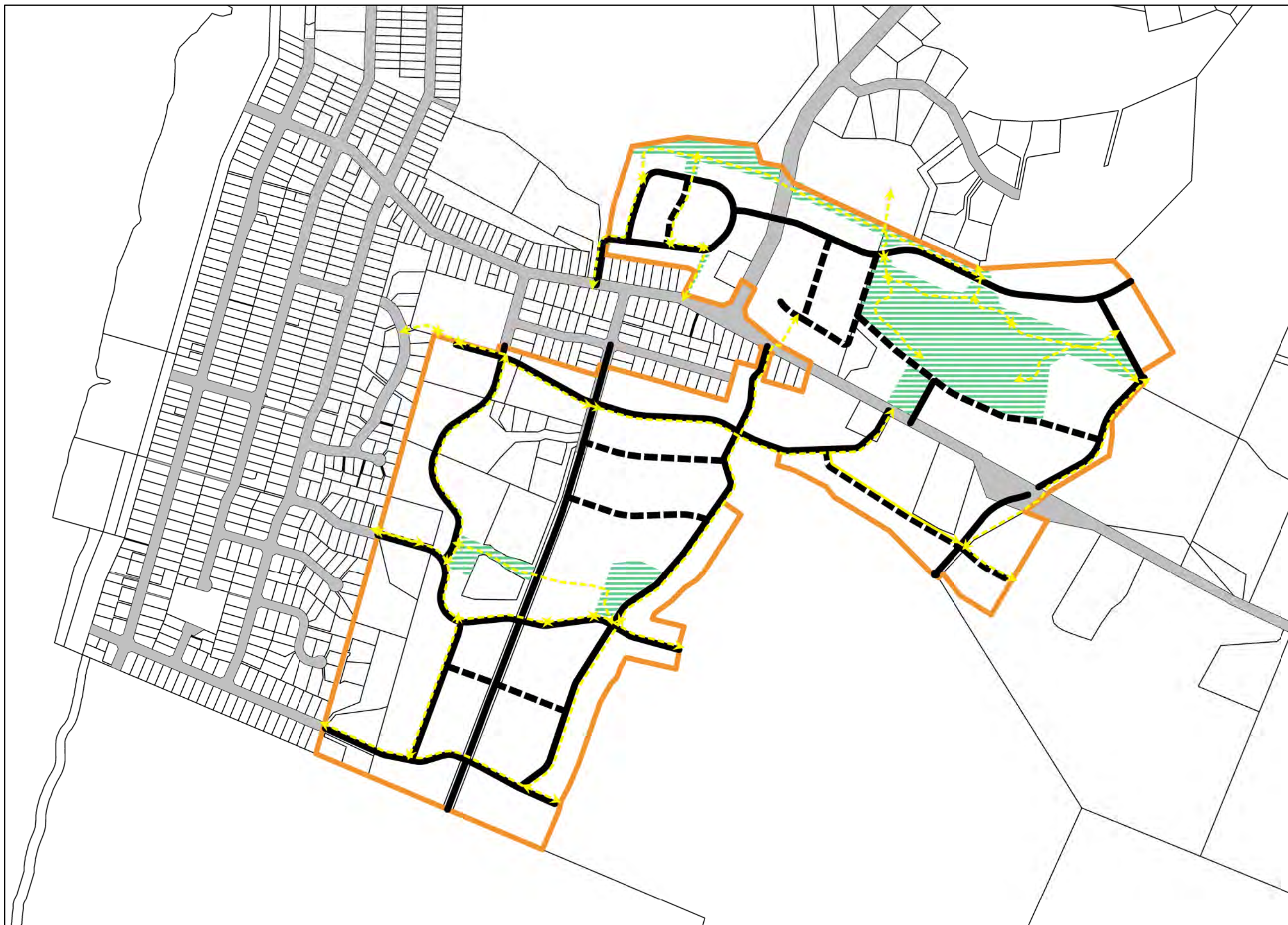


9 Appendices

1. Proposed Plan Change 5 – Proposed Amendments to the District Plan Provisions and Planning Maps.
2. Waitārere Beach Master Plan
3. 3 Waters Infrastructure Master Plan: Waitārere Beach
4. Waitārere Beach Archaeology Scoping Report & Addendum
5. Waitārere Beach Commercial Land Assessment
6. Liquefaction Assessment
7. Horowhenua Socio-Economic Projections: Update May 2020
8. Stormwater Catchment Management Plan Summary

Appendix 1 - Proposed Plan Change 5 – Proposed Amendments to the District Plan Provisions and Planning Maps



-  Shared Path
-  Arterial Road
-  Secondary Collector Road
-  Existing Road
-  Structure Plan Area Boundary



