufacture, research, warehousing, office space, retail, commercial, refreshment and recreational activity.

6.1.1 Worst Case

Manufacturing has the highest traffic generation rates. A worst-case scenario would therefore be the GFA of 8635m² provides traffic generation of 2590 vehicles per day and 233 vehicles per hour (excluding the Te Puna Hall and The Boat Place).

6.1.2 Likely scenario

A more likely scenario is a combination of the above traffic generators, as indicated in Table 1 below.

Table 1 includes traffic generation for the Te Puna Hall and The Boat Place. We have assumed that a capacity event at the hall generates traffic during peak commuter periods. This is unlikely but demonstrates the worst case.

Te Puna Hall traffic generation data is from the WSP-OPUS ITA that supported the consent application for relocation of the hall. The previous Te Puna Memorial Hall had a number of regular activities scheduled with the participants being between 10 and 50 people. Similar to most community halls, the Te Puna Memorial Hall has been used as a venue for annual events such as Pony Club, rowing club prize giving, family celebrations and occasionally wedding parties.

In addition, there have been music concerts held about four times a year. These irregular events will attract a larger number of participants than the regular weekly activities. The number of events that are expected to reach full capacity of the hall (120 participants) is approximately 25 occasions each year. Assuming a vehicle occupancy of two, it is estimated that the maximum number of vehicles travelling to the site during a large event is 60 vehicles.

Traffic generation for The Boat Place and workshop and garage are consented (RC 10232) and traffic data has been transferred to Table 1.

For the Rural Contractor Depot, traffic generation data has been used from the ITA for PGG Wrightson at 2 Marshall Street Katikati (RC 4806).

The Supermac operation is an existing activity on the site and the traffic generation in Table 1 relating to Supermac is existing and not additional.

Table 1 – Likely scenario traffic generators

Generator	Assumed GFA	Daily rate	Peak hour rate	comments
The Boat Place RC 10232	325m ² plus outdoor display	40 movements per day	10 movements per hour	Previously consented – traffic generation data taken from RC 10232 application
Garage and workshop	1200m ²	60 movements per day	8 movements per hour	Previously consented – traffic generation data taken from RC 10232 application
Warehousing and storage	1800m ²	2.4/100m ² GFA 43 movements per day	1/100m ² GFA 18	
Manufacturing (Supermac) – Existing Activity	2900m ²	30/100m ² GFA 870 movements per day	2.7/100m ² GFA 78	Supermac is an existing operation and the traffic generated is not additional to the network.
Commercial and office	945m ²	26.1/100m ² GFA 247 movements per day	2.5/100 m ² GFA 24 movements per hour	
Rural contractor's depot	1790m ²	Up to 3 trucks per day 140 customer movements per day 16 staff movements per day	25 movements per hour	From the PGG Wrightson Fruitfed operation at 2 Marshall Street Katikati. RC 4806
Servicing – courier, rubbish/recycle etc	All businesses – GFA N/A.	14 courier movements per day 2 rubbish/recycle per week	4 movements per hour	These services cover the whole area.
Te Puna Hall	570m ²	120 movements per day	60 movements per hour	Previously consented - Assumes worst case of capacity Hall function and that all will arrive in 1 hour and be coincidental with the activities peak.
Total assessed traffic movements including Supermac	9530m ²	1551 movements per day	227 movements per hour	
Total assessed traffic movements excluding Supermac		681 movements per day	149 movements per hour	

6.2 Impact of increased traffic generation

Arrivals and departures will be split.

Those arriving and departing from Minden Road will do so via the SH 2 roundabout and enter the site from Te Puna Road. Departure may be via Te Puna Road or via the left turn onto SH 2, west of the SH 2 roundabout.

Those arriving and departing to the north will enter via Te Puna Road. Departure may be via Te Puna Road or via the left turn onto SH 2, west of the SH 2 roundabout.

Those arriving on SH 2 from the west can enter via the left turn slip lane or make a left turn at the roundabout and enter via Te Puna Road. Their choice will depend on their destination within the commercial area.

Those arriving and departing from Bethlehem will do so via the SH 2 roundabout and Te Puna Road access.

Therefore, not all traffic will be using the SH 2 roundabout.

Traffic volumes on SH 2 are at capacity at certain times of the day. Queuing in the morning peak, Tauranga bound on SH 2 can extend kilometres to the west from the roundabout. A minor hold-up can quickly develop into a major delay.

Supermac (The Group) traffic is existing and not additional to the network.

Only on rare occasions will the peak Te Puna Hall traffic be generated at the same time as the activity peak. Functions at the hall for weddings, celebrations and concerts will generally be evenings and weekends.

The activities and expected traffic are in line with the assumptions made by NZ Transport Agency for the intersection modelling for the roundabout at SH 2, Minden Road, Te Puna Road.

7 Onsite parking and manoeuvring

7.1 Existing consents

The Te Puna Hall and The Boat Place are already consented on identified sites and have approved parking, loading and manoeuvring.

The garage and workshop activity, which is also consented, will now be at a different location (should it be constructed) as the Te Puna Hall now occupies the propose garage and workshop site. Layout plans, parking, loading and manoeuvring for the garage workshop are consented and can be transferred to another site within the Te Puna Plan Change area.

7.2 District Plan Parking Assessment

The expected activities are divided into:

- Warehousing and storage;
- Manufacturing (Supermac) – Existing Activity;
- Commercial and office;
- Rural contractor's depot.

When reviewing the car parking spaces provided for various activities, it is apparent that for activities similar to those above, the number of car parks required are likely to be as indicated in Table 2 below:

Table 2 - Parking assessment in accordance with District Plan

Activity	Area m ²	Parking rate	Number of car parks required
Warehouses, Depots, Building and Construction Wholesalers	4700	One car parking space to each 100m ² of gross floor area so used	47
Administrative, Commercial and Professional Offices not in a residential building. Commercial Services, Hire Centres, Dry Cleaning Depots, Repair Services, Tradesman's Workshops.	945	One car parking space to each 40m ² of gross floor area.	24
Building and Construction Retailers or Retailers and Wholesalers combined	1790	One car parking space to each 50m ² of gross floor area so used.	36
		Total	107

For manoeuvring, the WBoP Operative District Plan states in Section 4.B.4.6 "All activities shall provide manoeuvring space onsite so that all vehicles can enter and exit without reversing on to or off the road. Such manoeuvring shall be able to be executed in no more than a three-point turn."

The required area per parking space and manoeuvring area is generally accepted as 30.2m². For 107 parking spaces this is 3,231m² (0.32 hectare). The total site is 5.6 hectares. If we conservatively assume that 50% of this area is the Te Puna Hall, The Boat Yard, stormwater pond, roading and the Village Green, the remaining area is 2.8 hectares. The GFA of buildings within the 2.8 hectares is 0.86 hectares, that leaves approximately 1.94 hectares in which to locate 0.32 hectares of parking and manoeuvring. The actual required land area for parking and manoeuvring will be refined when the design of the parking and loading layouts are completed in the future.

The above parking assessment and area analysis demonstrates that adequate space is available for the expected parking and manoeuvring requirements on site.

8 Site Access

Access to the development is proposed via a new intersection on the left turn slip lane from SH 2 and via Te Puna Road.

The internal road servicing the development is to be private.

Figure 8 – Plan Change Schematic



8.1 Intersection at SH 2 slip lane

The slip lane access at SH 2 provides for left in and left out onto SH 2. The private road access will provide for all movements although left turn exiting and right turn entering the private road are expected to be low volume as drivers will not arrive or depart this way unless needing to use the Four Square or BP Service Station etc.

The intersection will be designed to accommodate the required vehicle swept paths to avoid any potential for turning conflicts. There is currently a 30km/h temporary speed limit in this area which we assume will be

made permanent in the near future as part of the overall permanent changes to speed limits that will occur. Appropriate sight lines and sight distances are available at this proposed intersection with a minimum of 100m available in each direction. (Referencing Austroads Guide to Road Design Part 4A, Safe Intersection Sight Distance for a 50km/h design speed is 90m.)

8.2 Intersection at Te Puna Road

The proposed intersection onto Te Puna Road is in the same location as the current Supermac access. It is located slightly to the south of an “exit only” from DMS (post-harvest operator). On site observations indicate that some vehicles are entering the DMS site via the exit only. We have been advised that this is contrary to their consent. The DMS site, its accesses and internal site layout provide for a one-way circulating system that supports the exit only, opposite Supermac.

The predominant traffic movement at the new intersection will be to and from SH 2, being the left turn in and right turn out for the plan change area and left turn out for DMS. This minimises the potential for turning conflicts.

Visibility in each direction meets the requirements for the current posted speed limit of 80km/h. It is likely that Western Bay of Plenty District Council will reduce the speed limit in the future to provide a consistent posted speed limit within the Te Puna Commercial area, matching the reduction on SH 2. Consideration of measures to calm traffic and reduce speed should be considered at the time that speed limit reviews are being undertaken.

Prior to construction of the new intersection consultation should occur with DMS to ensure compliance to avoid unnecessary potential turning vehicle conflicts.

8.3 Internal Private Road

The private internal road is indicated to have an 11m carriageway with a 20m road reserve. This provides width to accommodate through traffic and some on street parking, with the necessary width for commercial loads.

Supermac, on occasion, have the need to transport over dimensional (OD) loads. When these occur, they will be moving between Te Puna Road and site 7.

9 Construction Management

During construction, a construction management plan will need to be implemented for the site development and construction activities. This will assist with the management of arriving and departing traffic related to the works and help minimise the impact of these activities on adjacent property and the road network.

Preparation of the Construction Management Plan (CMP) is generally prepared by the contractor undertaking the work and is submitted for approval prior to commencement of construction. It is expected as a condition of consent.

The CMP will include temporary traffic management and will be required when the site is developed.

10 Assessment of Transport Effects

10.1 Traffic generation

It is considered that times of peak movements to and from the community hall are unlikely to coincide with peak vehicle movements on Te Puna Road. Traffic on Te Puna Road is generally peaks with commuter vehicles in the early morning and late afternoon. In contrast, the largest events for the community hall will tend to be:

- Sunday evenings; up to 40 people,
- Weekday mornings; up to 50 people
- Irregular private functions (usually in the evenings); up to 120 people (60 vehicles).

However, there is a possibility that commuter peaks may coincide with some larger events at the hall, and we have considered this scenario as a worst case.

During morning peak flows on SH 2 inbound to Tauranga, when queueing extends back through Te Puna, drivers on SH 2 use Te Puna Road to access Te Puna Station Road to “jump” the SH 2 queue. This results in additional northbound traffic on Te Puna Road during the morning commuter peak.

Assessed worst case traffic generation is 681 movements per day. If we assume that all of these movements are on Te Puna Road the expected daily traffic would increase from 3590 vpd to 4271 vpd, which is well within the capacity of Te Puna Road.

The two-way hourly peak flow is experienced during the morning period between 8am and 9am. Again, assuming that all of the generated traffic occurs on Te Puna Road the hourly peak increases from 442 vph to 591 vph, well within capacity.

SH 2 morning peak flows are experienced between 7am and 8am.

The activities and expected traffic generation is in line with the assumptions made by NZ Transport Agency for the intersection modelling for the roundabout at SH 2, Minden Road, Te Puna Road and the associated upgrades.

10.2 Onsite parking and manoeuvring

The internal parking manoeuvring and loading details will be determined at a later date when the activity for each site is confirmed.

The assessment in Section 7 above demonstrates the availability of more than adequate land area for the required on-site parking manoeuvring and loading.

10.3 Access and intersection design

The southern intersection of the private road and the SH 2 slip lane is a ‘T’ intersection and will be designed in accordance with AUSTROADS to accommodate the expected design vehicles, details of which will be confirmed and submitted to the NZ Transport Agency and WBoPDC for approval prior to construction.

The Te Puna Road access will be designed in accordance with AUSTROADS to accommodate the expected design vehicles, details of which will be confirmed and submitted to WBoPDC for approval prior to construction. It is intended that the design of this intersection will incorporate safe system measures to complement the expected future reduction in speed limit on Te Puna Road.

10.4 Vulnerable road users

A pedestrian facility is provided across SH 2 near the bus stops. The NZ Transport Agency has temporarily reduced the speed limit on SH 2 in Te Puna from 80km/h to 60km/h. New footpath is provided in front of the

Motel on the southern side of the road and around the corner from SH 2 into Te Puna Road where the old Te Puna Hall was located.

A new footpath connection has been constructed to the north on Te Puna Road (west side) to link to the Te Puna Community.

There are currently no crossing facilities for pedestrians to cross either Minden Road or Te Puna Road from west to east. As the Te Puna commercial area develops and expands, these facilities will need to be incorporated.

Construction of cycling facilities (as indicated on the WBoPDC website) to link to the Omokoroa to Bethlehem cycle path will also need to be considered as the area develops.

10.5 Safety

As the commercial area of Te Puna develops and activities establish as part of the plan change, Council will need to consider:

- Safe Speed - a reduction in speed limit to align with the NZ Transport Agency proposal to permanently reduce the speed limit on SH 2 to 60km/h;
- Engineering and Safe System measures to urbanise Te Puna Road and Minden Road in the reduced speed limit zone, which may include threshold treatments at speed limit change locations, channelisation and other speed management.

11 Conclusions

The proposed plan change for the Te Puna Commercial area can be supported from a transport and road safety perspective.

The expected traffic generation has already been accounted for in the design of the Te Puna Road, Minden Road, SH 2 roundabout and associated roading improvements.

More than adequate room is available on the sites to accommodate expected parking loading and manoeuvring.

Internal private roading and intersections with public road designed will be designed in accordance with Austroads and Safe System Principles.

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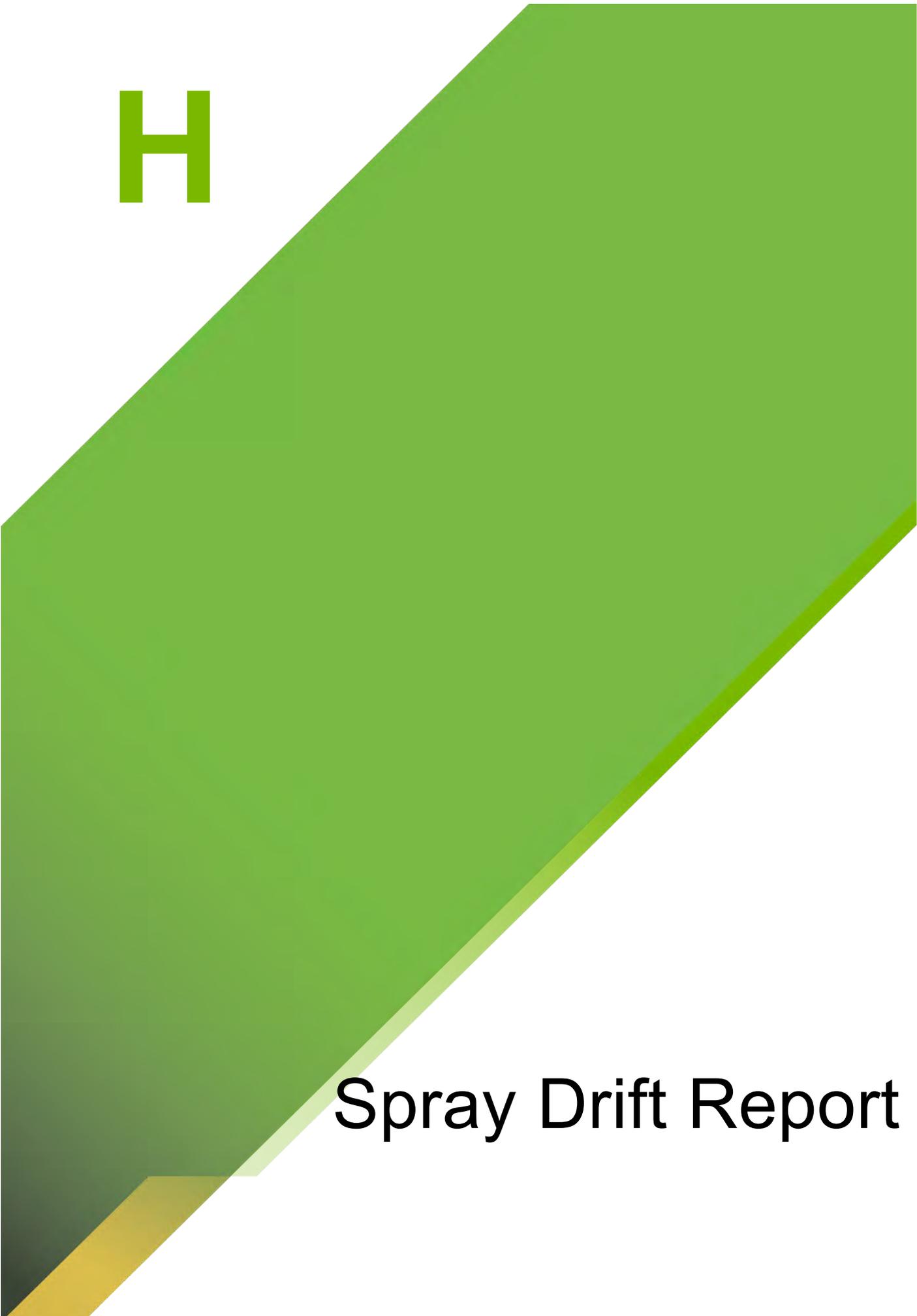
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A large, abstract green shape that resembles a stylized letter 'H' or a similar symbol. It has a diagonal cutout on the right side, creating a trapezoidal shape. The bottom-left corner is cut off, revealing a yellow-orange base. The overall appearance is that of a graphic design element or a logo.

H

Spray Drift Report

Appendix H

Spray Drift Report

A photograph of a kiwi fruit orchard with many green, fuzzy kiwi fruits hanging from the vines. The background is a solid green color.

Spray Drift Assessment of Te Puna Springs Proposal

23 Te Puna Road

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Purpose

The purpose of this report is to detail the likely effects of spray drift from neighbouring orchards on the proposed Te Puna Springs project. The report will detail spray drift, the neighbouring properties in question, the typical sprays these properties will use and if there are likely to be any issues.

Information for this report has been collected from:

- Maps provided by Aurecon Group.
- An on-site visit conducted Sandy Scarrow and Bryce Morrison on 12 March 2018.
- Various industry resources.

Qualifications

Sandy Scarrow has been working as a horticultural consultant in the Bay of Plenty since 1987. She graduated from Massey University's Bachelor of Horticultural Science in that year. Sandy's work includes day-to-day advice, strategic advice and industry analysis. She has been part of independent horticultural consultants Fruition Horticulture (BOP) Ltd since its inception in 2003, having previously been with Agriculture New Zealand and MAF. She has been engaged at times to act as an expert witness on matters relating to the Resource Management Act.

Bryce Morrison has been employed as an Assistant Horticultural Consultant since his graduation from Lincoln University's Bachelor of Commerce (Agriculture) in 2016. He has specialised in the assessment and reporting of rural subdivision proposals. He has also taken lead roles in major projects from Plant and Food and Zespri.

Te Puna Springs Background

The Te Puna Springs Industrial Development proposal is located 23 Te Puna Road, Te Puna. It is proposing the development of several commercial buildings and car parking areas.

To the north and west of the proposal are two established orchards, relatively close to the property boundary. Between the two, avocados and kiwifruit are grown. There is potential risk of spray drift from both of these sites. For this project to go ahead the risk of spray drift need to be minimal.

Appendix One is sheet two of four of the development maps. Number 9 on the map highlights a proposed shelter belt around the whole development. This will work to add a layer of protection against spray drift, if it were to drift from the neighbouring orchard.

Appendix Two is sheet four of four of the development maps. This map shows a 3D rendering of the development. Here, there appears to be a buffer strip between the development and the northern orchard. This buffer zone in addition to the proposed natural shelter minimises the risk of spray drift.

Spraydrift

“Agrichemicals are chemicals used in agricultural production. Many of them are used as sprays to control insects or other pests, weeds or plant diseases. Sometimes - due to weather conditions, the nature of the landscape (hills, shelterbelts, etc) and the way the operator carries out the spraying - the spray drifts away from the target crop or area. This is known as spraydrift.” - Bay of Plenty Regional Council, 2018¹.

In a horticultural sense, spraydrift can result in residue contamination, damage to non-target crops or plants and/or pollute the land and water. For this project however, the greatest concern is around human health effects; nausea, skin irritations, stress and nervous system break downs.

Minimising Spraydrift

As spraydrift is a well-known issue across the horticultural sector there are many techniques growers can use to minimise the effects. NZKGI (New Zealand Kiwifruit Growers) is an organisation giving kiwifruit growers a voice in the industry. In a document released regarding Hydrogen cyanamide (Hi-cane) application, they listed the following steps for growers when spraying:

- **“Compulsory low-drift technology** – air inclusion (AI) nozzles and use of adjuvants to reduce spray drift
- **Notify neighbours** – notify neighbours within 50m at least 12 hours before spraying
- **Display signs** – “spraying in progress” signs must be displayed at orchard entrance before spraying starts and removed when it’s safe to enter the orchard again. Other orange signs state the agrichemical being used as well as the contact details of the applicator
- **Check wind conditions** – sprays should not be applied if wind conditions are more than a slight breeze towards neighbours
- **Effective shelter** – orchards should have shelter on boundaries, especially road frontages. If there is no shelter or gaps in the shelter, a no-spray buffer of 30 metres should be used
- **Special care with sensitive areas** – applicators must take special care around roads, walkways, schools to avoid affecting school children, rural posties, dog walkers etc” – NZKGI, 2016².

¹ <https://www.boprc.govt.nz/our-region-and-environment/pollution-prevention-and-compliance/air-pollution/agrichemical-spraydrift/>

² <http://nzkgi.org.nz/wp-content/uploads/2016/12/Hi-Cane-Spraying.pdf>

Neighbouring Orchards

Okaro Orchard

The property to the north is a kiwifruit orchard; 35 Armstrong Road. This orchard is on the same elevation as the development and shares over 50% of the property's boundary line. Figure 1 shows this property, and the red line indicated the boundary line.



Figure 1: 35 Armstrong Road - Google Earth.

The orchard is currently planted in Gold 3 kiwifruit with extensive internal artificial shelter and natural shelters boarding the property. There was evidence of fire damage to the natural shelter between the properties. Artificial shelter has been added from the orchard side, seen in Figure 2. However, in the prevention of spraydrift natural shelter is proven to be most effective.



Figure 2: Fire damaged shelterbelt on the shared northern boundary.

648 State Highway 2 Orchard

This property is to the west of the development and is a kiwifruit orchard, with a small block of avocados; 648 SH 2. Although not as much of this orchard is directly on the boundary, it is at a higher elevation. This means if spraydrift were to occur, it could travel greater distances. Figure 3 shows this property and an indicative boundary line.



Figure 3: 648 State Highway 2 - Google Earth.

The shelterbelt along this boundary is generally well established. Upon the site inspection there were parts of the shelterbelt that have recently been replanted and therefore are not fully established. There is the potential for greater spray drift through the current gap in the shelter.



Figure 4: Western boundary shelterbelt around avocado trees.



Figure 5: Gap in western boundary, through to a kiwifruit block.

Prevailing Wind

Northern New Zealand prevailing winds are west to southwest.³ Therefore given the elevation and location of the 648 SH 2 orchard, the greatest risk of spray drift comes from this orchard.

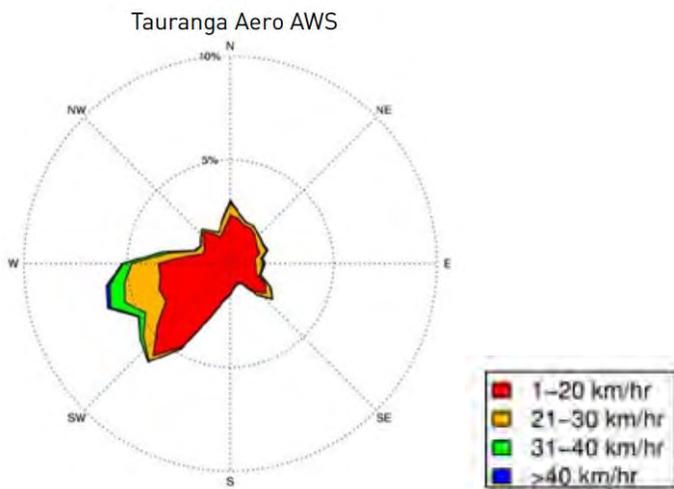


Figure 6: Mean annual wind frequencies (%) of surface wind directions from hourly observations at the Tauranga station. The plots show the directions from which the wind blows. - NIWA

³ The Climate and Weather of Bay of Plenty, 3rd Edition. Chapman, P.R. NIWA.

Spray Programmes

Both the kiwifruit and avocado industries have recommended agrichemicals that can be used at various times of the season. These agrichemicals are listed below along with the reason for their use and their Hazardous Substances and New Organisms (HSNO) classification.

Avocados

Table 1: Common Agrichemicals Used in the Avocado Industry

Product and Active Ingredient	Reason	HSNO	
Avid® Vantal Verdex® 18EC 18 g/litre abamectin	Mite control	<i>3.1D, 6.1D, 6.3B, 6.4A, 6.8B, 6.8C, 6.9B, 9.1A, 9.2C, 9.3B, 9.4A</i>	Flammable: flammable liquids. Toxic: acute toxicity, skin and eye irritant, reproductive and development toxicity (x2) and target organ or systemic toxicity. Ecotoxicity: aquatic, soil, vertebrate and invertebrate ecotoxic.
Paramite® 110 g/litre etoxazole	Mite control	<i>6.9A, 9.1A</i>	Toxic: target organ or systemic toxicity. Ecotoxicity: aquatic ecotoxic.
Mit-E-Mec Milbemectin 9.3 g/L	Mite control	<i>3.1C, 6.1E, 6.3B, 6.4A, 9.1A, 9.2C, 9.3C, 9.4B</i>	Flammable: flammable liquids. Toxic: acute toxicity, skin and eye irritant. Ecotoxicity: aquatic, soil, vertebrate and invertebrate ecotoxic.
Chlorpyrifos 500 EC 500 g/litre chlorpyrifos Lorsban® 50 EC/ 750 WG 490 g/litre hydrocarbon liquid Pyrinex® 480 g/litre chlorpyrifos	Mite, thrip and leafroller control	<i>3.1D, 6.1C, 6.3B, 6.4A, 6.8B, 6.9A, 9.1A, 9.2B, 9.3A, 9.4A</i>	Flammable: flammable liquids. Toxic: acute toxicity, skin and eye irritant, reproductive and development toxicity and target organ or systemic toxicity. Ecotoxicity: aquatic, soil, vertebrate and invertebrate ecotoxic.
Alpasso™ Calypso® Topstar® 480 g/litre thiacloprid	Thrip control	<i>6.1D, 6.7B, 6.8B, 6.9B, 9.1A, 9.2C, 9.3B, 9.3C, 9.4C</i>	Toxic: acute toxicity, carcinogen, reproductive and development toxicity and target organ or systemic toxicity. Ecotoxicity: aquatic, soil, vertebrate (x2) and invertebrate ecotoxic.

Fyfanon[®] 440EW 440 g/litre maldison	Thrip control	<i>6.1D, 6.3B, 6.4A, 6.8B, 6.9A, 9.1A, 9.3B, 9.4A</i>	Toxic: acute toxicity, skin and eye irritant, reproductive and development toxicity and target organ or systemic toxicity. Ecotoxicity: aquatic, vertebrate and invertebrate ecotoxic.
Sparta[™] 120 g/kg spinetoram	Thrip and leafroller control	<i>6.9B, 9.1A, 9.4A</i>	Toxic: target organ or systemic toxicity. Ecotoxicity: aquatic and invertebrate ecotoxic.
Dew[™] 600 600 g/litre diazinon	Thrip and leafroller control	<i>6.1D, 6.8B, 6.9A, 9.1A, 9.2B, 9.3A, 9.4A</i>	Toxic: acute toxicity, reproductive and development toxicity and target organ or systemic toxicity. Ecotoxicity: aquatic, soil, vertebrate and invertebrate ecotoxic.
Altacor[®] 350 g/kg chlorantraniliprole	Leafroller control	<i>9.1A</i>	Ecotoxicity: aquatic ecotoxic.
Comic 700 g/kg tebufenozide	Leafroller control	<i>6.9B, 9.1A, 9.4A</i>	Toxic: target organ or systemic toxicity. Ecotoxicity: aquatic and invertebrate ecotoxic.
Success[®] Naturalyte[®] 20 g/litre spinosad	Leafroller control	<i>6.9B, 9.1A, 9.4A</i>	Toxic: target organ or systemic toxicity. Ecotoxicity: aquatic and invertebrate ecotoxic.
Mavrik[®] Aquaflo 240 g/litre tau-fluvalinate	Leafroller control	<i>6.1D, 6.9B, 9.1A, 9.3C</i>	Toxic: acute toxicity and target organ or systemic toxicity. Ecotoxicity: aquatic and vertebrate ecotoxic.
Attack[®] 475 g/litre pirimiphos-methyl and 25 g/litre permethri	Leafroller control	<i>3.1D, 6.1E, 6.3A, 6.4A, 6.5A, 6.5B, 6.8B, 6.9A, 9.1A, 9.3A, 9.4A</i>	Flammable: flammable liquids. Toxic: acute toxicity, skin and eye irritant, respiratory and contact sensitiser, reproductive and development toxicity and target organ or systemic toxicity. Ecotoxicity: aquatic, vertebrate and invertebrate ecotoxic.
Sunny 50 g/litre uniconazole-P	Increase fruit size, reduce vegetative growth.	<i>6.9B, 9.1C</i>	Toxic: target organ or systemic toxicity. Ecotoxicity: aquatic ecotoxic.

Kiwifruit

Table 2: Common Agrichemicals Used in the Kiwifruit Industry.

Product and Active Ingredient	Reason	HSNO	
Actigard® 500 g/kg acibenzolar-s-methyl	Psa control	6.5B, 6.9B, 9.1B	Toxic: contact sensitiser, and target organ or systemic toxicity. Ecotoxicity: aquatic ecotoxic.
BIOBIT® DF DELFIN® WG DIPEL® DF HORTCARE® BACTUR® WDG at least 32,000 i.u <i>Bacillus thuringiensis</i> subspecies <i>kurstaki</i>	Leafroller	6.3B, 6.4A, 9.1D	Toxic: skin irritant, eye irritant. Ecotoxicity: Aquatic ecotoxic
EXCEL® OIL 832 g/litre mineral oil	Scale	6.1E, 9.1D	Toxic: acute toxicity. Ecotoxicity: aquatic ecotoxic.
FLINT® 500 g/kg trifloxystrobin	Sclerotinia	6.5B, 6.9B, 9.1A	Toxic: contact sensitiser, target organ or systemic toxicity. Ecotoxicity: Aquatic ecotoxic
Hi-Cane® 520 g/litre hydrogen cyanamide	Enhance bud break	6.1C, 6.3A, 6.4A, 6.5B, 6.8B, 6.9A, 9.1D, 9.3B, 9.4C	Toxic: acute toxicity, skin and eye irritant, contact sensitiser, reproductive or developmental toxicity and target organ or systemic toxicity. Ecotoxicity: aquatic, vertebrate and invertebrate ecotoxic.
Kasumin® 20 g/litre kasugamycin as the hydrochloride hydrate salt	Psa control	6.1E, 6.8B, 6.9B	Toxic: acute toxicity, reproductive or developmental toxicity and target organ or systemic toxicity.
KeyStrepto™ 170 g/kg streptomycin as the sulphate salt	Psa control	6.1D, 6.4A, 6.5B, 6.9B, 9.1A, 9.3C	Toxic: acute toxicity, eye irritant, contact sensitiser and target organ or systemic toxicity. Ecotoxicity: aquatic and vertebrate ecotoxicity.
Kocide® Opti	Psa control	6.1D, 6.3B, 6.5B, 6.9B,	Toxic: acute toxicity, skin irritant, contact sensitiser, target organ or systemic toxicity.

300 g/kg copper hydroxide		<i>8.3A, 9.1A, 9.3C</i>	Corrosive: eye corrosive. Ecotoxicity: aquatic and vertebrate ecotoxic.
Luna® Privilege 500 g/litre fluopyram	Sclerotinia control	<i>6.9B, 9.1B</i>	Toxic: target organ or systemic toxicity. Ecotoxicity: aquatic ecotoxic
MESUROL® 200 SC 200 g/litre methiocarb	Bird control	<i>6.1D, 6.9B, 9.1A, 9.2A, 9.3A, 9.4A</i>	Toxic: acute toxicity and target organ or systemic toxicity. Ecotoxicity: aquatic, soil, vertebrate and invertebrate ecotoxic.
MOVENTO® 100SC 100 g/litre spirotetramat	Scale control	<i>6.5B, 6.8B, 9.1C</i>	Toxic: contact sensitiser and reproductive or developmental toxicity. Ecotoxicity: aquatic ecotoxic.
NORDOX™ 75WG 750 g/kg copper as cuprous oxide	Psa control	<i>6.1E, 6.4A, 6.9B, 9.1A.</i>	Toxic: acute toxicity, eye irritant and target organ or systemic toxicity. Ecotoxicity: aquatic ecotoxic.
Proclaim® 50 g/kg emamectin benzoate	Leafroller	<i>6.1D, 6.9A, 9.1A, 9.3C, 9.4A</i>	Toxic: acute toxicity, target organ or systemic toxicity. Ecotoxicity: aquatic, vertebrate and invertebrate ecotoxic.
Prodigy™ 240 g/litre methoxyfenozide	Leafroller control	<i>9.1 B, 9.4A</i>	Ecotoxicity: aquatic and invertebrate ecotoxic.
PYGANIC® 13 g/litre pyrethrins	Passion vine hopper	<i>6.5A, 6.5B, 6.9B, 9.1A, 9.4A</i>	Toxic: respiratory and contact sensitiser and target organ or systemic toxicity. Ecotoxicity: aquatic and invertebrate ecotoxic.
Various products 360 g/litre glyphosate	Wheat Bug (Loading Pads)	<i>6.1D, 6.3A, 6.3B, 6.4A, 9.1B, 9.1C</i>	Toxic: acute toxicity, skin irritant (x2), eye irritant. Ecotoxicity: aquatic ecotoxic (x2)

There are other sprays applied, typically foliar fertilisers that do not typically have a HSNO classification. They do not pose any risk to human health but may create a nuisance due to smell and cause anxiety amongst neighbours simply due to the activity of the sprayer.

Summarised HSNO Risks

Many of the HSNO classifications are not relevant when it comes to issue of spray drift. What is significant is the number of agrichemicals which are toxic to human health, ecotoxic or cause skin and eye irritation.

There are also some risks specific to particular agrichemicals and animal species. For example, dogs have died as a result of drinking from a puddle that has some drift from the agrichemical hydrogen cyanamide. Users of neighbouring sites need to be made aware of these risks in order to avoid harm.

For a full list of the hazard classification available under the Hazardous Substances and New Organisms (HSNO) Act 1996 please refer to Appendix Three.

Bay of Plenty Regional Air Plan

The Regional Air Plan is a document aimed at controlling the discharge of contaminants into the air across the whole Bay of Plenty. It outlays issues, objectives, polices and methods of implementation. The specific agrichemical sections have been appended to this report.

The following table summarises the information from the Regional Air Plan:

Table 3: Summary of agrichemical sections of the BOP Regional Air Plan

Section		Summary
Issues	Issue 5 Pg. 11	The discharge of agrichemicals into air particularly on to non-target areas beyond the boundary of the subject property may adversely affect the environment, crops, human health, amenity values, cultural values, and the mauri of natural and physical resources.
Objectives	Objective 1 Pg. 15	Maintain and protect high air quality in the Bay of Plenty region and in instances or areas where air quality is degraded, to enhance it by specifically addressing discharges into air of gases, particulates, chemicals, agrichemicals, combustion and odour.
	Objective 2 Pg. 15	Avoid, remedy or mitigate the adverse effects of all discharges of contaminants into air on the environment which includes the effects on: ecosystems, human health and safety, crops and livestock, amenity values, cultural values, the mauri of natural and physical resources and the global environment.

		Policies
	Objective 3 Pg. 15	The community achieves a high level of awareness of the adverse effects on the environment of discharges of contaminants into air.
	Objective 4 Pg. 15	Provide for activities that have predictable and minor effects on the environment as permitted activities subject to compliance with conditions designed to ensure that the effects are avoided, remedied or mitigated.
Rules	Rules 10-13 Pg. 34-39	<ul style="list-style-type: none"> • Applicators holding appropriate certification (i.e. GROWSAFE®). • A requirement to spray in accordance with NZS 8409:1999 - Code of Practice for the Management of Agrichemicals. • Notification. • Avoiding harmful concentrations of agrichemicals discharging beyond the boundary of the subject property or into water. <p>The parameters of meeting the conditions of these rules vary depending on the application method; aerial, non-motorised hand-held or other techniques.</p>

There are very few recorded events where off-target spray drift has cause any issues for neighbouring properties. The most significant issue is the anxiety experienced by some people regarding spray drift. In most cases, information is the best antidote to this anxiety. Information boards, informing visitors to the site about the imminent sprays are suggested as a means reducing this anxiety. It is recommended that the site administrator, if such a person exists, be the person who receives notification of spray application. They then ensure that a board, located near the boundary of the proposed development and the orchard, is updated to inform visitors of imminent spray events. Updates could include specific comment about potential harm of allowing dogs to wonder and drink from water sources on the day that hydrogen cyanamide is being sprayed for example.

Summary

There will be minimal risk of spray drift due to the addition natural shelter belts being added with the development, with an additional barrier between that and the boundary line.

It is recommended to get the burnt shelter of Okaro orchard replaced. Natural shelter is the best protection against spray drift leaving the property.

Similarly, the shelter of 648 SH 2 should be fully assessed with gaps planted. Upon the site visit some gaps were noted. Having these planted in will boost protection.

Overall the risks of spray drift occurring upon this development are minimal. Both the kiwifruit and avocado industry strictly enforce safe spraying practices in line with Bay of Plenty Regional Council polices a high priority.

Neighbours should be informed of spray events prior to their occurrence. Annual spray plans should also be provided upon request.

Increased anxiety is possibly the greatest risk visitors to the site. Providing visitors with clear information on well located boards could help reduce this anxiety.

Appendix One – Development Plan

File Ref T2802_01a_Amasterplanning_20180302.indd

- 1 Commercial
- 2 Commercial
- 3 Commercial / The Group
- 4 Commercial
- 5 Hall
- 6 Commercial
- 7 The Group
- 8 Commercial
- 9 Shelter belt
- 10 Street trees
- 11 5m Landscape buffer strip



This plan has been prepared by Boffa Miskell Limited on the specific instructions of our Client. It is issued for our Client's use in accordance with the agreed scope of work. Any use or reliance by a third party is at that party's own risk. Whilst information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by Boffa Miskell Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.