LEGEND

ZONES

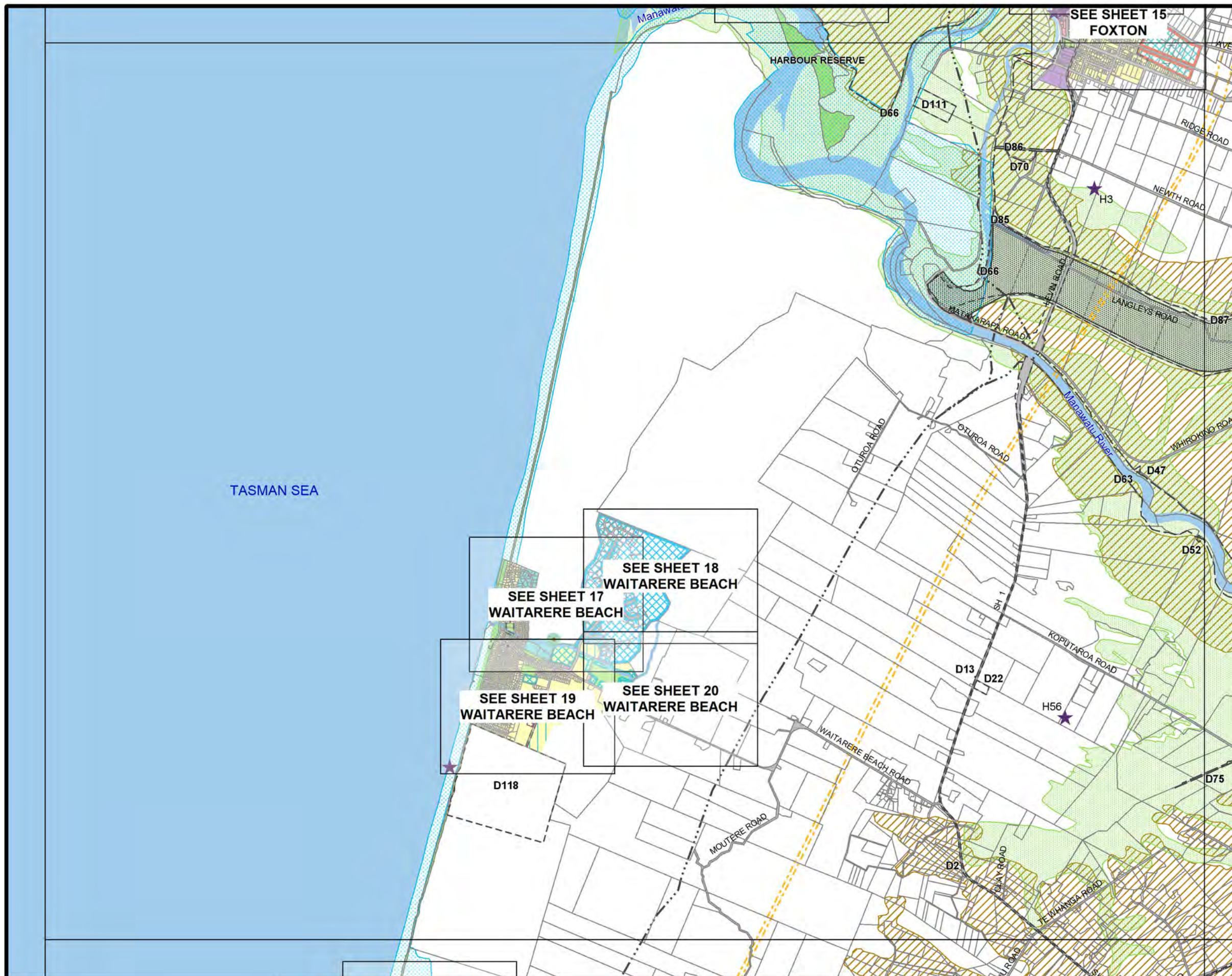
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	Commercial		Residential Deferred
	Industrial		Commercial Deferred
	Open Space		
	Rural		
	Greenbelt Residential		
	Greenbelt Residential Deferred		

OVERLAYS

	Greenbelt Residential Waitāre Rise
	Greenbelt Residential Foxton Beach North
	Forest Road Integrated Residential Development Area
	Strathnaver Coastal Natural Character Area
	Strathnaver Coastal Hazard Area
	Muhunua West Forest Park
	Muhunua West Forest Park Coastal Natural Character and Hazard Area
	Low Density Area
	Medium Density Area
	Waitāre Beach Greater Density Area
	Large Format Retail Area
	Town Centre Heritage/Character Area
	Foxton Tourism Area
	Pedestrian Area
	Coastal Natural Character and Hazard Area
	Flood Hazard Area (1:50,000 Rural Maps Only)
	Moutoa Floodway (1:50,000 Rural Maps Only)
	Versatile Land (LUC Class I & II Soil)

FEATURES

	Notable Tree
	Historic Heritage Building, Structure or Site
	Gas Transmission Pipeline
	National Grid Corridor (High Voltage Transmission Line)
	Designation
	Road





















LEGEND







ZONES

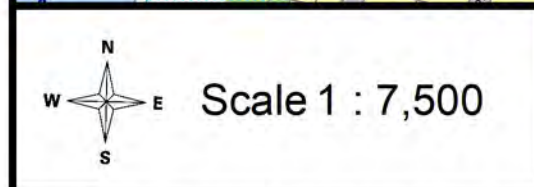
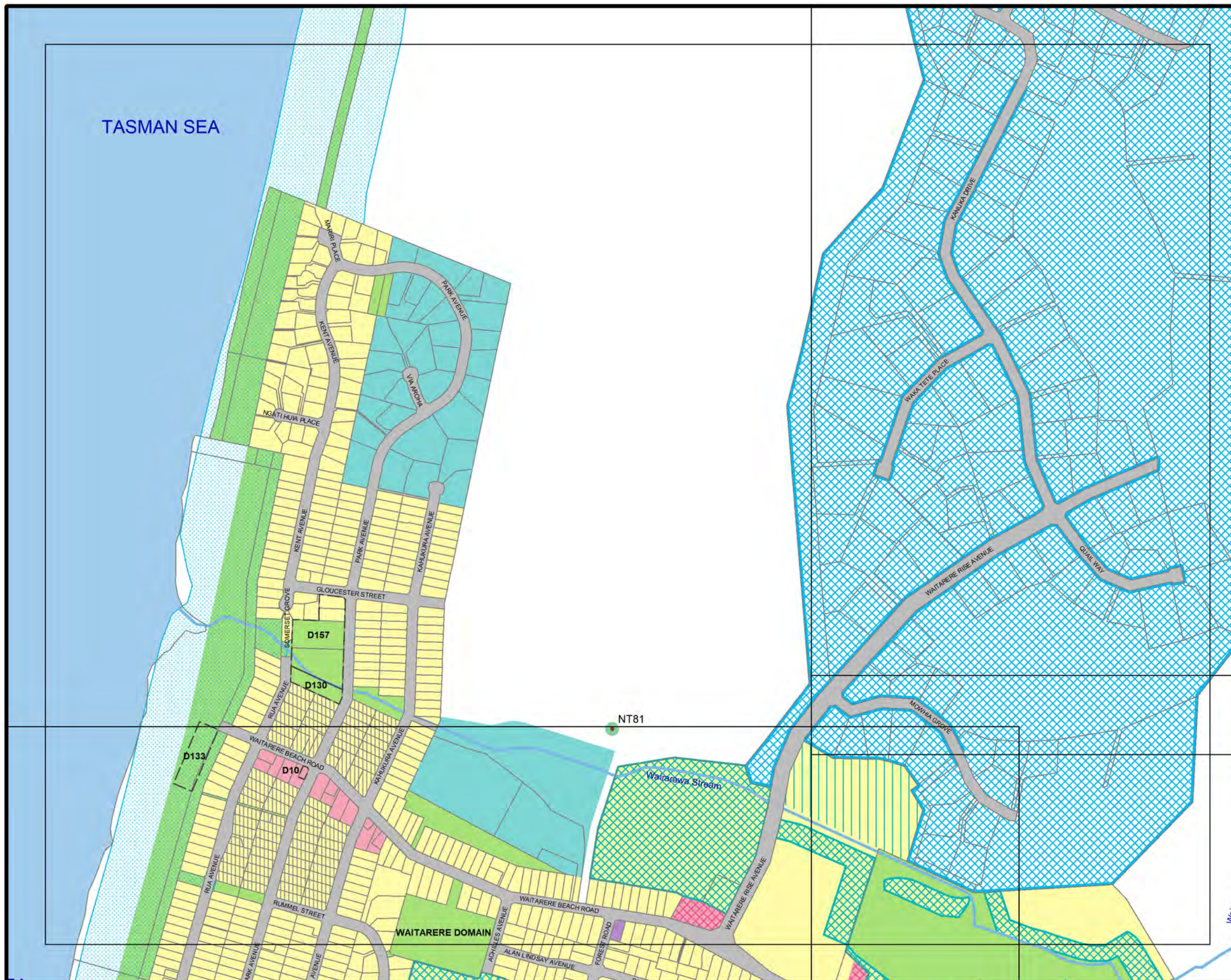
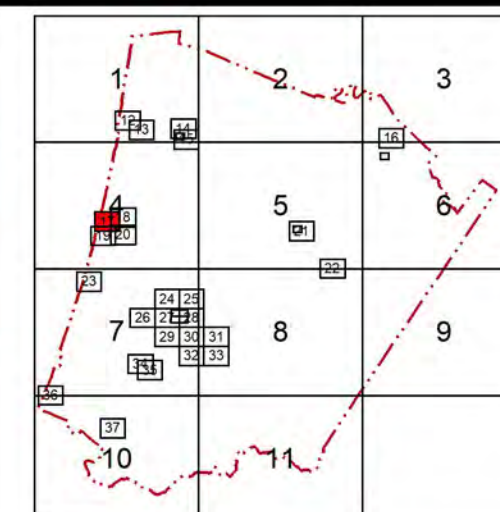
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HOROWHENUA DISTRICT PLAN - PROPOSED PLAN CHANGE 5