Legend

FOR INFORMATION TE PUNA SPRINGS INDUSTRIAL DEVELOPMENT

Site Plan

| Date: 05 March 2018 | Revision: C |

Plan prepared for Aurecon by Boffa Miskell Limited

Project Manager: Marnie.Hugh@boffamiskell.co.nz | Drawn: TKK | Checked: MHU

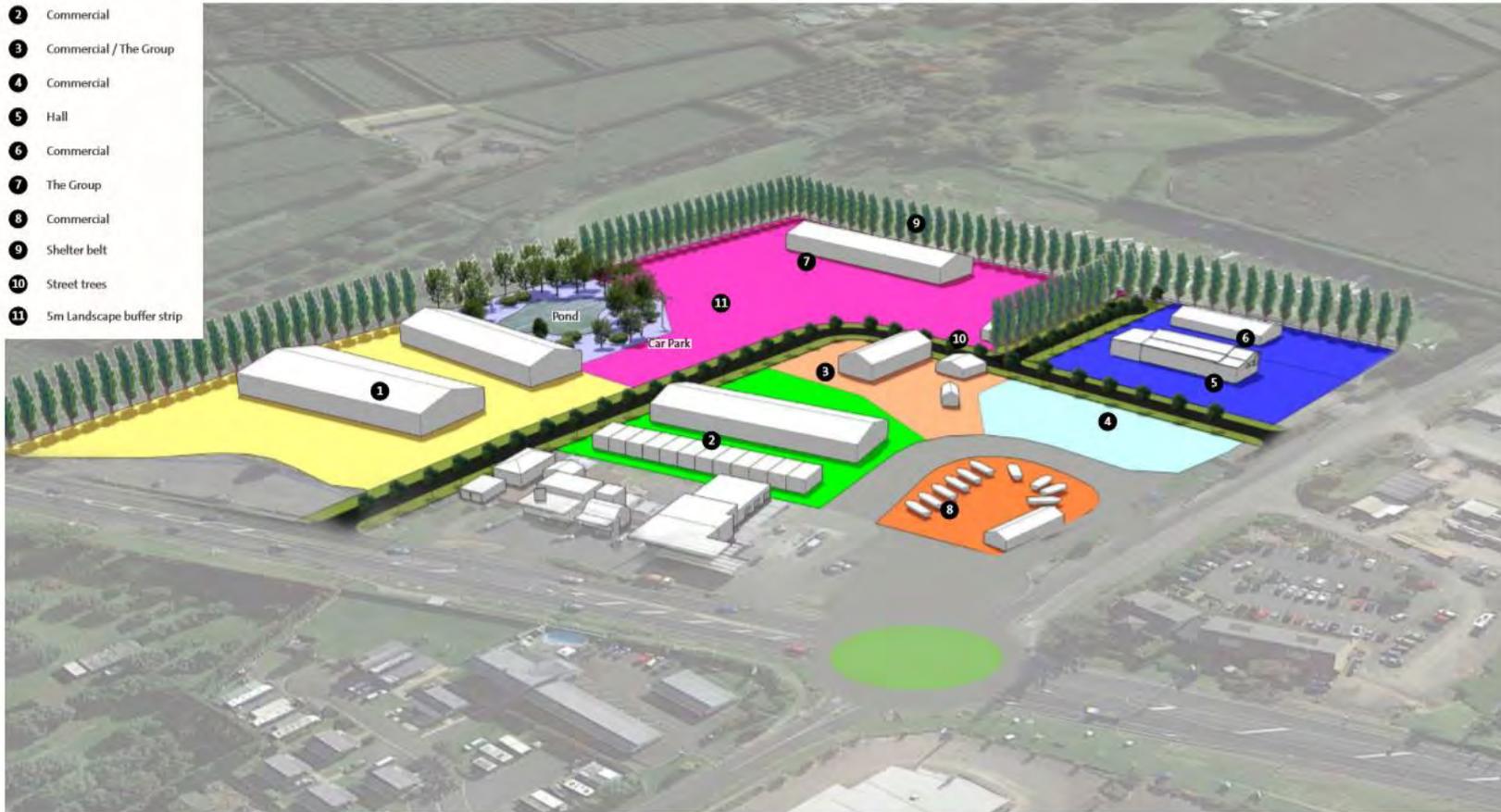
T18002

Sheet 2/4

Appendix Two – 3D Development Plan

File Ref: T18002_Site_Masterplanning_20180305.indd

- 1 Commercial
- 2 Commercial
- 3 Commercial / The Group
- 4 Commercial
- 5 Hall
- 6 Commercial
- 7 The Group
- 8 Commercial
- 9 Shelter belt
- 10 Street trees
- 11 5m Landscape buffer strip



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Legend

FOR INFORMATION TE PUNA SPRINGS INDUSTRIAL DEVELOPMENT

Oblique Aerial Perspective

| Date: 05 March 2018 | Revision: C |

Plan prepared for Aurecon by Boffa Miskell Limited

Project Manager: Morne.Hugo@boffamiskell.co.nz | Drawn: TKZ | Checked: MHU

T18002

Sheet 4/4

Appendix Three – Hazard Classifications



Table of Hazard Classifications available under the HSNO Act.

Class	Subclass	Description	Class	Subclass	Description
1 – Explosives	35 hazard classifications for Class 1 substances – not included on this chart.		6 – Toxic	6.1 A, B, C, D, E	Acute toxicity
2 – Flammable gases & Aerosols 	2.1.1 A, B	Flammable gases	  	6.3 A, B	Skin irritant
	2.1.2 A	Flammable aerosols		6.4 A	Eye Irritant
3 – Flammable liquids 	3.1 A, B, C, D	Flammable liquids		6.5A 6.5B	Respiratory sensitiser Contact sensitiser
	3.2 A, B, C	Liquid desensitised explosives		6.6 A, B	Mutagen
4 – Flammable solids     	4.1.1 A, B	Readily combustible solid		6.7 A, B	Carcinogen
	4.1.2 A, B, C, D, E, F	Self-reactive solid		6.8 A, B, C	Reproductive or developmental toxicity
	4.1.3 A, B, C	Desensitised explosive		6.9 A, B	Target organ or systemic toxicity
	4.2 A, B, C	Spontaneously combustible		8.1 A	Metal corrosive
	4.3 A, B, C	Dangerous when wet		8.2 A, B, C	Skin corrosive
5 – Oxidising Substances  	5.1.1 A, B, C	Oxidising liquid / solid		8.3 A	Eye corrosive
	5.1.2 A	Oxidising gas		9.1 A, B, C, D	Aquatic ecotoxic
	5.2 A, B, C, D, E, F, G	Organic peroxide		9.2 A, B, C, D	Soil ecotoxic
www.chemsafety.co.nz				9.3 A, B, C	Vertebrate ecotoxic
				9.4 A, B, C	Invertebrate ecotoxic



Appendix Four – Bay of Plenty Regional Air Plan (Agrichemicals)

15 December 2003

Bay of Plenty Regional Air Plan

Issues

- Tanneries;
- Food processing and preparation;
- Sewage and waste treatment operations;
- Bitumen processing;
- Resin manufacture;
- Synthetic fertiliser manufacture;
- Commercial chemical pulping.

Objectives: 1, 2, 3, 4

Issue 5 **The discharge of agrichemicals into air particularly on to non-target areas beyond the boundary of the subject property may adversely affect the environment, crops, human health, amenity values, cultural values, and the mauri of natural and physical resources.**

An agrichemical is any substance, whether inorganic or organic, man-made or naturally occurring, modified or in its original state, that is used in any agriculture, horticulture or related activity, to eradicate, modify or control flora and fauna. For the purposes of this plan, it includes agricultural compounds.

Activities that use agrichemicals include:

- Horticulture;
- Agriculture;
- Forestry;
- Eradication or management of organisms declared unwanted under the Biosecurity Act 1993;
- Park, reserve (including road reserves) and garden maintenance.

Objectives: 1, 2, 3, 4

Issue 6 **Geothermal emissions into air may adversely affect the environment, human health, amenity values, cultural values and safety.**

Human-influenced geothermal emissions from geothermal bores consist of steam and carbon dioxide with other trace gases such as hydrogen sulphide and heavy metals such as mercury.

Objectives: 1, 2, 3, 4

Issue 7 **The spray irrigation of liquid waste may adversely affect the environment, human health, amenity values, cultural values, and the mauri of natural and physical resources.**

Spray irrigation disposes of liquid effluents produced from the treatment of human or animal faecal and urinal wastes and liquid industrial waste by spraying the effluent into air and on to land.

Activities that use spray irrigation of liquid waste include:

- Municipal sewage disposal systems;
- Dairy sheds;
- Dairy factories;
- Other agricultural activities.

3 Objectives

Objective 1 Maintain and protect high air quality in the Bay of Plenty region and in instances or areas where air quality is degraded, to enhance it by specifically addressing discharges into air of gases, particulates, chemicals, agrichemicals, combustion and odour.

Policies: 1-4, 6-11

Methods: 1-4, 10, 14, 16, 17, 22, 23, 32, 34-36, 38-41, 43

Rules: 1 - 20 (all)

Objective 2 Avoid, remedy or mitigate the adverse effects of all discharges of contaminants into air on the environment which includes the effects on: ecosystems, human health and safety, crops and livestock, amenity values, cultural values, the mauri of natural and physical resources and the global environment.

Policies: 1-12

Methods: 1-6, 8-10, 12-15, 17-24, 28-33, 43

Rules: 1-20 (all)

Objective 3 The community achieves a high level of awareness of the adverse effects on the environment of discharges of contaminants into air.

Policies: 2, 7, 10, 11, 12

Methods: 1-10, 17-22, 26, 29, 31, 33-39, 41, 44-46

Rules: 1-20 (all)

Objective 4 Provide for activities that have predictable and minor effects on the environment as permitted activities subject to compliance with conditions designed to ensure that the effects are avoided, remedied or mitigated.

Policies: 1(a), 3, 6, 10, 11

Methods: 1-10, 17-22, 40-42, 46

Rules: 1-17

3.1 Principal Reasons for Adopting the Objectives

The intent of the objectives is to manage the discharge of contaminants into air to protect the region's generally high ambient air quality from adverse effects and enable people and communities to provide for their well-being. In most parts of the region, air is currently of a high quality which is valued by residents and visitors alike. With appropriate management of sources of contaminants, high air quality throughout the region is achievable.

These objectives enable the plan to focus on the issues that the effects of contaminants may have on the environment, e.g. geothermal emissions, liquid waste disposal by irrigation, electromagnetic radiation and any cumulative and/or synergistic effect.

The objectives will enable the community to be informed and understand adverse effects of discharges including those from their own actions.

- (b) The discharge for 2-stroke engines complies with the manufacturers specification.

Rule 8 Permitted Activity – Emergency Disposal of Animal Carcasses

The discharge of contaminants into air from the emergency burning in the open of dead diseased marine mammals and dead diseased livestock is a permitted activity provided the following conditions are complied with:

- (a) Disposal must be carried out under the direction of either the Ministry of Agriculture and Forestry for dead diseased livestock or the Department of Conservation for dead diseased marine mammals.
- (b) Environment Bay of Plenty must be notified a minimum of 1 hour before burning begins.

Rule 9 Permitted Activity – Spray Irrigation of Liquid Waste

The discharge of contaminants into air from the spray irrigation of liquid wastes is a permitted activity provided the following conditions are complied with:

- (a) The discharge must not result in objectionable or offensive odour or particulates, beyond the boundary of the subject property;
- (b) The discharge must not result in harmful concentrations of contaminants beyond the boundary of the subject property or into water;
- (c) spray irrigation of liquid waste must not be carried out within 20 metres of the boundary of the subject property (or properties) or within 20 metres of any surface water body.

Rule 10 Permitted Activity – Use of agrichemicals for the eradication or management of organisms declared unwanted under Sections 143 and 144 of the Biosecurity Act 1993.

The discharge of agrichemical into air for the eradication or management of organisms declared unwanted under Sections 143 and 144 of the Biosecurity Act 1993 is a permitted activity provided the following conditions are complied with:

- (a) Any contractor using or applying any agrichemical by ground based application methods shall hold a minimum of a current GROWSAFE® Registered Chemical Applicators Certificate or equivalent.
- (b) Any person, other than any contractor provided for in (a) above, using or applying an agrichemical identified either on its product label, or in the First or Second Schedule of the Toxic Substances Regulations 1983 as containing a compound rated as either a:
- “DANGEROUS POISON”; or
“DEADLY POISON”,
- shall hold a minimum of a current GROWSAFE® Introductory Certificate or equivalent.
- (c) Any person, other than any contractor provided for in (a) above, using or applying an agrichemical identified on its product label as containing a compound rated as either a:
- “POISON”; or
 - “CAUTION”,

or is listed in the Third or Fourth Schedules to the Toxic Substances Regulations 1983 as a:

- "STANDARD POISON"; or
- a "HARMFUL SUBSTANCE",

shall hold a minimum of a current GROWSAFE® Introductory Certificate or equivalent or be under the direct supervision of a person holding a current GROWSAFE® Applied Certificate or equivalent.

- (d) The agrichemical must be used under the direction of the Department whose responsibilities are adversely affected by the unwanted organism or Environment Bay of Plenty where unwanted organisms are managed.
- (e) There must be no harmful concentrations of agrichemical beyond the boundary of the subject property or into water.
- (f) When ground based application methods are used the occupier of any adjoining properties must be notified of the agrichemical use. Notification must be no earlier than 20 days and no later than 12 hours before the agrichemical use unless agreement on an alternative manner of notification can be reached with the adjoining occupier.
- (g) Agrichemical use from aircraft must be publicly notified not earlier than 20 days and no later than 12 hours before the agrichemical use.
- (h) Notwithstanding the requirements of this rule any person applying agrichemicals from an aircraft shall comply with Rule 13 of this plan.

Rule 11 Permitted Activity – Use of Agrichemicals – Non-Motorised Hand-held Application

The discharge of contaminants into air from the non-motorised hand-held application of agrichemical is a permitted activity provided the following conditions are complied with:

- (a) (i) Any contractor using or applying any agrichemical by ground based application methods shall, within twelve months of this plan becoming operative (15 December 2003), hold a current GROWSAFE® Registered Chemical Applicators Certificate or equivalent.
- (ii) Any person using or applying agrichemicals for commercial purposes (other than a contractor provided for in (a)(i) above) when using or applying an agrichemical identified on its product label, or in the First or Second Schedule of the Toxic Substances Regulations 1983 as containing a compound rated as either a:
 - "DANGEROUS POISON"; or
 - "DEADLY POISON",
 shall within twelve months of this plan becoming operative (15 December 2003), hold a minimum of a current GROWSAFE® Introductory Certificate or equivalent or be under the direct supervision of a person holding a current GROWSAFE® Introductory Certificate or equivalent.
- (b) All persons discharging agrichemicals under this rule shall ensure that:
 - (i) The agrichemical is discharged in a manner that does not contravene any requirement specified in the manufacturer's instructions.

- (ii) The commercial application of agrichemicals, complies with NZS 8409: 1999 Code of Practice For The Management of Agrichemicals.
- (c) The agrichemical use must not result in any harmful concentration of agrichemical beyond the boundary of the subject property or into water.
Note: Extra care should be exercised when applying any phenoxy based herbicide. In particular, 2, 4-D butyl ester herbicide sprays have the potential to travel long distances through the air. Although butyl ester herbicide has not been manufactured since 1997, existing stocks can still legally be applied. Further information on spray drift hazard is included in Appendix Y of NZS 8409: 1999 Code of Practice for the Management of Agrichemicals.
- (d) Where agrichemical is applied on public land, public roads or railways, notification of that agrichemical use must comply with the requirements of Schedule 2.

Rule 12 Permitted Activity – Use of Agrichemicals from Aircraft

The discharge of contaminants into air from the use of agrichemicals from aircraft is a permitted activity provided the following conditions are complied with:

- (a) The discharge must not result in any harmful concentration of agrichemical beyond the boundary of the subject property or into water.
- (b) The applicator must hold a minimum of a:
 - (i) Pilot Chemical Rating (Civil Aviation Authority) (aerial application) and;
 - (ii) GROWSAFE® Pilots Agrichemical Rating Certificate or equivalent.
- (c) The agrichemical must be used in a manner complying with NZS 8409:1999 Code of Practice for the Management of Agrichemicals.
- (d) The owner/occupier or agent must notify the occupier of any adjoining properties within 200m of that agrichemical use. If an agreed form of notification has not been reached, such as an annual spray or application plan and individual notification of certain chemicals to be used, notification must be no earlier than 20 days and no later than 12 hours before the agrichemical use. This condition does not apply to agrichemical use on public land or land used for road or rail purposes. The property owner or agent acting on behalf of the property owner must advise the aerial applicator that notification has occurred before the aerial application of any agrichemical is undertaken. Notification must include the following:
 - (i) the site of proposed application;
 - (ii) the date of proposed application;
 - (iii) name and type of agrichemical to be applied;
 - (iv) name, address, phone number and registration number of applicator.**Note:** Extra care should be exercised when applying any phenoxy based herbicide. In particular, 2, 4-D butyl ester herbicide sprays have the potential to travel long distances through the air. Although butyl ester herbicide has not been manufactured since 1997, existing stocks can still legally be applied. Further information on spray drift hazard is included in Appendix Y of NZS 8409: 1999 Code of Practice for the Management of Agrichemicals.

- (e) Where agrichemicals are applied to land adjoining public roads and places, signs must be placed on the road boundary 24 hours before the time of application and removed by the applicator when safe for re-entry. The signs must include the following information:
 - (i) The agrichemical used;
 - (ii) The time of application;
 - (iii) The time for safe re-entry;
 - (iv) The name and contact details of the applicator.
- (f) The applicator must notify Environment Bay of Plenty immediately in the event of any discharge of agrichemical beyond the boundary of the subject property.

Rule 13 Permitted Activity – Use of Agrichemicals – Other Application Techniques (Excluding Non-Motorised Hand-held and Aerial Application)

The discharge of contaminants into air from the use of agrichemicals, excluding non-motorised hand-held or aerial application, is a permitted activity provided the following conditions are complied with:

- (a) The discharge must not result in any harmful concentration of agrichemical beyond the boundary of the subject property or into water.
- (b)
 - (i) Any contractor using or applying any agrichemical by ground based application methods shall, within twelve months of this plan becoming operative (15 December 2003) hold a current GROWSAFE® Registered Chemical Applicators Certificate or equivalent.
 - (ii) Any person using or applying agrichemicals for commercial purposes (other than a contractor provided for in (b)(i) above) when using or applying an agrichemical identified on its product label, or in the First or Second Schedule of the Toxic Substances Regulations 1983 as containing a compound rated as either a:
 - "DANGEROUS POISON" or
 - "DEADLY POISON",
 shall within twelve months of this plan becoming operative (15 December 2003) hold a minimum of a current GROWSAFE® Introductory Certificate or equivalent or, be under the direct supervision of a person holding a current GROWSAFE® Applied Certificate or equivalent.
- (c) All persons discharging agrichemicals under this rule shall ensure that the agrichemical is used in a manner that complies with NZS 8409:1999 Code of Practice for the Management of Agrichemicals.
- (d) The owner/occupier or agent must notify the occupier of any adjoining properties within 50m of that agrichemical use. Except that where agrichemicals are applied using a motorised boom, which meets the following design conditions, notification is only required when the agrichemical application occurs within 10m of an adjoining property. The design conditions are:
 - (i) the liquid pressure through the boom is less than 3 bar;
 - (ii) the height of the discharge point on the boom is less than 1 metre from the ground;

- (iii) the nozzles point down;
- (iv) the nozzles are designed to create coarse droplets of greater than 250 microns in diameter.

If an agreed form of notification has not been reached, such as an annual spray or application plan and individual notification of certain chemicals to be used, notification must be no earlier than 20 days and no later than 12 hours before the agrichemical use. This condition does not apply to agrichemical use on public land, or land used for road or rail purposes (see Rule 13 condition (e)). Notification must include the following:

- (v) the site of proposed application;
- (vi) the date of proposed application;
- (vii) name and type of agrichemical to be applied;
- (viii) name, address and phone number of applicator.

Note: Extra care should be exercised when applying any phenoxy based herbicide. In particular, 2, 4-D butyl ester herbicide sprays have the potential to travel long distances through the air. Although butyl ester herbicide has not been manufactured since 1997, existing stocks can still legally be applied. Further information on spray drift hazard is included in Appendix Y of NZS 8409: 1999 Code of Practice for the Management of Agrichemicals.