WAITARE BEACH MASTER PLAN AREA

WAITARE BEACH

Planning Map 17

LEGEND

ZONES

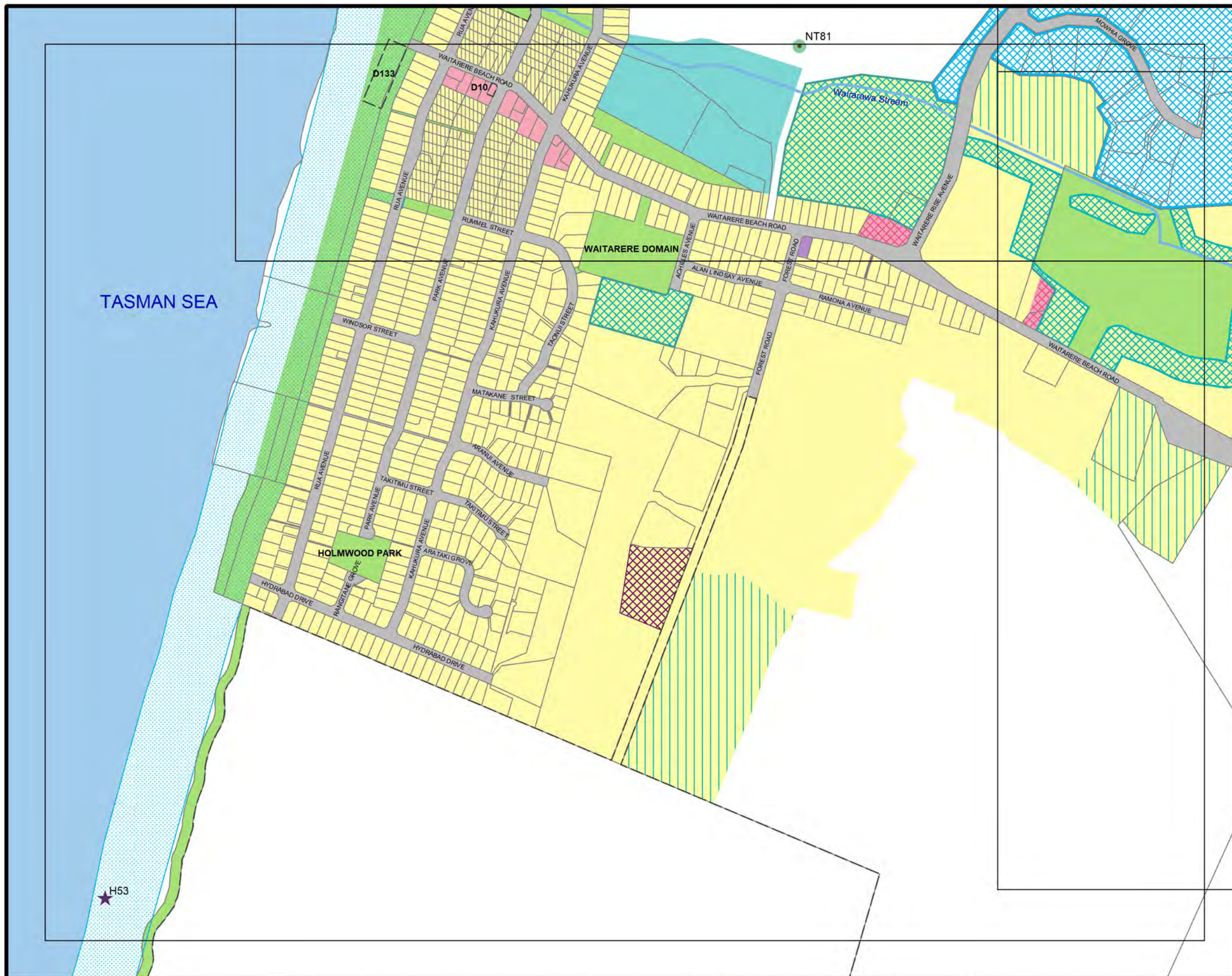
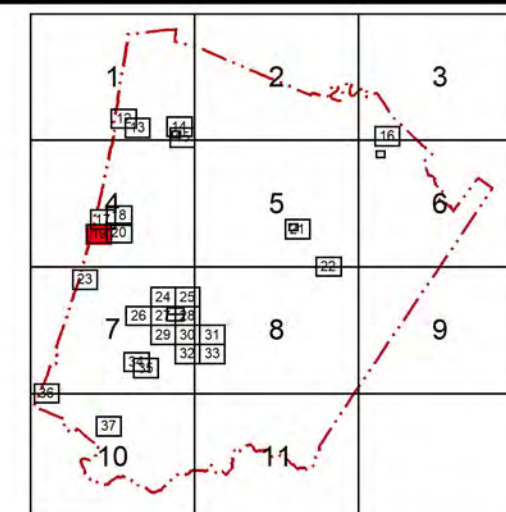
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| | Commercial | | Residential Deferred |
| | Industrial | | Commercial Deferred |
| | Open Space | | |
| | Rural | | |
| | Greenbelt Residential | | |
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- Notable Tree
- Historic Heritage Building, Structure or Site
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- Designation
- Road





















LEGEND







ZONES

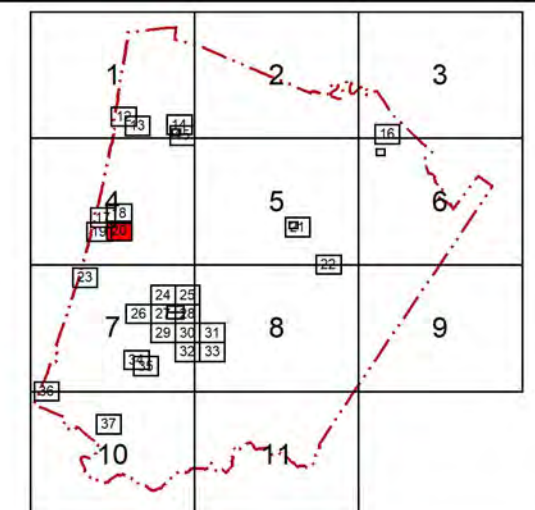
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HOROWHENUA DISTRICT PLAN - PROPOSED PLAN CHANGE 5 WAITARE BEACH MASTER PLAN AREA WAITARE BEACH

Planning Map 20

Proposed Plan Change 5: Waitārere Beach Growth Area

Plan Text Amendments

Proposed new text is underlined, while any text to be deleted is ~~struck through~~.

The proposed text identified below contains only the provisions proposed to be added or deleted. The rest of the operative District Plan provisions would still apply.

Chapter 6: Urban Environment

1. Amend Issue Discussion associated with Issue 6.1 Overall Form, Activities and Servicing of Urban Settlements as follows:

ISSUE DISCUSSION

In 2007/08 the Council completed the Horowhenua Development Plan and this was formally adopted as Council policy in July 2008. The purpose of the plan ~~this Development Plan~~ was to provide a ~~the~~ strategy to direct the future subdivision and development in the district for a 20 year planning period through to 2028.

In response to recent and projected growth in the district a review of the Development Plan was commenced in 2016, the result of which was development of the Horowhenua Growth Strategy 2040. The strategy which was adopted by Council in November 2018 and replaces the Development Plan 2008.

The ~~Development Plan~~ Growth Strategy reflects the Council's continuing desire to provide a proactive framework for managing growth in the future, offering direction about where and how growth will be accommodated in the district out to 2040. It builds on the planning principles and spatial strategy applied in the Development Plan, with a renewed emphasis on consolidation in and around existing urban areas. ~~For the urban environment, the Key features of the Development Plan~~ Growth Strategy relevant to the urban environment include:

- Increasing density within settlements in defined locations to utilise existing urbanised land and minimise future infrastructure costs.
- Supporting commercial and social service facilities in existing settlements through carefully managed increases in density.
- Encouraging the diversification of the range of housing types and living environments available in the district.
- Providing a 'Greenbelt Residential' or 'Rural Residential' peri-urban zone of connected clusters of housing to meet the demand for fringe larger lot living closely connected to settlement centres and facilities.
- Containing settlements within limits set by greenbelts to maintain the scale and 'village' character of each settlement.
- Limiting the overall size of urban areas.
- Utilising natural landscape features to guide the pattern of development and retaining features that contribute to 'sense of place'.
- Protecting the natural character of the coastal environment by limiting the expansion of settlements.

- ~~Defines the location of different types of development clearly so its effects (positive and negative) can be better planned for.~~
- ~~Encourage a range of housing types and living environments (e.g. townhouses) in specific locations and with a community based format to better meet changing needs;~~
- ~~Increase density within settlements in defined locations focused around existing town centres to better utilise existing urbanised land and minimise future infrastructure costs;~~
- ~~Place less emphasis on ad-hoc infill throughout residential neighbourhoods to avoid loss of residential amenity;~~
- ~~Assist business and employment opportunities by providing new locations for growth;~~
- ~~Limit development to where infrastructure can be readily expanded/upgraded, has good accessibility to transport connections and will avoid areas of natural hazards;~~
- ~~Avoid ad-hoc spread of rural residential development by identifying suitable locations for it and manage the efficiency of it with a new “greenbelt” residential format.~~
- ~~Avoiding fragmentation of urban growth areas to provide for integrated and efficient land use in the long term.~~
- ~~Protect the natural character of the coastal environment by limiting the expansion of settlements.~~
- ~~Recognise the significant contribution of the natural environment—hills, rivers, lakes and coast—and heritage as essential elements of the District’s identity.~~

~~The Growth Strategy Development Plan also outlines a range of actions to support its details an implementation action list which will be progressively implemented, and includes actions such as changing including preparation of Master Plans to guide future development in the Foxton Beach, Waitāre Beach and Tara-Ika growth areas and introduction of associated changes to the District Plan.~~ The key contribution of the District Plan to the wider planning process is to provide an appropriate regulatory framework for managing urban growth.

It is recognised that, while the Development Plan Growth Strategy significantly underpins the planning approach to managing growth set out in the District Plan, changes in knowledge or other circumstances since the Development Plan’s its adoption will also be integrated into the District Plan as appropriate.

2. Amend the Waitāre Beach settlement profile as follows:

Waitarere Beach

Waitarere Beach has developed as a coastal settlement with a high proportion of semi-permanent or seasonal holiday residents in baches. More recently, the settlement's population has become more permanent-resident due to its appeal as a retirement location and that it is within reasonable commuting distance of Levin, Foxton and Palmerston North. Improvements to the State Highway network have also made it a popular location for permanent residents and holiday homeowners from the Wellington Region. There are still a large number of holiday homes and two camping grounds. The settlement has an overall linear shape, spread along three principal streets parallel to the coastline, with low ~~medium~~-density residential development on a grid-pattern of streets between those three principal feeders.