- (e) Where agrichemical is applied on public land, public roads, or railways, notification of that agrichemical use must comply with the requirements of Schedule 2.
- (f) Where agrichemicals are applied to land adjoining public roads and places, signs must be placed on the road boundary 24 hours before the time of application and removed by the applicator when the land is safe for re-entry. Where agrichemicals are applied using a boom the signs are only required when the application occurs within 6m of a public road or place, or if the boom does not meet the following design features:
 - (i) the liquid pressure through the boom is less than 3 bar;
 - (ii) the height of the discharge point on the boom is less than 1 metre from the ground;
 - (iii) the nozzles point down;
 - (iv) the nozzles are designed to create coarse droplets of greater than 250 microns in diameter.

The signs must include the following information:

- (v) The agrichemical used;
- (vi) The time of application;
- (vii) The time for safe re-entry;
- (viii) The name and contact details of the applicator.

Note: There are statutes that must be complied with when considering the use of agrichemicals. Compliance with the rules for the use of agrichemicals in the Bay of Plenty Regional Air Plan should not be construed as absolving users from complying with relevant statutes.

Environment Bay of Plenty strongly recommends that any person using or applying any agrichemical under this Rule, other than either a "dangerous poison" or a "deadly poison", should hold a minimum of a current GROWSAFE® Introductory Certificate or equivalent or be under the direct supervision of a person holding a current GROWSAFE® Introductory Certificate or equivalent. Any person using or applying either a "dangerous poison" or a "deadly poison" must comply with the certification requirements of Rule 13(b).

Rule 14 Permitted Activity – Unsealed Roads

The discharge into air of particulates from unsealed roads is a permitted activity. The definition of an unsealed road excludes road works on sealed roads.

Rule 15 Permitted Activity – Ventilation of Liquid Storage Tanks and Tankers

The discharge of contaminants into the air from the ventilation and displacement of liquids in storage tanks and tankers is a permitted activity provided the following conditions are complied with:

- (a) The discharge must not result in objectionable or offensive odour or particulates beyond the boundary of the subject property or into water;
- (b) There must be no harmful concentrations of contaminants beyond the boundary of the subject property or into water.

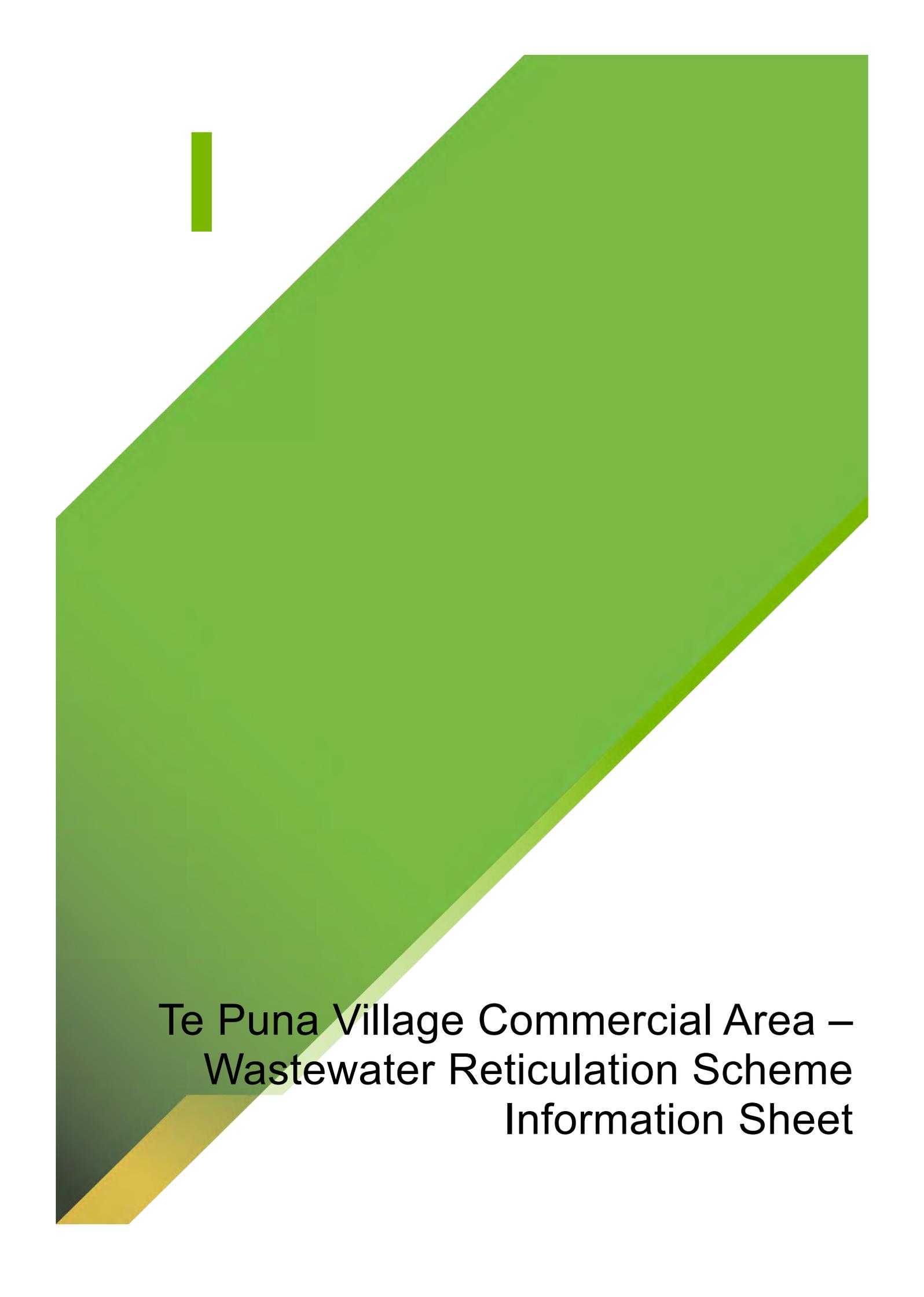
Rule 16 Permitted Activity – Venting of Geothermal Gas and Steam

The discharge of geothermal gases and steam into air from any bore or soakage hole subject to a permission to take or discharge geothermal heat or water from a geothermal source with water temperatures of equal to or more than 70 degrees Celsius, is a permitted activity, provided the following conditions are complied with:

- (a) The gas or steam must discharge vertically upwards;
- (b) All vents constructed after the date this regional air plan became operative must have sufficient height to ensure that the plume is unaffected by downdraft, and at a minimum must rise at least 6m above ground level including 3m above the highest ridge line on any roof within 30m;
- (c) The discharge must not result in objectionable or offensive odour or particulates beyond the boundary of the subject property or into water;
- (d) There must be no harmful concentrations of contaminants beyond the boundary of the subject property or into water;
- (e) The take or discharge of geothermal heat or water is less than 1000 tonnes per day.

For the purpose of this rule permission to take or discharge geothermal water or heat or energy means any one of the following:

- (i) A take or use permitted by section 14(3)(c) of the Resource Management Act 1991.
- (ii) A take or discharge of geothermal water expressly described as a permitted activity in a regional plan.
- (iii) A resource consent granted under the Resource Management Act 1991, to take or discharge geothermal water.



Te Puna Village Commercial Area –
Wastewater Reticulation Scheme
Information Sheet

Appendix I

Te Puna Village Commercial Area – Wastewater Reticulation Scheme Information Sheet

Te Puna Village Commercial Area - Wastewater Reticulation Scheme

Information Sheet

1. Why is this happening?

This scheme is in response to compliance issues with wastewater management in the Te Puna Village commercial area. Landowners and businesses within the Te Puna village currently manage their own wastewater systems onsite, many of which are undersized, do not have adequate space for disposal and in some cases are in breach of their existing discharge consents. Some businesses rely on storing waste in tanks and have it trucked offsite. There are contamination risks to the environment and health and safety issues associated with these wastewater management systems, especially during periods of high use.

After consideration of options to resolve these issues, in September 2020 Council approved the proposed connection of the properties in the Te Puna village commercial area to the Omokoroa wastewater transfer pipeline. Council has subsequently received funding for the extension of the network reticulation. The next step is to engage with affected landowners.

2. Can I use any components of my existing system?

There may be some potential to use reticulation components of your existing systems. We suggest you discuss this with the consultants you engage with to design the new system. We will provide guidelines to assist with this process and are available to provide advice to your engineers if required.

3. How much does the new scheme cost and how is Council funding this?

The cost of the reticulation extension is estimated to be in the order of \$700,000. This includes costs to construct a pipe from the Omokoroa pipeline to each commercial lot property boundary and to connect the Te Puna commercial area pipeline to the existing Omokoroa pipeline.

The capital cost will be fully funded by the Crown Infrastructure Partnership (CIP) wastewater stimulus funding that Council successfully secured from central government as part of the COVID response to assist in stimulating the economy. The \$700,000 excludes any costs associated with work on your property. These costs will be site specific and subject to design. Landowners will be required to pay a capital contribution.

Ongoing operational costs due to the increase in volume of wastewater discharge, are covered through a Uniform Targeted Rate (UTR) to each property.

4. What do I need to do and how much will this cost?

You need to decide whether or not you wish to connect to the pipeline (see question on what happens if I choose not to connect).

Council staff will work with you over the next 3-4 months to provide advice on what you need to do. The starting point is for you to appoint an engineer to work through the best solution for your property in terms of how you can provide on-site storage, a grinder pump (or pumps) and pipe connections to the property boundary (and Council's pipeline connection). We recommend that you engage with the businesses located on your property as part of this process to better understand their activity and wastewater implications of their activity, including any tradewaste flows that will need to be approved by Council.

You will be expected to pay for the onsite works to enable you to connect. Every site will have differing types of On Site Effluent Treatment (OSET) systems. Your engineer will be able to advise if any of the existing tanks can be used/modified and re-purposed to operate as part of a pressure sewer system pump station or emergency storage tank. A building consent will be required to modify your wastewater drainage system.

We will provide design guidelines to assist with this part of the process. We will also liaise with you over the location of the property connection and the location of the pipeline connection that Council is constructing.

You will also need to pay a one-off capital contribution cost towards the use of the Omokoroa pipeline for these purposes and an annual UTR towards associated operational costs for the increased volume of wastewater discharge.

You will be responsible for the ongoing operation, maintenance and monitoring of your wastewater infrastructure provided on your property, including the pump, storage chamber and pipework up to Councils boundary kit.

5. Why do we need to pay a capital contribution and how is this determined?

This contribution recognises that you are consuming capacity from the Omokoroa pipeline reticulation and connections. All connections to the Omokoroa pipeline are required to pay a contribution for this purpose.

The capital contribution for Te Puna village is estimated as \$3,658 (including GST) per household equivalent. The estimates are based on actual water use that generates your wastewater flows, so any water usage/wastewater generation information records you can make available to Council, will allow Council to calculate the final amount that you need to pay. We will invoice you for this amount once the scheme is built. Upon payment, you will be able to connect to the scheme.

We will send you a letter early next year to provide you with an estimate of your capital contribution.

6. How will my capital contribution be calculated?

Capital contribution = \$3,658 x household equivalent (including GST). One household equivalent = 0.5m³/day.

The capital contribution will be calculated based on your estimated wastewater flows. Where actual wastewater flow is available Council will use this to calculate your contribution. If no wastewater flow information is available an estimate of flows will be calculated based on your activity. The capital contribution will be calculated based on a peak flow, rather than an annual average.

7. Why do we have to pay a Uniform Annual Charge and how is this determined?

This is an annual charge that each property is required to pay across the district. This is required to be paid regardless of whether or not you connect to the Omokoroa pipeline as it contributes to the operational costs of the network of publically provided wastewater infrastructure across the district. Costs include maintenance of Council's Te Puna pipeline infrastructure which includes the Omokoroa transfer pipeline infrastructure and disposal costs to Tauranga City Council. This is a standard rate determined on an annual basis.

8. Why doesn't Council own and operate the grinder pump on my property?

Landowners will be responsible for the long term ownership of the onsite pumps, including all maintenance and renewals. This will enable landowners to optimise the use of their existing systems and work with neighbouring properties where appropriate.

The suitability for re-use of part or all of the existing OSET treatment systems tanks will vary greatly from site to site, and vary in age and quality. The internal wastewater infrastructure (including other possible pump stations) upon the various commercial sites can be complex. Allowing the property owners to re-use their existing equipment, when suitable to do so, will allow owners to determine their own least cost solution and find a practical solution for their particular circumstance that could allow for any future development plans (if any).

9. Are there any consents required?

A building consent is required for your proposed changes to the on-site system. As part of the process of approving the building consent, Council will consider the extent to which the proposed design complies with the normal Council guidelines for private wastewater pump station, onsite drainage and ensure the landowner's proposal meets specific design requirements for the Te Puna Commercial area.

Territorial Authority Exemption

Council will aim to streamline the building consent process for landowners as much as possible. Building consent processing time will be 10 days and we recommend inspections are booked at least two weeks ahead of schedule. Building consent fees will be \$1,116 (including GST).

10. Are property owner agreements required?

Only if you and Council agree to the public pipe and the public boundary kit connection point being on your private property, then an easement is required. We will work with you on this as the pipeline route also needs to be discussed then finalised. Otherwise public reserve will be used for the location of the pipeline, which is mainly along Te Puna Road/Minden Rd and private lot owners will need to take their pipe work to the road reserve connection points at their expense.

11. What happens if I choose not to connect?

Landowners will be required to pay Council's availability charge. This is a reduced UTR set through Council's Long Term Plan (LTP) and Annual Plan processes.

The availability charge is applicable to all properties within the Western Bay district that are able to connect to the wastewater system but choose not to. If your existing system does not comply with your resource consent or the Bay of Plenty Regional Council's (BOPRC) Onsite Effluent Treatment System (OSET) Regional Plan, BOPRC's compliance team may get involved and enforcement action may be taken. We recommend you get in touch with BOPRC to discuss implications for your property.

12. What is the timing of construction of this scheme?

Construction of the scheme is estimated to commence in 2021. The project is required to be completed by February 2022 (a funding condition from central government). We are working towards the scheme being completed sooner than that but this does depend on a range of factors.

What are the next steps?

We will send you a letter in the New Year with a funding breakdown and further information on the scheme design and guidelines. Wayne Henderson (Western Bay of Plenty District Council's 3 Waters Engineer) is your key contact for this project. Wayne's contact details are:

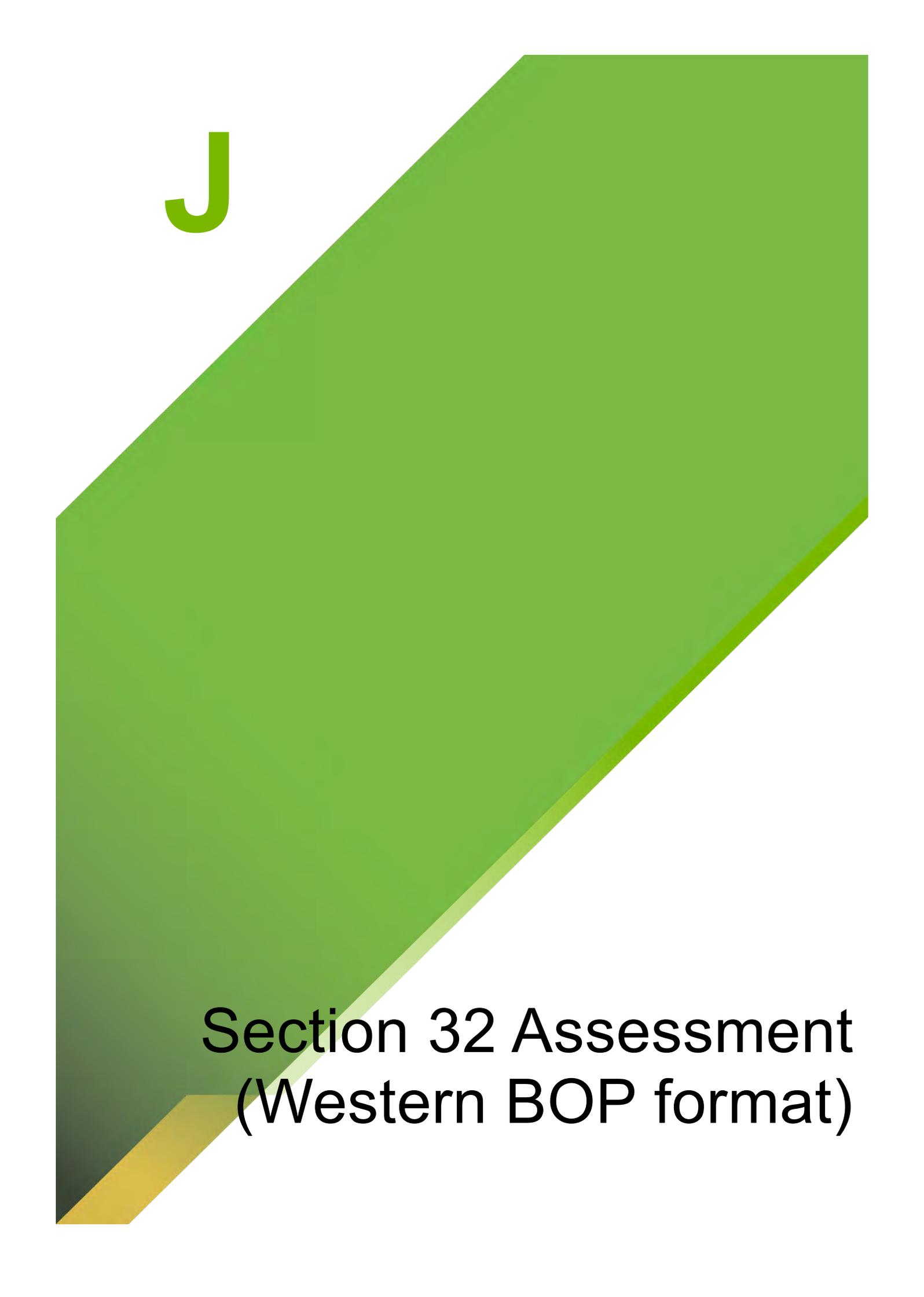
Mobile 027 226 3390

Email Wayne.Henderson@westernbay.govt.nz

13. Can I connect if I'm not part of the identified area?

Council has only approved connection of properties with existing wastewater issues. The area approved to be connected is outlined below. If your property sits outside this area and you wish to connect you will need to make a formal application to Council. The application should clearly outline why you wish to connect, estimated flows and why you are unable to manage your wastewater onsite. Your request will be put to Council's Committee of elected members who will provide final approval/refusal of your application.



A large green geometric shape, possibly a stylized letter 'J' or a decorative element, with a diagonal cut. The shape is primarily green, with a yellow triangle at the bottom left corner. The text 'Section 32 Assessment (Western BOP format)' is overlaid on the bottom right of the green area.

J

**Section 32 Assessment
(Western BOP format)**

Appendix J

Section 32 Assessment (Western BOP format)

Western Bay of Plenty District Council

Te Puna Springs Plan Change

Section 32 Report

1.0 Introduction

1.1 General Introduction

This Plan Change involves rezoning the subject site from part-Rural and part-Commercial, to Commercial. The subject site comprises approximately 5.76 hectares of land located on the northern side of State Highway 2 at Te Puna, bound in part by State Highway 2, Te Puna Road and the existing BP Service Station, Four Square and offices located off the slip lane off State Highway 2. The Plan Change involves rezoning the subject site solely to Commercial, in addition to creating a scheduled site within the Commercial Zone, with the inclusion of a proposed Structure Plan and site-specific provisions relating to other aspects including the community hall.

The commencement of the rezoning of the subject site has raised several issues that require addressing through changes to the District Plan.