The settlement has a reticulated sewerage system, with potable water sourced ~~Water supply is from individual roof supply and groundwater bores. There are some areas of undeveloped land available for future residential development although the extent of future development may be constrained unless sufficient water supply and wastewater~~

~~disposal can be guaranteed.~~ The streetscape ~~is~~ has an urban feel, with formed and sealed carriageways and footpaths, wide grass berms, and streetlights. The landscape is generally flat behind the dune formations along the coastal margin and is distinctly coastal with considerable sand blow and coastal plants.

3. Insert new Policies 6.3.30A and 6.3.30B Urban Settlements – Residential Zone as follows:

Policy 6.3.30A

Enable residential development in the area identified on Structure Plan 07A - Waitārere Beach that is in accordance with the structure plan and that:

- Achieves a low-density development pattern that complements the Waitārere Beach context.
- Offers a variety and choice of housing types and lot sizes at a range of price points.
- Avoids or mitigates any identifiable risks associated with liquefaction and lateral spread.
- Responds to significant landforms, including avoidance of residential development on the culturally important Otororoa Ridge.
- Maintains and aligns with the area's distinctive natural dune landforms.
- Provides visual and ecological links to the wider coastal landscape.
- Reinforces the sense of community and strong coastal character of the local area.
- Integrates with the beach and adjacent rural residential areas.
- Incorporates an interconnected network of streets and movement links that:
 - provide connections to local amenities such as the beach and existing commercial centre, including good pedestrian and cycle access;
 - create safe, slow speed streets for residents;
 - minimise the use of cul-de-sacs; and
 - integrate with the open space network.
- Maintains important cultural and archaeological sites, including sites of significance to mana whenua.
- Protects and restores ecological features within the area, including naturalisation of the Wairarawa Stream and related watercourses in the Lakes area.
- Provides a diversity and distribution of accessible open space that offers:
 - a range of recreational opportunities for residents; and
 - opportunities to enhance the local ecology and to connect to downstream environments.

Policy 6.3.30B

Provide for a range of housing types in the area identified on Structure Plan 07A - Waitārere Beach by enabling the creation of smaller residential lots in the Waitārere Beach Greater Housing Area, recognising that these areas have the benefit of being relatively flat land adjacent to public open space.

4. Insert new Policy 6.3.50A & 6.3.50B Urban Settlements – Commercial Zone as follows:

Policy 6.3.50A

Support the role and function of the existing Waitārere Beach commercial centre by controlling the nature and scale of activities that establish within the Waitārere Beach Mixed Use Area.

Policy 6.3.50B

Restrict the establishment of commercial activities that are of a nature or scale that would detract from the intended small scale and mixed use nature of the Waitārere Beach Mixed Use Area. Examples of such activities include vehicle service stations, entertainment activities and commercial garages.

Chapter 15 Residential Zone

5. Amend Rule 15.4(b) – Discretionary Activities as follows:

(b) Except for subdivision in the area covered by Structure Plan 07A - Waitārere Beach, any subdivision that is not in accordance with the requirements as specified in a Structure Plan in Schedule 8.

6. Insert a new clause to Rule 15.5 Non-Complying Activities as follows:

(c) Any subdivision not in accordance with Structure Plan 07A - Waitārere Beach in Schedule 8: Structure Plans (refer Rule 15.7.5(b)(v)).

7. Insert a new clause in Rule 15.6.9(b) Fencing as follows:

- ii. For sites in the area covered by SP 07A - Waitārere Beach the maximum height of any fence or wall located on the boundary, or within 1 metre of the boundary, of a public reserve, park or walkway identified on the structure plan shall not exceed:
- one point two (1.2) metres where it is a solid wall or close boarded fence; or
 - two (2) metres where at least 50% of the upper 0.5 metres of the fence is transparent.

8. Amend Rule 15.7.5(a) Subdivision of Land – Matters of Control as follows:

xiv For sites in Structure Plan 07A Waitārere Beach the avoidance or mitigation of:

- Liquefaction and lateral spread; or
- Surface water ponding or inundation.

9. Insert a new condition in Rule 15.7.5(b) Subdivision of Land – Conditions as follows:

vi. Structure Plan 07A – Waitārere Beach

Where any land is within the area covered by Structure Plan 07A – Waitārere Beach in Schedule 8 all subdivision shall be accompanied by:

- a report prepared by a suitably qualified and experienced geotechnical engineer that identifies any potential liquefaction and lateral spread risks and associated recommendations to mitigate

these, including the location, design and construction of building foundations and supporting infrastructure, and

- a report prepared by a suitably qualified and experienced stormwater engineer that identifies any surface-water ponding and inundation risks and associated recommendations to mitigate these, including any measures to achieve hydraulic neutrality.

10. Amend Table 15 4: Standards Applying to Subdivision and Residential Dwelling Units as follows:

Waitarere Beach, Mangaore and Tokomaru			
<u>Waitārere Beach Greater Density Area</u>	<u>Where reticulated sewerage disposal is available</u>	<u>450m²</u>	<u>18 metres diameter</u>

11. Amend Rule 15.8.4(a) Non-compliance with Fencing Rule 15.6.9 as follows:

- vi. The impact that the fence may have on the perceived safety of motorists and pedestrians, including users of any adjoining public open space.

12. Amend Rule 15.8.16 Integrated Residential Development to insert:

(b) Conditions

(i) For the Forest Road Integrated Residential Development Area, the minimum lot size shall be 250m².