Western Bay of Plenty District Council (“Council”) undertook a process of community engagement during August-November in 2018 which aimed to understand the community’s expectations for the future of the wider Te Puna commercial zone. A key output of the process was a Discussion Paper which acknowledged the value and local importance of the Te Puna Village and that the local community recognised a need to build on the provision of a hub for the community. In addition, there was a process undertaken with the Council and the key commercial landowners in early 2019 which looked in detail at traffic, planning, cultural and servicing for Te Puna Village.

2.0 Resource Management Act 1991

2.1 Section 32 – Assessment Methodology

Before a proposed plan change can be publicly notified, the Council is required under section 32 (“s.32”) of the Act to carry out an evaluation of alternatives, costs and benefits of the proposed review. With regard to the Council’s assessment of the proposed plan change s.32 requires the following:

1) *An evaluation report required under this Act must —*

(a) examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act; and

(b) examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by —

(i) identifying other reasonably practicable options for achieving the objectives; and

(ii) assessing the efficiency and effectiveness of the provisions in achieving the objectives; and

(iii) summarising the reasons for deciding on the provisions; and

(c) contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.

2) *An assessment under subsection (1)(b)(ii) must —*

(a) identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for —

(i) economic growth that are anticipated to be provided or reduced; and

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

(b) if practicable, quantify the benefits and costs referred to in paragraph (a); and

(c) assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.

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

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

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

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

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

4) If the proposal will impose a greater prohibition or restriction on an activity to which a national environmental standard applies than the existing prohibitions or restrictions in that standard, the evaluation report must examine whether the prohibition or restriction is justified in the circumstances of each region or district in which the prohibition or restriction would have effect.

2.2 Section 74

In accordance with Section 74(2A) of the Act, Council must take into account any relevant planning document recognised by an iwi authority lodged with Council. There is currently one document lodged with Council. This is the Pirirakau Hapū Management Plan (2017). This document has been taken into account during the review process.

3.0 Consultation

Consultation with the adjacent landowners and stakeholders has been ongoing. Since the consultation undertaken in the second half of 2018, two workshops have been held with key stakeholders in 2019. In addition, consultation on the specific changes to the District Plan and the proposed Structure Plan has been carried out with the adjacent landowners.

4.0 Issue 1 – The need to provide a regulatory framework for the efficient and comprehensive delivery of Te Puna Springs that provides certainty to enable effective and efficient implementation.

The objective of this change to the District Plan is to provide a regulatory framework for the efficient and comprehensive delivery of Te Puna Springs that provides certainty to enable effective and efficient implementation.

The key issue with the current regulatory framework is that the subject site is within two different zones: the Commercial Zone and the Rural Zone. The commercial zone is also tailored to mainstreet commercial areas rather than a village environment

4.1 Option 1 - Status Quo – Retain existing part-Rural and part-Commercial Zone

Benefits	<ul style="list-style-type: none"> • No loss of rurally zoned land • Limited traffic movements • Limited impact on existing infrastructure
Costs	<ul style="list-style-type: none"> • The site will continue to be utilised in an ad hoc manner, and not in keeping with the expectations of the Rural Zone • Does not deliver the village green, spring and other public amenities • Potential reverse sensitivity issues associated with permitted rural productive operations • The land will continue to be used inefficiently • Does not deliver local commercial employment opportunities for the Te Puna community • Access to commercial services centres is reliant on private vehicle use and travel to Bethlehem • Potential amenity effects from ad hoc development
Effectiveness / Efficiency	<ul style="list-style-type: none"> • The comprehensive development of Te Puna Springs would be constrained by the existing rules that would apply to the site from the two zones. • There is potential cost to the Council, applicants and the community associated with the risk of inappropriate provisions. • It creates the potential for the development to be delayed and constrained.
Risks of Acting / Not Acting if there is uncertain or insufficient information about the subject matter	<ul style="list-style-type: none"> • If there is inadequate provision for commercial development within the subject site, there is the possibility that the Applicant and the other existing businesses could be attracted away from Te Puna Village, which could have a significant effect on the potential growth of the local economy. • Continued Reliance on the State highway 2 network for travel to commercial centres in Tauranga

4.2 Option 2 – Development by Resource Consent

<p>Benefits</p>	<ul style="list-style-type: none"> • There are no environmental benefits identified in proceeding with resource consent(s). • A number of existing or new commercial activities can be relocated or established on site leading to greater employment opportunities for the Te Puna and wider areas.
<p>Costs</p>	<ul style="list-style-type: none"> • Ad hoc development with a lack of integrated planning • Loss of rurally zoned land. • Potential for reverse sensitivity effects to not be properly considered on a consent by consent basis. • There is a high risk of consents being declined by Council, and there may be difficulty in obtaining and retaining potential tenants during this period to ensure the economic viability. • There will be higher consent costs due to additional reporting required, and due to the nature of land use consents and conditions, if Council choose to grant the consents, over time the applicant may need to amend those to cater for future different tenants, building designs or uses – all of which incur additional costs. • Indirect environmental costs following from a successful resource consent application for similar land use activities in the Rural Zone. • Potential for resource consents to be non-notified or limited notified and avoid/limit the amount of consultation on the individual proposals.
<p>Effectiveness / Efficiency</p>	<ul style="list-style-type: none"> • A single resource consent application for a comprehensive development, or a series of resource consent applications would be required that would result in an inefficient use of resources. • The comprehensive development of Te Puna Springs would be constrained by the existing rules that would apply to the site from the two zones. • There is potential cost to the Council, applicants and the community associated with the risk of inappropriate provisions. • It creates the potential for the development to be delayed and constrained.

Risks of Acting / Not Acting if there is uncertain or insufficient information about the subject matter	<ul style="list-style-type: none"> • If there is inadequate provision for commercial development within the subject site, there is the possibility that the Applicant and the other existing businesses could be attracted away from Te Puna Village, which could have a significant effect on the potential growth of the local economy.
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4.3 Option 3 – Pursue rezoning through a District Plan Review

Benefits	<ul style="list-style-type: none"> • Better controls around the use of the land and management of environmental effects through site specific rules (e.g. visual and landscape controls). • The development of the site can ensure no reverse sensitivity effects on the existing horticultural sites adjacent. • It will provide a location (Hub) for activities which are currently occurring out of zone in rural locations surrounding the village and which can relocate to a commercial zone • A number of existing or new commercial activities can be relocated or established on site leading to greater employment opportunities for the Te Puna and wider areas. • Reduces reliance of the local community having to travel to commercial areas in Tauranga • Allows local residents to 'live, work and play' in accordance with SmartGrowth policies through the extension of the existing commercial zone. • Provides local employment opportunities • Facilitate the creation of a more active 'hub' for the community, particularly with the community hall and village green and the creation of the spring forming a part of the Structure Plan. • Engagement with Pirirakau to take into account their views and relationship with the site. • Benefits relating to additions such as providing access to the spring due to earlier consultation.
Costs	<ul style="list-style-type: none"> • Loss of rurally zoned land. • The next District Plan review is approximately 7 years away. Therefore, this alternative includes additional holding costs and lost opportunity costs of being unable to develop the land for at least 5 years (at the earliest).

	<ul style="list-style-type: none"> The economic costs involved in the loss of rural land are low. The rural land holding is uneconomic for the purposes of traditional rural use given the size of the allotment, the existing activities on site, and potential reverse sensitivity issues in the establishment of further horticulture uses on the site.
Effectiveness / Efficiency	<ul style="list-style-type: none"> It creates the potential for the development to be delayed and constrained.
Risks of Acting / Not Acting if there is uncertain or insufficient information about the subject matter	<ul style="list-style-type: none"> If there is inadequate provision for commercial development within the subject site, there is the possibility that the Applicant and the other existing businesses could be attracted away from Te Puna Village, which could have a significant effect on the potential growth of the local economy.

4.4 Option 4 – Rezone the site to Commercial Zone (with a scheduled site) through a Private Plan Change

Benefits	<ul style="list-style-type: none"> Better controls around the use of the land and management of environmental effects through site specific rules (e.g. visual and landscape controls). The development of the site can ensure no reverse sensitivity effects on the existing horticultural sites adjacent. The proposed plan change will provide economic opportunities to both the Applicant and future occupiers of the site through economic opportunity, and a more efficient use of the land without having to wait until the next District Plan review. The Applicant has the ability to manage the process and there are set timeframes. A number of existing or new commercial activities can be relocated or established on site leading to greater employment opportunities for the Te Puna and wider areas. Allows local residents to 'live, work and play' in accordance with SmartGrowth policies through the extension of the existing commercial zone. Facilitate the creation of a more active 'hub' for the community, particularly with the community hall and village green forming a part of the Structure Plan. Engagement with iwi carried out to take into account iwi views on rezoning.
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	<ul style="list-style-type: none"> • Benefits relating to additions such as naturalised spring due to earlier consultation.
Costs	<ul style="list-style-type: none"> • Loss of rurally zoned land. • The economic costs involved in the loss of rural land are low. The rural land holding is uneconomic for the purposes of traditional rural use given the size of the allotment and potential reverse sensitivity issues in the establishment of further horticulture uses on the site.
Effectiveness / Efficiency	<ul style="list-style-type: none"> • The amendments reduce uncertainty by providing allowance for comprehensive development of the Te Puna Springs site, whilst ensuring that effects are managed appropriately (including reverse sensitivity). • The scheduled site will reduce the need for resource consents and ensure that there is consolidated and coordinated development in Te Puna Springs (with improved layout and landscaping).
Risks of Acting / Not Acting if there is uncertain or insufficient information about the subject matter	<ul style="list-style-type: none"> • If there is inadequate provision for commercial development within the subject site, there is the possibility that the Applicant and the other existing businesses could be attracted away from Te Puna Village, which could have a significant effect on the potential growth of the local economy.

4.5 Preferred Option

The preferred option is:

Option 4 - Rezone the site to Commercial Zone (with a scheduled site) through a Private Plan Change.

4.6 Reasons

The environmental, social and economic benefits of establishing commercial development and other activities such as a community hall on the site outweigh the costs, and from the above evaluation it is considered most appropriate to adopt a scheduled site under the Commercial Zone to control and guide development of the site in accordance with a Structure Plan. In this way, the Plan Change Request seeks to complement and add to the District Plan's existing planning framework to ensure compatibility between land uses.

Rezoning of the land allows for further economic development of the Te Puna centre, further employment opportunities for residents within the area, a more efficient use of land than the zoning currently allows for, and the opportunity to provide landscape and visual controls to provide a high-quality environment.

The other options, being the Resource Consent process or waiting for the next District Plan review would likely deliver the same or similar outcomes, albeit with further risk with the Resource Consent option and the possibility that Council could

decline the application. However, both options are considered to be inferior in terms of efficiency of process, and do not provide the same certainty to landowners and other stakeholders. Furthermore, the Plan Change process provides the ability for the applicant to include specific landscape and visual controls.

It is not considered appropriate that the land remain partially subject to the restrictions of the current partial Rural Zone. Retaining the site's partial Rural zoning would not assist in meeting the Rural Zone's objectives, nor the Commercial Zone's objectives. The site is not and will not be used in accordance with the existing partial Rural zoning in the future due to a number of constraints, including but not limited to, land size which is uneconomic to be utilised for the purposes of traditional rural activities, and the inappropriate use of the site for residential purposes due to the proximity to established horticultural uses adjacent to the site.

In the interests of time and cost effectiveness, and certainty of outcome, relying on the resource consent process is not considered the most efficient way to achieve the purpose of the RMA. It is considered that the Commercial Zone in addition to the scheduled site provisions and associated Structure Plan included in the Plan Change Request are the most appropriate for achieving the objectives in relation to integrated management and form and function of the Te Puna Village area.

5.0 Recommended changes to the District Plan

Add new definitions, as follows:

"Prefabricated Building Manufacturing" means the manufacturing of prefabricated buildings, where the elements of a building are constructed onsite.

"Sensitive Activity(ies)" means activities which are sensitive to noise, dust, spray residue, odour which generate reverse sensitivity effects from nearby activities. This includes residential dwelling, accommodation facility, places of assembly, restaurants and other eating places, educational facilities and medical or scientific facilities.

Amend existing definition, as follows:

"Industry" means and includes manufacturing, processing, packaging or dismantling activities and engineering workshops (including panelbeaters and spray painters). Excluded from this definition is Prefabricated Building Manufacturing.

Add new Activity Performance Standard, as follows:

4C.5.3.2 Screening in Industrial and Commercial Zones

(h) Te Puna Springs

(i) Any subdivision or development of land within the zone shall be designed, approved and developed in general accordance with the Te Puna Springs Structure Plan and Landscape Cross Section in Appendix 7;

(ii) Landscape plans shall be prepared by a qualified landscape designer and approved by Council. The plan for the stormwater pond shall be prepared in consultation with Pirirakau.

Add new permitted activity rule, as follows:

Additional Permitted Activities (Te Puna Springs only)

(a) Rural Contractors Depot

- (b) **Offices (ancillary to activities occurring on site)**
- (c) **Prefabricated Building Manufacturing within Area B**
- (d) **Places of Assembly within Area C**
- (e) **Warehousing and Storage**

Add new non-complying activity rule, as follows:

Additional Non-Complying Activities (Te Puna Springs only)

- (a) **Sensitive activity(ies) located within Area A and B**

Amend / add to 19.4 Activity Performance Standards, as follows:

19.4.1 General

- (a) *Building height, setback, alignment and design*

(v) Te Puna Springs

The maximum building/structure height in the Te Puna Springs shall be 12.0m.

- (vi)** *All other areas including spot Commercial Zones*

The maximum height shall be limited to two storeys and 9m and no provision is made for additional non-habitable space above the 9m height limit;

- (vii)** *Any balustrade servicing a third floor (not in the Omokoroa Stage 2 Structure Plan Area) shall be either set back in accordance with Diagram 1 below or be 80% visually permeable.*

(viii) *Continuous retail frontage – Development in the Commercial Zone shall be constructed up to the road boundary except for vehicle access up to 6m wide per site, **with the exception of the Te Puna Springs**. Each building shall have clear windows on the ground floor that must cover at least 50% of the building's frontage to a main street and at least 25% for all other streets and public areas, such as walkways and public parking areas.*

- (ix)** *No car parking, other than underground parking, shall be located within 10m of any street boundary, **with the exception of Te Puna Springs**.*

Add to 19.7.4 Discretionary and Non-Complying Activities – Matters of Discretion and Assessment Criteria, as follows:

In considering an application for a Discretionary or Non-Complying Activity Council shall consider:

- (a) The extent of non-compliance with the Permitted Activity performance standards and the actual and potential effects on the environment.*
- (b) How well the development integrates with existing commercial development and its orientation to public space.*
- (c) How the development meets the design outcomes of adopted town centre plans and the Built Environment Strategy.*
- (d) Any national standards for urban design.*
- (e) What provision is made for pedestrian and vehicular access.*
- (f) The effect on the amenity values of adjoining residential and reserve land.*

(g) Consideration of the extent to which rural production activities will be adversely affected by the development, including any reverse sensitivity effects.

Add the Structure Plan to Appendix 7 as '**Section 13; Te Puna Springs**'.

A large green geometric shape, possibly a stylized letter 'K' or a decorative element, occupies the upper and middle portions of the page. It has a diagonal line running from the top left towards the bottom right. At the bottom left corner, there is a small yellow triangle. The text 'K' is positioned in the upper left area of the green shape.

K

**Discussion Paper: Te Puna
Village Commercial Area**

Appendix K

Discussion Paper: Te Puna Village Commercial Area



*Western Bay of Plenty
District Council*

Te Puna Village Commercial Area

Discussion Paper

November 2018

Produced by
Cheryl Steiner, Senior Policy Analyst (Consultant)



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1. Purpose

Council has received approaches from businesses and landowners exploring development options for land within (and adjacent to) the Te Puna Village commercial zone. These proposals often test the existing planning framework in terms of District Plan zones and infrastructure capacity.

The most recent discussion was a request to undertake a Private Plan Change to extend the commercial zone and rezone rural zoned land to light industrial on the land behind BP and Four Square (McIntyre land). Earlier this year Council also received correspondence from Zariba who own the block of commercially zoned land on the corner of SH2 and Te Puna Road, expressing ongoing concern about wastewater requirements and the impact this has on existing use and future development.

Council's response was to carry out a community engagement exercise to understand the Te Puna community aspirations, and issues and opportunities for the commercial zone. The outcome will then help to inform the next steps Council may decide to take to the future planning of this area.

This discussion paper outlines the process used to gather community feedback, the outcome of this feedback and options to address issues raised.

2. Scope

The focus is on the commercially zoned land at the intersection of SH2, Te Puna Road and Minden Road (see pink area on Figure 1). This area is commonly known as Te Puna Village.

The commercial zone is approximately 5.5 hectares in size.

For the majority of the commercial area the adjacent District Plan zone is rural, with the exception of the Post Harvest zone on the corner of Te Puna Road and Armstrong Road.



Figure 1: Te Puna Village – Commercial Zone

3. Community engagement process

Community engagement commenced in August 2018 and included a mix of targeted engagement with key stakeholders and general engagement to capture wider community feedback.

Targeted engagement was with:

- Pirirakau
- Te Puna Heartlands
- New Zealand Transport Agency (NZTA)
- Bay of Plenty Regional Council (BOPRC)
- Te Puna Business Network

General engagement was through two open days held at the Red Shed off Minden Road on Saturday 27 October from 9am – 12pm and Tuesday 30 October from 4pm to 7pm, and the Have Your Say online feedback form. The open days had around 40 people attending each one.

All usual Council communication channels were used to encourage the community to attend including letters to residents and ratepayers. Opportunities for feedback were either through post it notes at the open days, written feedback forms or online feedback forms.

Collateral provided information on why Council was doing this and an overview of the Te Puna commercial zone. We chose to keep it simple as we were keen to keep the focus on the community providing feedback without any potential influence on this feedback or pre-determined outcomes.

Four questions were asked:

1. How do you use or value the Te Puna Village commercial area?
2. What characteristics do you think are important to retain and why?
3. What do you see are the key issues with the site now and in the future?
4. What do you see are the key opportunities with the site now and in the future?

The majority of feedback received on the process was positive in that Council was taking the time to understand the wider community views of the commercial zone in Te Puna and doing this outside of a statutory process.

Opportunities for feedback closed on 9 November 2018. The community will be advised of the outcome of this discussion and any subsequent next steps.

4. Key considerations

Te Puna Community Plan

The Te Puna Community Plan was developed in 2017, updating the previous 2007 version. The Plan provides an insight into community aspirations for Te Puna and how these might be achieved. The Plan recognises that our commercial areas are extremely important for our resilience (food, services, and resources) but considers that commercial/retail activity should be limited:

- Te Puna is to be kept an essentially rural area by limiting industrial and commercial areas to current locations and focusing on local services.
- This involves recognising the existing commercial activity at Te Puna Village and Clarke Road and consolidating any future development at these locations to serve the local catchment.

It is recognised that Te Puna residents earn their living in a variety of ways, both within and outside of the area, and that there is room alongside farming and horticulture for commercial, retail and home-based businesses:

- Retain and monitor current District Plan controls on home-based businesses.
- Conduct a survey to accurately measure the scale and type of business enterprises in Te Puna.
- The Plan tests the concept and framework for identifying, maintaining and protecting the areas 'rural character' from a community perspective. Bethlehem is recognised as a larger commercial area (with a supermarket) that also plays an important role to the people and businesses of Te Puna.

The Plan outlines future opportunities for commercial activities in the area:

- Maximising opportunities from the Tauranga Northern Link to achieve the best outcomes for local businesses: support and encourage participation in consultation processes with transport agencies to achieve good outcomes for connections and amenity values.
- Preservation and interpretation of landmarks and places of significance, both ancient and modern, will help people recognise and identify Te Puna.

Relevant Council direction to date

In 2015 the Policy and Strategy Committee declined to proceed with a proposed plan change for Te Puna that would increase the commercial zone and include a light industrial zone on the Rex McIntyre land (behind the BP and Four Square).

In 2015 Zariba Holdings made a submission to the 2015-25 Long Term Plan requesting to work with Council to investigate the opportunity to connect the growing Te Puna commercial area and adjacent post-harvest zone to the wastewater pipeline. Zariba noted that the current situation is unsustainable and is restricting economic development. Council's response was that the Tauranga City Council (TCC) agreement for the pipeline was amended to only allow properties to connect to the scheme that are within the Te Puna residential zone and cannot comply with the BOPRC Onsite Effluent Treatment Plan. The Te Puna commercial zone did not meet these requirements (at the time) and therefore cannot connect.

In 2018 further correspondence between Zariba and Council discussed issues with effluent soakage and the potential this could have on halting further development. Zariba indicated strong demand for further amenities on the Zariba owned land. BOPRC correspondence with Zariba advised that the commercial area has now reached a point where it is no longer sustainable to treat effluent via ground soakage. The issues are difficult to resolve as there is little room to provide a land treatment area. Council response was that Councils position has not changed and opportunity to reticulate and connect to Omokoroa pipeline not an option in short to medium term due to capacity issues (and capacity to be picked up in Omokoroa as an urban growth area). Council suggested consideration of a community scheme with all commercial property owners contributing.

In 2018 a further proposal by Rex McIntyre to extend the commercial zoning over his land was presented to a Policy Committee workshop on 10 April 2018. The landowner was proposing to do this via a Private Plan Change. Council asked staff to produce a paper that discussed the options for the planning for the future of the village, the land around the SH2/Te Puna Road/Minden Road intersection. The outcome of the issues and options paper presented on 30 April 2018 was direction to undertake a community engagement exercise with the Te Puna community to understand their expectations for the future of the commercial zone, and appetite for expansion.

Known proposals in and adjacent to the commercial zone

Refer to Figure 2 for location of proposals.

	Owner/ Property	Proposal	Considerations	Status
1.	Te Puna Springs Estate (Rex McIntyre)	To develop a range of commercial and light industrial activities. Current land zone is rural and commercial.	Stormwater requirements. Adjacent landowner – horticulture activity and reverse sensitivity. Community hall location. Loss of commercial zoned land (compensated in terms of land value). Keen to explore the ability to achieve wider objectives with this development (eg open space and amenity).	On hold pending outcomes of this paper.

	Owner/ Property	Proposal	Considerations	Status
2.	Zariba (Dwayne Roper)	New commercial building near completion. Will have real estate office, physio and health services. ITM to move and Zariba want to redevelop this site into a mix of retail/medical/hospitality services (potentially). Land zone is commercial.	Regional Council have advised that they have concerns about wastewater disposal because of the intensity of development at the Village. High cost and practicality of providing on site wastewater solution.	Building consent granted for new building (near completion, along from Nourish) subject to Code Compliance Certificate being issued. No consent lodged to date for ITM site.
3.	Paul Williams	Convert existing homestead into 60 seat restaurant plus carparking. Land zone is rural.	Wastewater management. Liquor licence.	Resource consent application received.
4.	Paul Williams	Interested in commercial zone being extended to property boundaries to complete block on Minden Road side (currently rural) Potential development of workshops/storage/garage space in current rural zone.	Wastewater management.	No application lodged.
5.	Advanced Housing Systems (Paul Williams)	New internal fit out for Prime Explosives administration & sales office within the existing Te Puna Country Market Red Shed Building. Land zone is commercial.		Processing
6.	DMS	Proposed RSE workers accommodation complex, comprising of 3 portable buildings, one bedroom building and one relocated	Note DMS have invested approx. \$500k in on-site effluent treatment system utilising adjacent orchard	Processing

	Owner/ Property	Proposal	Considerations	Status
		building with associated decks. Land zone is Post Harvest.	land (near where accommodation is proposed).	
7.	NZTA	Development of community hall (to replace previous hall). Land zone is commercial/rural.	4500m ² property. Of this 680m ² is for sewer soakage field. 60 carparks, mostly in commercial zone but partly in rural zone. Land purchased from Rex McIntyre. Access from internal access road. This land will eventually be transferred into Council ownership.	Resource consent application received. BOPRC have requested that the application be put on hold under section 91 of the RMA until wastewater disposal has been confirmed as compliant with OSET Plan requirements, or a resource consent from BOPRC is obtained for the non-compliance.

Note development of Te Puna Kindergarten is underway next to the Red Shed off Minden Road. They are providing for onsite wastewater disposal and are located in the rural zone.

Through the engagement process, Four Square indicated that there was demand for them to expand their services and they have space to do this, however based on discussions they have had with other businesses, the potential cost involved in dealing with Council and with wastewater issues has put them off proceeding with this.

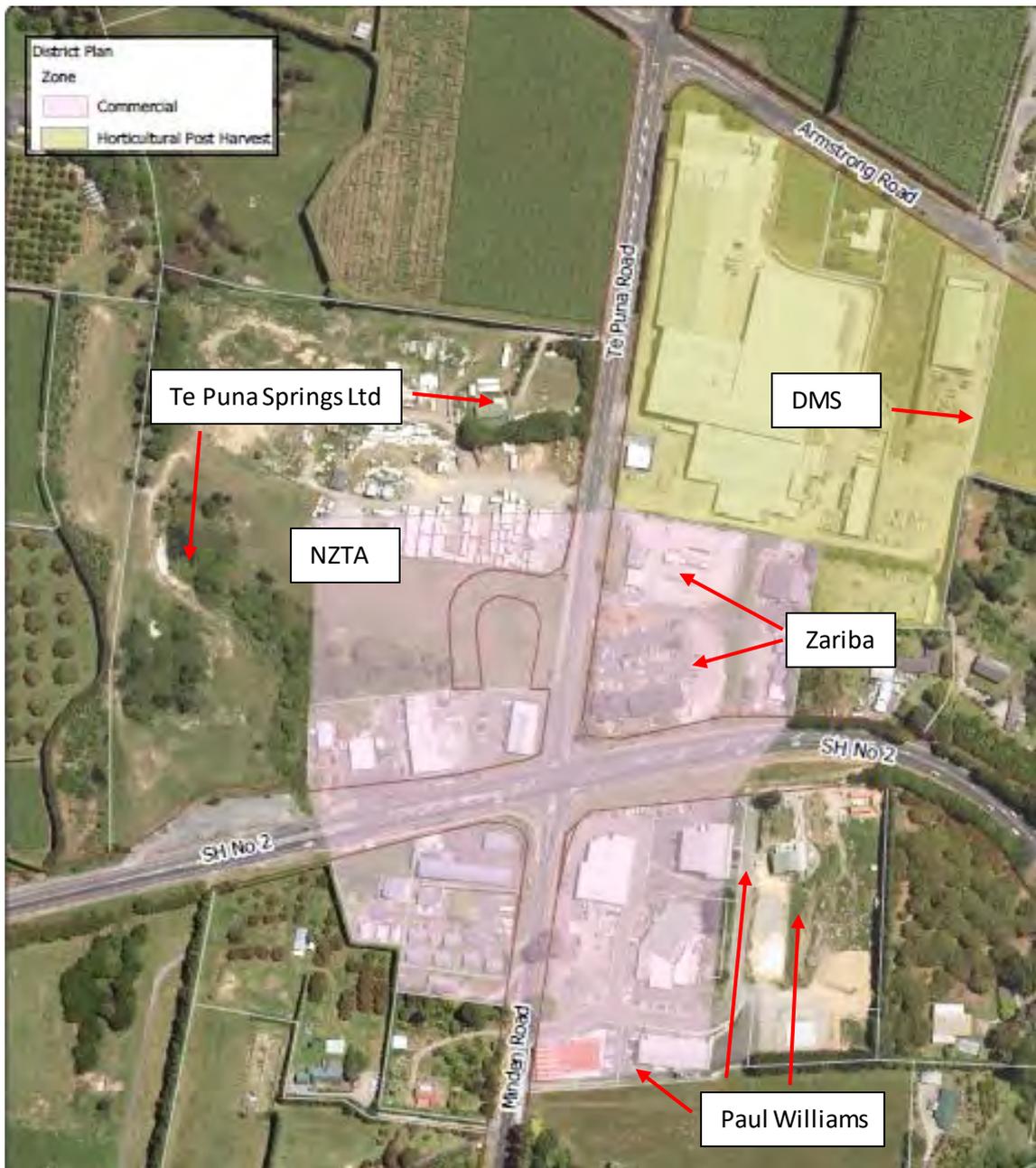


Figure 2: Development proposals and consents within the Te Puna Village

Council staff have recently talked to Newnham Park Innovation Centre (on Newnham Road) to discuss their future development plans and their desire to connect into the wastewater pipeline as this runs directly in front of their property.

Traffic modelling on the Te Puna Station Road/SH2 intersection has been recently undertaken for the industrial zoned land on Te Puna Station Road and has identified that there are no major issues with the SH2/Te Puna Station Road intersection, however minor traffic calming works are required that are being investigated by Council and will be expected to be funded from the developers.

Te Puna growth

The Draft Future Development Strategy raises the question as to whether Te Puna should be considered for urban development in the long term (20-30 years). If the conclusion was to consider such action, then detailed studies would be undertaken over the next three years to see if it would be feasible to urbanise the area, and how it might be achieved.

In 2013, the population of Te Puna (Te Puna and Minden Area Units) was 6,834 and projected to be 7,385 in 2018. This is estimated to increase to 8,093 by 2028 (an additional 708 people over the next ten years) with no further growth projected. This equates to 2,954 dwelling units in 2018 and 3,354 dwelling units by 2028.

The Minden Lifestyle zone (operative in 2012) provides opportunities for lifestyle living close to the City of Tauranga with good views over the Harbour and wider Bay of Plenty. This is envisaged as being a lifestyle location with 1730ha that will be developed over a period of up to 40 years. This growth is factored into the above projections.

Commercial zone

The commercial zone for Te Puna was inserted into the District Plan many years ago in recognition of the activities that existed or were planned at that time. The aim of commercial zones throughout the District is to provide a vibrant commercial environment that encourages social and cultural interaction in our communities. The rules are fairly permissive in that retail is retail so there is no consideration of the implications of different types of commercial activity (e.g. book shop vs a butcher).

For an area like Te Puna, there is no set formula used to determine how much commercial land is needed. It is a given that a community of this size should have access to a commercial centre to service the immediate catchment but how big that is and the types of services it provides is largely driven by land use zones, infrastructure capacity and the market response to community demand.

The current mix of services provided by approximately 30 businesses operating within the commercial zone can be categorised as follows:

Type	Businesses
Cafes and bars	Nourish, Te Puna Tavern and Minden Restaurant, Top Shot Bar
Retail food/liquor outlets	Te Puna Four Square, Te Puna Deli, Naked Meats Butchery, Te Puna Liquor Centre, Minden Munchies Lunch bar
Accommodation	Minden Backpackers, Accommodation Te Puna
Service providers	Farmlands, Waterforce, Te Puna Vets, BP Connect, Te Puna Motors
Education	Above and Beyond, Te Puna Kindergarten
Building construction companies	Federation Homes, Supermac Group (portable buildings, industrial construction and equipment hire), Skyline Buildings, Canam Construction, Advanced Housing Systems, ITM.
Real estate	Ray White, Professionals.

Retail (clothes and homeware)	Heaven and Home, Dorje Boutique
Design	Quarry Commons (co-working space and design)

Bethlehem Town Centre is approximately 4.5km from Te Puna Village, a 5-minute car journey depending on traffic! Bethlehem provides a larger commercial area and includes a supermarket, retail clothes and homeware, fast food, restaurants, cafes, and Kmart.

Clark Road Village (zoned rural) is 1km away and has a café (currently closed), accountancy, gallery and homeware, dog day-care and grooming.

Wastewater

Te Puna Village commercial zone is not currently serviced by Council's wastewater infrastructure. Council has indicated that no reticulation will be provided to this site. It is not currently identified as an urban growth area and is not within a BOPRC maintenance zone. Therefore, landowners need to manage their wastewater in accordance with the BOPRC Onsite Effluent Treatment Plan, or store wastewater for frequent collection by a contractor. On-site effluent treatment systems include septic tanks and associated soakage fields and advanced aerobic systems.

Within the Te Puna Village a number of wastewater issues have been identified due to failing systems and resultant issue of wastewater not being treated to the required standard and or properties experiencing wastewater overflow. BOPRC is aware of these issues and is currently undertaking an on-site effluent compliance programme through working with consent holders directly to ensure compliance. Depending on the outcome of these discussions, the next step will be enforcement through the issuing of abatement notices.

Any future development in the Te Puna Village needs to carefully consider requirements around on-site wastewater. Generally commercial development is not compatible with onsite wastewater disposal, as it needs approximately one third of the site to be set aside for a disposal area, especially with businesses that have high water usage that requires discharge into wastewater systems. Many commercial wastes need special treatment which can be expensive and the treatment systems require regular servicing.

BOPRC have requested that WBOPDC support their position to put on hold any further development proposals until these issues are resolved. Council recognises that the issues need to be resolved but rather than halting development, we refer all consents to BOPRC so they can assess compliance with the OSET rules before a new resource consent or building consent is granted.

BOPRC and Toi Te Ora have advocated to Council and some landowners that the area be reticulated with a further transfer pipeline and pumping station feeding into the existing Omokoroa wastewater rising main. Council has an agreement with TCC to take the wastewater from Omokoroa only and treat it at their wastewater treatment plant on Chapel Street. This agreement has been amended to allow the connection of properties in Te Puna West. However, this amendment only allows properties to connect to the scheme that:

- Are within the Te Puna West residential zone (in the current District Plan); and

- Cannot comply with the BOPRC OSET Plan.

Council has advised commercial landowners that have requested for this connection to occur, that the designed capacity of this pipeline precludes addition of other areas connecting to the pipeline as the focus is on servicing Omokoroa in the first instance as one of Council's four urban growth areas. The design of the wastewater system for Te Puna West, being a sealed system, meant that very little additional pipeline capacity was required to service this residential catchment. If the monitoring undertaken at Te Puna West shows that a similar system could be utilised for Omokoroa and this could result in capacity in the pipeline, the likely option is for Council to seek greater development density in Omokoroa, rather than connect additional developments. Figure 2 identifies the location of the pipeline. Council have advised Zariba that it would make sense for all the Te Puna Village property owners to explore a combined on site wastewater plant. The suggested approach would be to keep the solid material on the holding tank of individual businesses and treat the grey wastewater at the common land location (this is the approach at Ongare Point).

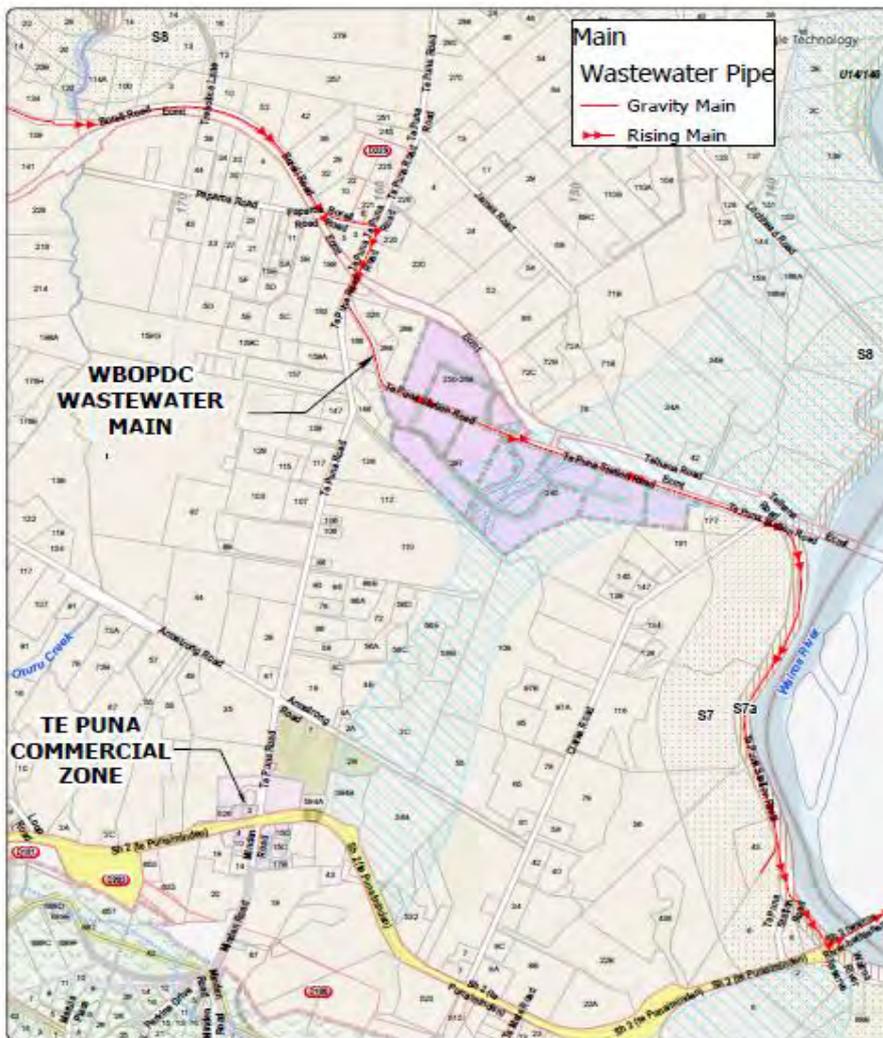


Figure 2: Location of Omokoroa – Tauranga wastewater pipe (red line)

Transportation

NZTA recently completed the Te Puna/Minden Road intersection upgrade with development of the roundabout. The intent of this was to improve safety at a high risk and increasingly busy intersection, and accommodate future traffic demands as the population grows. The project included purchase of Council land and removal of the hall, as well as purchase of part of the McIntyre land for an access road and now for the future location of the hall. A pedestrian access point was provided near where two bus stops are located (in front of the motel). A small park and ride facility (6-8 carparks) has been allowed for but this is not a formalised space for this purpose.

The roundabout was built to deal with a potential expansion of the commercial zone as well as further intensification of the DMS Post Harvest zone. However, this was done at a time when it was assumed that the Tauranga Northern Link would be commencing construction now which isn't the case.

SH2 in Te Puna has an estimated 20,000 – 22,000 vehicles per day travelling through this area, an increase of 3,000 vehicles per day since 2015. NZTA recently announced that they have confirmed the need for the Tauranga Northern Link and that this will be a two-lane route, one in each direction between Te Puna and Tauranga based on current alignment. Options for additional lanes on SH2 could include a range of uses such as public transport. NZTA will work with Councils to discuss the broader network approach in the context of government focus on safety and mode neutrality. These discussions will need to take into account landuse pattern (current and future) and the role and function of Councils local road network. The construction timing and form of this route is dependent on growth and funding priorities across the rest of the country so no timeframes are confirmed at this stage. A further update will be provided in December 2018.

SH2 safety improvements between Omokoroa and Te Puna include an upgrade of Omokoroa intersection, and working with partners to improve and encourage public transport use including allowing greater space for public transport and high occupancy vehicles.

A speed limit review of SH2 between Katikati and Bethlehem will be undertaken by NZTA in 2019. This will look at the potential lowering of the speed limit through Te Puna.

Local road traffic volumes are shown in Figure 3 below. This provides a very rough idea of the number of vehicles that utilise the commercial area however to gain a more accurate picture, data would need to be obtained from local businesses (eg DMS and Farmlands should be able to provide vehicle volume increases over time as harvest and stock turnover have increased respectively, and BP would have pump records).