(ii) For the Forest Road Integrated Residential Development Area, the roading connection through to Forest Road shall be provided in general accordance with Structure Plan 07A - Waitārere Beach.

(c) Under section 77D of the RMA, an activity requiring resource consent under Rule 15.3(l) in the area identified as 'Forest Road Integrated Residential Development Area' shall not be publicly or limited notified except where:

- The Council decides special circumstances exist (pursuant to Section 95A(9)); or
- The applicant requests public notification (pursuant to Section 95A(3)(a)).

Chapter 17: Commercial zone

13. Insert a new advice note under Rule 17.1

Unless altered by the rule framework, any activity identified as permitted is also permitted within the Waitārere Beach Mixed Use Area

14. Insert a new rule 17.2(g) Controlled Activities

(g) Within the Waitārere Beach Mixed Use Area the following activities:

(i) Retail Activities.

(ii) Commercial Activities.

(iii) Visitor Accommodation

(iv) Community Activities

15. Insert a new rule for controlled activities

17.7.7 Waitarere Beach Mixed Use Area (Refer Rule 17.2(g))

(a) Matters of Control

- (i) Design, external appearance, size and siting of buildings and structures. This includes the application of Crime Prevention through Environmental Design (CPTED) principles.
- (ii) Location and design of site access (pedestrian and vehicular), parking and servicing.
- (iii) Traffic effects, including the effects on the transport network from the volume and type of traffic generated.
- (iv) Landscaping. The extent to which the planting plan integrates with the coastal landscape.
- (v) The provision of servicing, including water supply, wastewater systems, stormwater management and disposal, lighting.
- (vi) Proposed methods for managing potential operating effects such as hours of operation and servicing of activities, and the location of screening of parking, storage and servicing areas.

(b) Conditions

- (i) The proportion of any net site area covered by buildings for retail, commercial or community activities shall not exceed 15%.
- (ii) The proportion of any net site area covered by all buildings shall not exceed 35%.
- (iii) The area between any on-site carpark and the front road boundary shall include a landscaping strip. This landscaping strip shall comply with the following conditions:
 - A minimum width of 2 metres.
 - Shall be covered by at least 75% of shrubs.
- (iv) The provision of a development plan that shows the buildings, carparking, planting, utility areas and pathways.
- (v) Noise from any activity shall not exceed the following limits when measured at, or within, any point in any site in the Residential, Greenbelt Residential, or Rural Zones.
 - On any day:
 - 7.00am – 7.00pm: 55dB LAeq(15mins)
 - 7.00pm – 10.00pm: 50dB LAeq(15mins)
 - 10.00pm – 7.00am: 40dB LAeq(15mins)
 - 10.00pm – 7.00am: 65dB L(Max)
 - Noise from any activity shall not exceed 65dB LAeq at any time, when measured at, or within, any other site in the Industrial, Commercial or Open Space Zones.
 - Sound levels shall be measured and assessed in accordance with the provisions of NZS 6801:2008 Acoustics – Measurement of environmental sound and assessed in accordance with the provisions of NZS 6802:2008 Acoustics – Environmental noise.

- Construction, maintenance and demolition works shall be measured, assessed, managed and controlled in accordance with the provisions of NZS6803:1999 Acoustics – Construction Noise.
- (vi) There shall be no fence sited on the boundary or within 2 metres from the boundary with any road frontage.
- (vii) All buildings shall have display windows along the ground floor road frontage. At least 50% of ground floor façade surface shall be display space or transparent window or doors. The minimum window area shall be kept clear and not be boarded up, painted or covered by signage.
- (viii) No building shall have a continuous featureless façade/blank wall on the ground floor road frontage wider than 4 metres. A featureless façade or blank wall is a flat or curved wall surface without any openings, glazing or columns, recesses, niches or other architectural detailing.
- (ix) Where a site adjoins the Residential Zone or Open Space Zone, the following conditions shall apply:
 - All buildings and structures shall comply with the daylight setback envelope of the adjoining Residential Zone or Open Space Zone.
 - All buildings shall be setback 4.5 metres from the Residential Zone or Open Space Zone boundary.
 - A landscaping strip shall be provided. This landscaping strip shall comply with the following conditions:
 - A minimum width of 3.5 metres.
 - Shall be covered by at least 75% of shrubs.
 - All outdoor car parking, storage, serving and loading areas shall be screened by a close-boarded fence made of solid material with a minimum height of 1.2 metres and a maximum height of 2 metres.

16. Insert a new rule 17.5(b) for non-complying activities

(b) Within the Waitārere Beach Mixed Use Area vehicle service stations, entertainment activities, commercial garages.

Chapter 25: Assessment Criteria

17. Insert a new subdivision assessment criterion in 25.1.5 - Structure Plans and Residential (Deferred) Zone Criteria as follows:

- (g) The extent to which the subdivision of land covered by SP 07A – Waitārere Beach avoids or mitigates:
- natural hazards;
 - liquefaction and lateral spread; or
 - surface-water inundation.

Schedules

18. Amend Schedule 8 Structure Plans as follows:

- (a) Redact part of Structure Plan 07 Waitārere Beach - Waitārere Beach Road (north edge) and Kahukura Avenue and add Structure Plan 07A Waitārere Beach - Waitarere Beach Road, Forest Road and Hyderabad Drive.