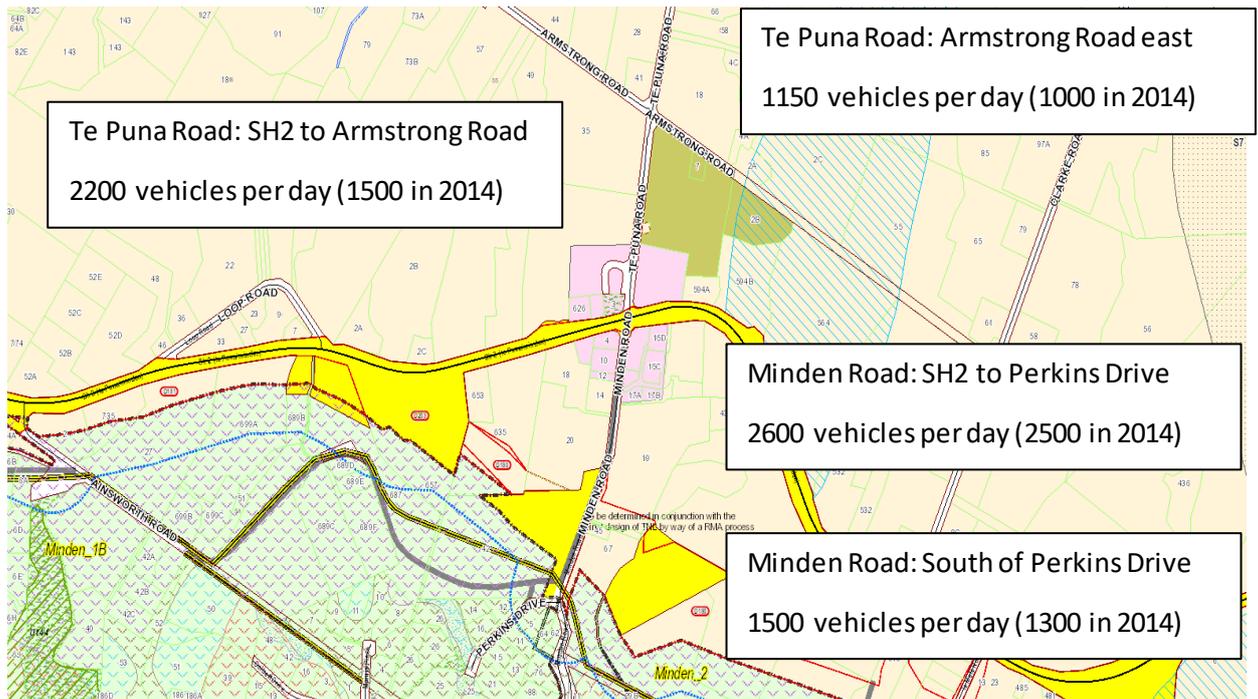


Figure 3: Local road traffic volumes

NZTA assumptions allow for 20% of Te Puna Road traffic using the new local around the BP area and 6% of traffic being heavy vehicles (based on sealing records). Te Puna Road has an 80km/hr speed to 100m south from Borell Road and Minden Road has a 50km/hr speed limit from SH2 to 80m north of Perkins Drive (then 80km/hr).

5. Community Engagement Outcomes

Approximately 80 people attended the two open days and 27 people provided online feedback through the Have Your Say website. Below is a summary of the key themes under each question that was asked. A more detailed list of comments made will also be made available.

How do you use or value the Te Puna Village commercial area?

Key themes:

- High utilisation by local community, especially Nourish, ITM, BP, Farmlands, Waterforce, Four Square, Te Puna Deli, Bostock Butchery, Te Puna Vets, Te Puna Liquor Centre.
- Value this area providing local services to local community, and not having to drive into Bethlehem and Tauranga for these services due to traffic and convenience.
- Mostly consider that the area provides for locals but also recognise some services such as Nourish and retail shops have become a destination (for city folk in particular).
- Provides a hub for the community, ability to connect, convenience of local services but also recognise Bethlehem is not far away for things like supermarket and more retail, food outlets.

What characteristics do you think are important to retain and why?

Key themes:

- Village feel important and needs to be retained (and incorporated more into the whole area and new developments). Many referenced Matakana Village (north of Auckland) as an example of what could be achieved. Concern that 'big industry' or large scale development would not be a good fit and would lose community, rural, small scale and village feel in the area.
- Easy and accessible and free carparking.
- New community centre will be great for this area and contribute to community hub and village atmosphere.
- Ensure Te Puna Community Plan is a key consideration of options for commercial zoning alterations, in particular reflecting our identity and maximising opportunities from the Tauranga Northern Link.
- Retain what we have but improve standard and appearance of buildings and surrounds – Nourish sets a minimum standard, make what we have attractive!
- Compact nature of existing commercial area needs to be retained.
- Retain green wedge and rural character of the area.
- Retain opportunity to be a service hub to surrounding community and meeting place for locals.

What do you see are the key issues with the site now and in the future?

Key themes:

Look and feel:

- The commercial area needs to be tidied up. General look and vibe of village is not very inviting due to random mix of retailers, building design, rubbish everywhere, and lack of landscaping.
- The commercial area is too separated and disjointed with ad hoc development undertaken to date. The whole area lacks cohesiveness and needs a better layout.
- Te Puna Station Rd needs tidying up and sediment control of all activity needs attention.

Growth:

- Limitations to growth as not much commercial land is available to do this and issues with consents and wastewater (from a local business). Demand is there to expand existing services and provide new services primarily to the local community.
- New businesses should be focused on providing services to the local community.
- Differing views as to whether the area needs to grow – Most are concerned that if it does grow it will lose its village appeal and impact on rural character. Some feel that there is demand for further commercial activities in this area and that this should occur within and adjacent to the existing zone (with better controls in place to manage how this occurs).
- No overall plan in place for the commercial area. Council needs to stop looking over Te Puna and start planning better for our community.

- Council needs to be more open about home based businesses and while some may not be considered a rural business, they can also provide support services to the rural businesses in the area.

Wastewater:

- Non performance of existing systems, high cost involved with onsite treatment and removal, limited land area available to deal with wastewater on site so no longer practical, impact on environment, limiting ability to grow and provide further services to the local community. Councils not working together to look at how this issue can be resolved.

Transport:

- Cars need to slow down and speed limit needs to be reduced on all roads in this area especially the SH, conflict between cars and trucks on the local roads, issues with access and egress points on Minden Road and internal access roads, need bus shelter, better bus services needed, consider park and ride. Significant increase in traffic creating issues on SH2 and local roads.
- Tauranga Northern Link will have an impact – various thoughts on this, some see it as an opportunity to reduce traffic on SH2 and make the area more appealing and easier and safer to get around. Concern about how the foot of the Minden will be affected.
- Needs to be more pedestrian friendly. SH2 is too busy and there is no safe pedestrian connectivity between the four corners, both on the SH and on the local roads.

Impact on surrounding areas:

- The local streams of Oturu, Hakao: how will they be affected and what is considered in planning to enhance natural character.
- Hard surface areas and run off from the commercial zone to adjacent streams. Design to ensure there are no unnecessary issues in the future as the existing zoned area continues to be developed.
- Impact of lighting (e.g. DMS), signage, parking on surrounding properties – encroachment of commercial activity into the broader community. Avoid potential for reverse sensitivity – particularly with horticulture/rural operations.

What do you see are the key opportunities with the site now and in the future?

Key themes:

Types of activities in the commercial zone:

- Retail shops and more cafes to create community hub vibe.
- Family friendly restaurant, compliment existing cafes, provide an evening venue.
- Fast food options (small scale).
- More convenience type providers would add to the area and help create more of a village atmosphere i.e. General Store, Medical Centre (pharmacy, doctors, dentist, physio), speciality shops
- Te Puna Markets to support local growers and local small businesses.

- Horticulture support hub. Packing sheds, transport vehicles, logistic centres, and support for Kiwifruit and Avocado industry.

Community Centre:

- A Community Centre that the community is proud of.
- Community events and activities at the new hall.
- Potential to consider a visitor/information centre as part of this development.
- The hall must have good amenity.
- Is the new community hall an opportunity to take a look at a more coordinated approach to addressing wastewater issues?

Pedestrian connectivity:

- Better pedestrian connectivity between all four corners of the commercial area and then extending up Te Puna Road and Minden Road. Sealed footpaths.
- Complete Te Puna Road footpath to the commercial zone.

Design:

- More control over the design and layout of developments, including landscaping requirements (see amenity comments below). This area is a gateway to Tauranga and needs to be attractive and inviting. Opportunity to reflect Te Puna's history through design standards.
- Further expand and create village theme. Opportunity to become the Matakana of Tauranga.
- Identify opportunities to provide cultural, art and history in new development (eg hall, roundabout) and existing places.

Wastewater:

- Develop a community sewer treatment facility. That would be better for the environment and enable efficient use of the zoned land.

Public spaces and amenity:

- Provision of a playground and public open greenspace. Could use this area for markets and community events and would add vibrancy to the area.
- More beautification - planting and gardens to reflect character of Te Puna – rural, heritage and culture.

Transport:

- Lowering the speed limit.
- Develop park and ride facilities.
- Improved bus services.
- More carparking if more development.
- Tauranga Northern Link creates an opportunity to become a destination – need attractive and inviting spaces and places, and the right mix of activities that could achieve this. Maximise opportunities from this development for the commercial area.

Bigger picture considerations:

- Develop a long term comprehensive and connected plan for the commercial area.
- A well planned structure plan is needed.
- Incorporate age-in-place affordable housing alongside places for those in need of a transitional home, to give stability, vitality and social dynamics to the area. Develop as a Special Housing Area. Benefit from easy access to community and commercial services. Need this type of lateral thinking.
- Need to focus on more than just the commercial zone – time to have a conversation on the relevance of the current rural zones to the community (relevant to Future Development Strategy discussion as well).
- Develop a secondary school close to commercial area.
- Create local employment opportunities.
- Greater opportunities for collaboration by Council – work with Pirakau, the local community and businesses.

6. Issues and Options

Based on the community engagement outcomes, five key issues have been identified:

1. Wastewater
2. Transport
3. Commercial zone
4. Amenity
5. Bigger picture

For each issue, a summary of the community feedback, a brief explanation of the current situation and high-level options for discussion are provided.

Further detail on the options will be provided once we have an idea of what elected members would like to consider further as it is likely that technical information and a more comprehensive analysis will be required to inform future decision-making.

Issue 1: Wastewater

Community feedback summary

- Recognise the non-performance of existing wastewater systems and impact on the environment, high cost of onsite treatment and removal, limited land area available to deal with wastewater on site, and the limitations this all has on the ability to grow business in this area, despite there being demand to do so.
- An option identified in the feedback was to develop a community waste water treatment facility. This would be better for the environment and enable efficient use of the zoned land.

Current situation

Te Puna Village commercial zone is not currently serviced by Council's wastewater infrastructure. Council has stated that no reticulation will be provided to this site. It is not currently identified as an urban growth area and is not within a BOPRC maintenance zone. Therefore, landowners need to manage their wastewater in accordance with the BOPRC Onsite Effluent Treatment Plan.

Within the Te Puna Village a number of wastewater issues have been identified due to failing systems and resultant issue of wastewater not being treated to the required standard and or properties experiencing wastewater overflow. Generally commercial development is not compatible with onsite wastewater disposal, as it needs approximately one third of the site to be set aside for a disposal area, especially with businesses that have high water usage that requires discharge into wastewater systems.

Options for discussion and consideration

Option		Pros	Cons
1A	<p><u>Status quo</u></p> <p>BOPRC to proceed with enforcement action for current wastewater issues. Council to ensure all consents in or adjacent to the commercial zone are provided to BOPRC to assess compliance with the OSET Plan and ensure the rules are adhered to.</p>	<p>The wastewater issues are current and need to be resolved in the short term to prevent any potential environmental impact.</p>	<p>Impact on business operations in the area – may force some to close down and high costs likely to remedy existing situation.</p>
1B	<p><u>Investigation into issues/options for a community wastewater scheme for the Te Puna commercial zone</u></p> <p>Work with BOPRC and business/landowners to explore options for a community wastewater scheme including system and land requirements, costing, and funding options.</p>	<p>Potential to provide a long term solution to the wastewater issue. Some landowners have supported this as a potential approach and making a financial contribution to this.</p>	<p>DMS has recently significantly invested in managing their wastewater on site. There will be significant costs to the businesses.</p>
1C	<p><u>Investigation into issues/options for connecting the Te Puna commercial zone to the Omokoroa wastewater pipeline</u></p> <p>Reconsider current Council stance to not connect Te Puna commercial zone to</p>	<p>Potential to provide a long term solution to the wastewater issue, and contribute to costs of pipeline.</p>	<p>Impact on capacity to provide for Omokoroa development.</p> <p>Precedence likely to trigger further requests in Te Puna to connect</p>

Option		Pros	Cons
	<p>the Omokoroa – Tauranga wastewater pipeline.</p> <p>Analysis and monitoring of Te Puna West and Omokoroa to understand capacity is underway which will provide a basis for a discussion on where any additional capacity could be provided and how.</p>		<p>to reticulated system.</p> <p>Not desirous to renegotiate contractual arrangements with TCC and recognise TCC need to consider future of Chapel Street.</p>
1D	<p><u>Investigate options for strengthening District Plan rules</u></p> <p>Explore options for how District Plan rules may better manage wastewater in this commercial zone in the future.</p>	<p>Could have more specific requirements for different types of retail activity (if they generate more wastewater).</p>	<p>The wastewater issues are current and need to be resolved in the short term to prevent any potential environmental impact.</p>

Relevant to all options is that if a decision is made through the Future Development Strategy to explore Te Puna urbanisation, then wastewater infrastructure capacity will need to be considered over the next three years. However this is likely to be a long term option (20+ years) and will not solve existing problems.

Issue 2: Transport

Community feedback summary

- There are issues with speed limits on SH2, access/egress from the commercial area onto Minden Road, and conflict between vehicles and trucks on Te Puna Road.
- Need improved pedestrian connectivity between and within all four corners of the commercial area and then extending up Te Puna Road and Minden Road. This is not safe and does not encourage walking and cycling activity.
- Need bus shelters.
- Need park and ride facilities.
- Tauranga Northern Link should have a positive impact in terms of reducing traffic volumes and providing a safer pedestrian environment. Some concerns about lack of profile and loss of business.

Current situation

A speed limit review of SH2 between Katikati and Bethlehem is intended to be undertaken by NZTA in 2019. This will look at the potential lowering of the speed limit through Te Puna. The Tauranga Northern Link construction timeframes have yet to be confirmed.

The existing gravel walkway from Armstrong Road to the commercial area will be replaced with a concrete path in 2019/20 to connect to the concrete path that extends east of Armstrong Road along Te Puna Road. This is currently being costed by transport staff. There are no current plans by NZTA to improve pedestrian connectivity across SH2 or provide bus shelters or park and ride facilities.

The Omokoroa to Tauranga cycleway will go along Borell Road (from Snodgrass Road), connect into Te Puna Road and then head along Lochhead Road. Along with recreational and tourism opportunities this cycleway will provide an alternative, safer transport route to SH2. The Te Puna Village could become a popular destination and stop off point for users of the new cycleway.

Options for discussion

Council could choose one or more options.

Option		Pros	Cons
2A	<p><u>Status Quo</u></p> <p>No change.</p>		Does not respond to a key issue raised by the Te Puna community.
2B	<p><u>NZTA/BOPRC discussions regarding pedestrian access within and around the commercial zone.</u></p> <p>Discuss with NZTA/BOPRC options for improving pedestrian access across SH2, bus routes, and park and ride facilities. Determine viability of improvements how this relates to decisions on the Tauranga Northern Link timing.</p>	<p>Community plan supports improved and safe pedestrian connectivity across SH2 and across local roads (council).</p> <p>District Plan Lifestyle zone - consideration will be given to vehicle, walking and cycling connectivity between the Minden and the Te Puna peninsula to retain the integrated character of the community.</p> <p>Could be part of a package of improvements considered as part of Tauranga Northern Link project.</p>	Tauranga Northern Link timeframes not determined which may result in any potential improvements being delayed.
2C	<p><u>Council prioritisation of wider walkway development in Te Puna</u></p> <p>Include consideration of further development of walkways on Te Puna Road and Minden Road to connect people to the commercial</p>	<p>Community plan supports improved and safe pedestrian connectivity across SH2 and across local roads (council).</p> <p>Lifestyle zone - consideration will be given to vehicle, walking</p>	Will need to be assessed against other work programme commitments.

Option		Pros	Cons
	area. Te Puna Road is in the prioritisation of the annual work programme for 2019/2020. Minden Road is not in the programme.	and cycling connectivity between the Minden and the Te Puna peninsula to retain the integrated character of the community.	

Issue 3: Commercial Zone

- Community feedback summary
- High utilisation by local community, especially of Nourish, ITM, BP, Farmlands, Waterforce, Four Square, Te Puna Deli, Bostock Butchery, Te Puna Vets, Te Puna Liquor Centre.
- Value this area providing local services to local community, and not having to drive into Bethlehem and Tauranga for these services due to traffic and convenience.
- Village feel is important and needs to be retained (and incorporated more into the whole area and new developments). Many referenced Matakana Village (north of Auckland) as an example of what could be achieved. Concern that 'big industry' or large scale development would not be a good fit and would lose community, rural, small scale and village feel in the area.
- Limitations to growth as not much commercial land is available to do this and issues with consents and wastewater (from a local business). Demand is there to expand existing services and provide new services primarily to the local community. Need to deal with existing issues first.
- New businesses should be focused on providing services to the local community.
- Differing views as to whether the area needs to grow – Most are concerned that if it does grow it will lose its village appeal and impact on rural character. Some feel that there is demand for further commercial activities in this area and that this should occur within and adjacent to the existing zone (with better controls in place to manage how this occurs). Industrial to go to Te Puna Station Road.
- Retail shops and more cafes to create community hub vibe.
- Family friendly restaurant, compliment existing cafes, provide an evening venue.
- More convenience type providers would add to the area and help create more of a village atmosphere i.e. General Store, Medical Centre (pharmacy, doctors, dentist, physio), speciality shops
- Te Puna Markets to support local growers and local small businesses.
- Need to ensure sufficient carparking if it does expand.
- New community centre will be great for this area and contribute to community hub and village atmosphere.
- Ensure Te Puna Community Plan is a key consideration of options for commercial zoning alterations, in particular reflecting our identity and maximising opportunities from the Tauranga Northern Link.
- Manage impacts of commercial (and Post Harvest Zone) activities on surrounding areas e.g., light building design, environmental impacts, amenity, traffic etc.

Current situation

Supermac plans to extend commercial zone and provide for light industrial activity. The landowner has indicated they want to work together to look at how wider objectives could be achieved through this development (but recognise extent of compromise or trade off in this).

Zariba have plans to redevelop the ITM site once they vacate the premises (as the lease has expired).

Paul Williams is keen to look at extending commercial zone on Minden Road side to complete block (to edge of bank).

Other than that, we are not aware of any other proposals to extend the commercial zone.

Options for discussion

The ability to commence these options is largely dependent on the outcome of Issue 1: Wastewater. Council could choose one or more options.

Option	Pros	Cons
3A <u>Status quo</u> No further work done to explore options for the potential extension of the commercial zone at Te Puna Village.	Concentres activity within existing commercial zone.	Landowner/developers wanting to expand their activities.
3B <u>Explore options for the potential extension of commercial zone on McIntyre property.</u> Look at options for achieving wider objectives for the site (identified by the community through this process). Consider adjacent landowner issues with any potential expansion. Consider the type of activities that might be accommodated in an expansion. Consider outcome of Issue 4. Previous plans have indicated the need for light industrial as well as commercial.	May help achieve wider objectives for the site, including better layout and landscaping. Assists landowner/developer to realise their objectives and investment. Potential to provide local employment opportunities and more local services to the local community.	Impacts on adjacent landowners and rural character.
3C <u>Explore options for the potential extension of commercial zone on Paul Williams's property (and to follow property boundaries).</u>	May help achieve wider objectives for the site.	Impacts on adjacent landowners and rural character.

Option	Pros	Cons
<p>Look at options for achieving wider objectives for the site (identified by the community through this process). Consider adjacent landowner issues with any potential expansion. Consider the type of activities that might be accommodated in an expansion. Consider outcome of Issue 4.</p>	<p>Assists landowner/developer to realise their objectives and investment. Potential to provide local employment opportunities and more local services to the local community.</p>	

Issue 4: Amenity

Community feedback summary

- The commercial area needs to be tidied up. General look and vibe of village is not very inviting due to random mix of retailers, building design, rubbish everywhere, and lack of landscaping.
- More control over the design and layout of developments, including landscaping. This area is a gateway to Tauranga and Te Puna and needs to be attractive and inviting. Opportunity to reflect Te Puna's history and rural character through design standards.
- Further expand and create village theme. Opportunity to become the Matakana of Tauranga.
- Identify opportunities to provide cultural, art and history in the area.
- Provision of a playground and public open greenspace. Could use this area for markets and community events and would add vibrancy to the area.

Current situation

Only design and landscaping or amenity controls are through District Plan objectives, policies and rules.

Opportunity for new hall landscaping to add amenity and incorporate identity elements.

The closest playground is at Te Puna School.

Options for discussion

Council could choose one or more options.

Option	Pros	Cons
<p>4A <u>Status quo</u> No change to current approach. Not a funding or resourcing priority for Council at this time.</p>		<p>Does not respond to a key issue raised by the Te Puna community.</p>

Option		Pros	Cons
4B	<p><u>Public open space</u></p> <p>Provide as part of hall development or work with landowners to tidy up vacant space or consider use of rural land or consider in any expansion/development. Consider playground if safe and appropriate location for this.</p>	Meets local/visitors needs if integrated with retail/café activities	Cost to establish and to maintain
4C	<p><u>Facilitate community project to incorporate/promote village theme and art, heritage, cultural features into commercial zone</u></p> <p>Work with the community and landowners/businesses to come up with a plan for how this can be realised including consideration of design elements and landscaping, and explore options for funding implementation of this.</p>	Aligns with community plan and community feedback through this process.	Costs of process and implementation.
4D	<p><u>Investigate options for strengthening District Plan rules</u></p> <p>Look at how design/landscaping objectives/policies/rules can be strengthened to achieve improved outcomes for commercial zones such as Te Puna.</p>	Aligns with community plan and community feedback through this process.	Only applies to new activities – cannot be retrospective to existing activities

Issue 5: Bigger picture

Community feedback summary

- Te Puna Community Plan focus on green wedge and protecting rural character. Pirakau do not want more residential development in Te Puna.
- Comprehensive approach through tools such as a structure plan. The commercial area is too separated and disjointed with ad hoc development undertaken to date. The whole area lacks cohesiveness and needs a better layout.
- Consider opportunity to provide housing and social services around the commercial zone – think outside the square.

Current situation

District Plan objectives/policies/rules aim to protect productive land and rural amenity.

The Draft Future Development Strategy raises the question as to whether Te Puna should be considered for urban development in the long term (20-30 years). If the conclusion was to consider such action, then detailed studies would be undertaken over the next three years to see if it would be feasible to urbanise the area, and how it might be achieved. Consideration of any further housing activity in Te Puna (including a potential Special Housing Area around the commercial zone) needs to be a part of the Future Development Strategy process.

No structure plan in place for the Te Puna commercial area.

Options for discussion

Council could choose one or more options.

Option		Pros	Cons
5A	<p><u>Status quo</u></p> <p>No action taken to specifically respond to these issues.</p>		Does not respond to a key issue raised by the Te Puna community.
5B	<p><u>Structure Plan</u></p> <p>Develop a structure plan for the Te Puna commercial zone (and potential adjacent land to consider future development). Consider how all key issues raised in this paper could be responded to through the structure plan process. Community engagement essential part of the process.</p>	Provides a comprehensive approach to future development of the Te Puna commercial zone.	Significant resource required to undertake this process. This is not currently prioritised in Councils work programme. Question how much of the current situation can be changed/improved.



NZTA Feedback

Appendix L

NZTA Feedback

04 March 2020

Ann Fosberry
Aurecon Ltd
Via email – Ann.Fosberry@aurecongroup.com

Dear Ann

NZTA FEEDBACK – TE PUNA PLAN CHANGE

Thank you for engaging with the Waka Kotahi New Zealand Transport Agency (**Transport Agency**) regarding the proposed 'Te Puna Springs' Plan Change. It is proposed to rezone approximately 5.93 hectares of land in Te Puna from the current rural and commercial zoning to a new structure-planned commercial zone. The proposal has been assessed based the documents comprising the Te Puna Springs Private Plan Change Application, Reference: 251282, Revision 0, Dated 2019-11-06.

Based on the information provided, the Transport Agency does not have any concerns regarding the proposed plan change.

This is the Transport Agency's current view of the proposal. Please note that if the plan change is put on hold for a substantial period of time, the Transport Agency may need to review its comments in light of any traffic, safety or policy changes. The Transport Agency also reserves the right to make a submission through the plan change process.

Please call me on (07) 928 7918 or email rodney.albertyn@nzta.govt.nz should you wish to discuss any aspect of this letter in more detail.

Yours sincerely



Rodney Albertyn
Senior Planner, NZTA

M

**Workshop Meeting
Minutes**

Appendix M

Workshop Meeting Minutes

Te Puna Commercial Zone: Outline Development Plan workshop

31 May 2019

Attendees

Pirirakau	WBOPDC	Boffa Miskell	Property Owners	Aurecon Group
Tame Kuka Julie Shepherd	Phillip Martelli Coral-Lee Ertel Cheryl Steiner	Morné Hugo Anna Li	Rex McIntyre (Supermac Group) Annaliese Michel (Supermac Group) Paul Williams Dwayne Roper (Zariba)	Aaron Collier

1. Karakia
2. Introductions
3. Background

- Developer proposals
- Community engagement undertaken in 2018
- Five key issues identified – wastewater, transport, commercial zone, amenity, bigger picture and agreement to undertake further work
- History of the area in terms of zoning and growth pressures occurring in this area.
- Purpose of outline development plan.

4. Issues for consideration

Accessibility

Zariba site access is good.

BP Corner: SH2 egress not ideal. Well used but question as to whether it is needed. Shops benefit from this though as traffic can easily access from SH2. The internal access is narrow near the forecourt of the petrol station. Unlikely to be able to change this however need to consider what options are available for improving the internal access. Te Puna Road access is good.

Minden Rd access not great with access to Motel and Farmlands site. Potential to consider small roundabout to improve this. Trucks creating issues within Farmlands site and onto and from Minden Rd. Consider a run over round about for access to Motel and Farmlands. Service lane at the rear is a good truck exit location but not wide enough.

Proliferation of signage along the frontage – could consider community board signage eg Omokoroa.

Park and ride – seem to be used for this purpose and then people catch the bus, although issues with the bus services operating from this area.

Busses come in to internal road access. Bus shelter taken away on western side and needs to be reinstated. Need bus shelters on both sides. The community require a higher level of service for bus

services than what is currently provided and there is demand for this. Stop on internal road to pick up but note bus stop on main road on eastern side. Local bus services to take people into town. And need to connect into Te Puna and loop around to pick up people.

Action: Cheryl to follow up with BOPRC re bus service provision for Te Puna.

Stormwater and wastewater

Stormwater – spring [under road along from the workshop](#), hall have to deal with stormwater onsite, plans to have stormwater running through to pond. Road to help deal with surface run off.

Wastewater – why is hall providing on site treatment.

Action: Cheryl to check hall consent process and approval.

Open space and amenities

Public toilets needed in this area.

Village green as part of the hall. Hall greenspace connection to stormwater reserve. Planted reserve. Potential to consider fencing.

Potential to consider open space options – in front of hall site and linking to Te Puna Road. Also consider ability to deal with the busses at the same time. Options for open space to connect to hall to connect to stormwater reserve and linkage through. Opportunity to consider use for market days. Look at range of options for the open space and opportunity for smaller business opening up onto the space.

Opportunity for Pirirakau to have a space with information on history and culture.

Streams and greenspace – important in this area. Concern about the springs and protection of them, Te Puna [is means](#) the spring. Potential to considering bring the [spring](#) water up and creating a water feature and drinking fountain, instead of piping [to waste](#). Spring is 3- 4m below ground. Fountain opportunity. Build identity from the spring. That is what Te Puna stands for. Using the name, history and natural resources. Water park for children – interactive.

Action: Coral-Lee to arrange to test water quality of the spring.

Memorial to soldiers and bring this out into the open as part of the park development. Was always [behind-in the back of](#) the old hall. Hall committee has this information. History of Te Puna area reflected in development. Entranceways, roundabout and open space to reflect culture and history of the area.

Te Puna has own identity and own community, opportunity to incorporate this through signage and design elements along SH2. Pirirakau would like Po on the roundabout – want to embed this into the community and throughout rather than just on marae. NZTA ok for this to happen but do not have funds for this to occur. Welcome signage for Te Puna village – Pirirakau rohe markers. Remember this community as they drive past or interest to stop and visit.

Need to avoid any sensitive activities along the Muggridge property. Due to horticultural activities and spray drift – reverse sensitivity.

Proliferation of signage along Minden Rd/SH2 corner.

Wide berm along Minden Road – opportunity to do some landscaping. Bring cohesiveness across the four corners.

Motel site – ability to get better connection and close off separate road access – one access point on to [new](#) roundabout? Opportunity for rationalisation?

SH2 verge along fence line is an acoustic fence. Hard edge on [other road](#) side and ability to soften this – entranceway feature. Te Puke entrance as an example. Fence line along motel. Ability to improve the look and feel of this such as murals. Has the potential to use local artists to achieve this. Or landscaping treatments

Minden Rd site – Landscape plan in place for Paul Williams site. Plan to develop as a boutique craft area with old fashioned country style buildings. Not looking at high site coverage with buildings due to stormwater. Opportunity for improving internal amenity. Pedestrian connections included in landscape plan. Area around back of pub needs to be improved. Puriri trees - historical around homesteads.

Action: Paul Williams to provide landscape plan to Morne.

Zariba – old Oregon site, building along the back and carparking along the front, stormwater area. Also looking at area on top next to childcare centre in the future. Unable to undertake development without a new wastewater system. Pumping out wastewater tank at the moment. Opportunity to get connection through from development to a potential open space across Te Puna Road.

Action: Discuss with Ann Fosbury potential for [transport-refuge road treatment](#) to slow traffic down and create a slow traffic area on Te Puna Road. [Currently a wide area and fast traffic](#). Local road – look at how this can be incorporated into existing programmes.

Wastewater

Two key options – community wastewater scheme, high level design and cost estimate in place – 5ha of land for a treatment plant disposal field. Potential to scale back to 3ha if DMS were not included. Cost estimates in place of \$5m inclusive of \$1m for land. NZTA land as a potential for this?

Connection into transfer pipeline – depends on outcome of Omokoroa structure plan review – technical workshop at end of June re logistics and then back to council for direction.

Land options – has to be flat land, Ongare point system likely to be used.

24 June internal workshop to look at pros and cons, then Council discussion.

Potential efficiencies to use now and then have a longer-term plan when that capacity is required in Omokoroa? 20 years? Agreement with TCC and limitations of this. Cost re pipe estimate \$700k plus individual pumps \$20k for businesses. Pipeline connection estimated around \$4m but seems high.

All developments on hold until wastewater sorted.

Action: Assess TCC agreement for pipeline to consider opportunity for short/medium/long term options.

Action: Look at how we align WW and plan change discussions as interlinked.

Agreement between WBOPDC and Pirirakau to consider connecting in to the pipeline.

Recognise significant issue of commercial zone and unlikely to be opposed to connecting in to resolve this issue but issue of precedent that this creates.

Steps – cost and funding, construction not a big job but design, tender, 12-24 months to complete. Consultative process. As an interim approach to use capacity available but then have a longer term approach for when capacity is needed in Omokoroa. Potential SG approach to resolving issues – TCC, WBOPDC and BOPRC.

Action: Coral-Lee to send calculations re flows and peer review of PDP report to Aurecon. Test against plans for the type of use that would occur and test against PDP assumptions.

Issue with plan change and regional council issues – run both discussions parallel as plan change becomes a catalyst for sorting wastewater issues.

Demand there for businesses that tend to be low water uses, lots of enquiries for this.

Four Square want to expand.

Employment of local young people is an important consideration for future development along with business opportunities for local community – provision of buildings for them to be based there.

Stormwater issues

Minden road and motel have issues.

Stormwater drains through to Supermac site. Sized to pick up everything from the site and everything that comes to the site at present.

Pedestrian connectivity

Check if pedestrian refuge SH2 is adequate.

Minden Road path to connect to lookout.

Signage re pedestrian connections.

Summary of actions

Action: Cheryl to follow up with BOPRC re bus service provision for Te Puna.

Action: Cheryl to check hall consent process and approval.

Action: Coral-Lee to arrange to test water quality of the spring.

Action: Paul Williams to provide landscape plan to Morne.

Action: Morne to discuss with Ann Fosbury potential for transport refuge to slow traffic down and create a slow traffic area on Te Puna Road. Local road – look at how this can be incorporated into existing programmes.

Action: Coral-Lee to assess TCC agreement for pipeline to consider opportunity for short/medium/long term options.

Action: Phillip and Aaron to look at how we align WW and plan change discussions as interlinked.

Action: Coral-Lee to send calculations re flows and peer review of PDP report to Aurecon. Test against plans for the type of use that would occur and test against PDP assumptions.

Action: Morne - Draft drawings – discuss with Ann Fosbury

Workshop – first draft of ODP. Then start to develop an action plan for implementation.

5. Closing of meeting

Next meeting Monday 17th June: 8am – 10.30am, 23 Te Puna Road.

Te Puna Outline Development Plan

Workshop Two - 17 June 2019

Attendance:

- Phillip Martelli
- Aaron Collier
- Dwayne Roper
- Rex McIntyre
- Sharon McIntyre
- Cheryl Steiner
- Anna Li
- Morne Hugo
- Ann Fosbury

Workshop Purpose – work through draft outline development plan.

Amenity considerations

- Sense of arrival
- Low planting on berms
- Landscaping in some areas on SH2.
- Amenity landscaping on roundabout
- Po whenua on roundabout
- Some form of tree structure and planting diagram – clear stems and open sightlines, might be 1 or 2 species
- Incorporates landscape plan information from Paul Williams

Open space and pedestrian connections

Piping of spring through to open space area and tell story.

Connection to hall and open space and then connection through to stormwater reserves

Only opportunity for pedestrian connection is on southern end of SH2 – nice to have as cost will be high, should show this as future aspiration and could be negotiation in future as part of the long term plan for the commercial area. Pedestrian bridge could link on both sides – Roper and Williams.

Need to consider impact of highway as could slow down traffic – potential cul de sac in future Loop Rd.

Landscaping needs to go in eastern area to screen corner activities as this is likely to be the subject of plan change – screening belt in addition to amenity planting. Along stormwater reserve as well. Need to include list of species in this information.

Need to speak to NZTA about landscaping etc and this plan. Landscaping - Supports their speed management plan for this and 60km/hr likely to be permanent and continue along here. Also SH2 expectations and slowing of traffic.

Consider how open space and council reserve space in this next to hall will work. Need to check how hall parking will be managed.

Need rule in plan for final detailed landscape plan and how this is integrated.

Carparking

Check consent for hall – 60 on site for hall carparking.

Existing carparking areas well used.

Stormwater

Online pond – all water comes down stream, no other mitigation we are aware of, motel stuff goes straight into stream. Stream and pond are connected. So idea is to create treatment. Size of pond provides for this. More green space may change run off requirements. Outlet goes along Muggridge property. Potential to plant along this area.

Stormwater reserve – some clarification required on shape and contours of this.

Need to determine if stormwater reserve vests in Council ownership? Maintenance of pond covered by DMS. Discussion with Coral-Lee. What status would land have if this was the case? Also recreational benefits of this. Also potential for open space to be in council ownership.

Transport

Over dimension loads need to move through the area, need low plantings for this. One way in road from SH2 and OD loads only from bend and out to Te Puna Rd.

Te Puna Rd and Minden – speed control points identified, create different view and how this is dealt with is to be determined, need bylaw speed limit change to reflect Te Puna and Minden Rd. Need to explore how this could occur on SH2 as well – check in with NZTA.

Ability to make a solid island for Te Puna Rd and current access into BP etc from this road. More traffic coming through for Te Puna Station Rd industrial zone. Speed control zone – and include some examples of what this could look like. Different surface treatment and then could change if required as funding becomes available. Check re DMS access and egress – exit only? If it does allow right turn then need to shift speed slowing area up further. Part of wider aspirations for the site in terms of improving look and feel. Connection between well used Zariba site and public space opportunities.

Future link to Omokoroa to Tauranga cycleway needs to be shown.

Minden Rd – three access points from Farmlands and Motels. Ann to check with Chris Farnsworth (NZTA) re Farmlands consent for their access. Issues with trucks on this site and access to Farmlands and impacting on other traffic movements in the internal area. Issues with how this has been undertaken. Access hard up against buildings. Would like entranceway feature to tidy up entrance on Minden Road side.

Landscaping – looking at including pathways to connect through the area. Increase rimu features around the area. Want to cut as much conflict as possible and need to look at the best solution for this. Aim to get one access closed and calmed speed environment and need to work out what the best solution is to get this outcome. Mirror Te Puna Rd speed calming on Minden Rd.

Get consents for farmlands site and research into current state of access here. Also speak to NZTA.

Paul Williams has talked to landowners on the Minden Rd side who are in support for what we are wanting to achieve and village theme.

Bus shelters needed on both sides.

Potential provision for park and ride? Old hall site already used for this purpose. NZTA land for this purpose? If TNL goes in then park and ride could be pointless. Use of commercial land for car storage not an efficient use of this type of land.

Landowners behind Paul Williams are seeking to get their access through Paul's property instead of out onto SH2.

Wastewater

Staff level – keen to look at interim hook in to pipeline – need to do some more work on how this might occur and funding etc. Omokoroa capacity not anticipated for 20-30 years so could be interim measure. Financial contribution from developers plus annual fee to save towards alternative in the future. Also consider land purchase options – NZTA land? Targeted rate system to cover costs of holding the land? Need to do more work on this but limited capacity at the moment but will include on the list of things to do – need to determine how this is covered in the plan change – might be that options are outlined and then further work on this. Could just Pete takeaways until then as long as no outflow. And include water limiting devices. Need to consider how this occurs to take into account different types of activities that occur and different extent of WW impacts that they have.

Need discussions with BOPRC on this. Need something in writing to deal with this as recognise that options are being explored and likely timeframes for this to provide as much certainty as possible to satisfy BOPRC concerns. Questions as to what components of the interim WW solution get funded by whom.

Signage

Include community signage boards – existing rules for other areas and could look at including this in the plan change to allow for this. To enable this to occur.

Zoning

3 pockets – corner where Rex activities + corridor of land around fringes as need to have no sensitive activities + main focus of rules is around commercial services + onsite carparking.

Plus other potential use – trade related retail eg small Mitre 10.

Ok to have separate rules for Te Puna village – scheduled site rules and closest example is Comvita site at Paengaroa.

How can Paul's objectives be incorporated? Signal on Outline Development Plan future potential for Paul's land. Then can undertake plan change separately and link into this process.

ACTIONS

- Boffa to update plan for Plan change – simplified version + rules around this.
- Wastewater options to be discussed with WBOPDC infrastructure and BOPRC
- Stormwater options to be discussed with WBOPDC infrastructure.
- Open space to be discussed with WBOPDC Parks.
- WBOPDC to provide an update to elected members.
- Engage with Pirirakau/NZTA/Te Puna Heartland and Te Puna Business network on ODP.
- Engage with other commercial zone landowners (and surrounds)/
- Wider community engagement.

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