Planning Maps – Waitārere Beach

19. Amend the following Planning Maps as shown:

- Planning Map 4
- Planning Map 17
- Planning Map 19
- Planning Map 20

Appendix 2 - Waitārere Beach Master Plan

Waitārere Beach Master Plan



Prepared for
Horowhenua District Council

Prepared by
Local Landscape Architecture Collective
McIndoe Urban Ltd.

Document Issue
2nd March 2021



Background

The Waitāre Beach Master Plan is a blueprint for future growth at Waitāre Beach. Waitāre Beach is experiencing rapid growth, consistent with the high level of growth occurring throughout the district.

The Master Plan identifies the future location of key roads and pedestrian/ cycle connections, parks, residential density and supporting commercial land. It will help to ensure new development is well designed, co-ordinated and connected to the existing settlement and future growth areas, recognising the importance of the character of the existing community. The Master Plan includes key design principles, design descriptions and spatial maps.

Location

The area covered by the Waitāre Beach Master Plan is located directly to the east of the existing settlement. The area is over 100 hectares in size, covering an area both to the north and south of Waitāre Beach Road, including the Forest Road area.

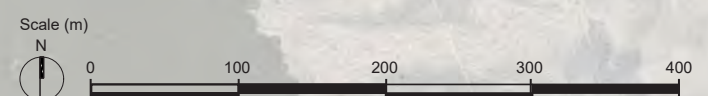
Land characteristics

The Waitāre Beach Master Plan area has a number of natural features consistent with the coastal landscape it is located within. It is a dune landscape, with the Wairarawa Stream running east-west through the area, and contains the Wairarawa Lagoon.

Implementation and delivery

The Waitāre Beach Master Plan area contains privately owned properties of a range of sizes. The key aspects of the Master Plan will be incorporated into the Horowhenua District Plan through a plan change process. Landowners will then be able to deliver developments in accordance with the framework identified in the district plan.

The Plan



Design Principles

These are the aspirations for Waitārere Beach that have informed the development of the master plan.

Ecology and Sustainability

- 1. Apply principles of water sensitive urban design throughout the development.
- 2. Open spaces will provide positive recreational and ecological outcomes for the neighborhood and downstream environments.
- 3. Restore and protect ecological features within the area.

Culture and heritage

- 4. Respect and reflect the region’s rich heritage including matters and sites of mana whenua significance.
- 5. Maintain important cultural and archaeological sites.

Quality

- 6. Develop Waitārere Beach to the highest standards, building upon the existing character and ensuring local community needs and aspirations are met.
- 7. Encourage a landscape-sensitive approach to housing within appropriate areas.

Capacity

- 8. Achieve the development capacity and patterns appropriate to Waitārere Beach.
- 9. Enable limited destination commercial development that does not compromise the existing village centre.

Choice

- 10. Create a neighborhood that offers variation and choice in housing types.

Affordability

- 11. Infrastructure and public open space is affordable and feasible.
- 12. A variety of housing is available at all budget levels.

Adaptability

- 13. Build flexibility into the design.
- 14. Consider expected impacts of climate change on designs.

Relationship with Waitārere Beach

- 15. Integrate with Waitārere Beach and adjacent rural residential areas.
- 16. Optimise connections to the beach and commercial centre.
- 17. Develop a logical and coherent interconnected network of streets and movement links.
- 18. Encourage people to walk or cycle.

Connections

- 19. Ensure good pedestrian and cycle access to public amenities - shops, beaches, forests and lakes.
- 20. Create safe slow streets for people to live on and use.
- 21. Provide a movement network well integrated with the open space network.

Distinctive Identity

- 22. Ensure the area feels like “Waitārere Beach” and offers a clear sense of community and a safe environment.
- 23. Ensure development integrates and builds upon the strong coastal character of the area.

Relationship to wider landscape

- 24. Link to wider coastal landscape visually and ecologically.

Open space provision & distribution

- 25. Provide a variety of open spaces to serve the new community.

Recreational amenity

- 26. Cater for diverse activities - walking, cycling, dog walking, fishing.
- 27. Open space located to provide ecological benefits.
- 28. Provide amenities for both residents and visitors.
- 29. Provide for easy navigation and wayfinding.
- 30. Ensure public accessibility and safety.

Design Description

The attributes below are coded to the plan at left. All location-specific attributes are identified on the plan. General attributes and qualities that apply right across the master plan area (for example 1, 2 and others) are identified only once or twice in order to illustrate an example of their application.

Urban Structure and Connections

Essential structural characteristics and qualities are described below. Further detail including type and location of streets and the location of shared paths is shown on the accompanying diagrams.

1. Interconnected street network

Interconnection ensures easy access within and around the neighbourhood, minimises the need for rear lots and is particularly important to facilitate walking and cycling.
2. Key cross-connecting streets are aligned for easy access

This ensures easy wayfinding and ready access along the major streets through the neighbourhood. Conversely offsets of minor local roads are to discourage through traffic and will also further restrict vehicle speeds.
3. Cul-de-sac use is minimised

Cul-de-sacs are acceptable only where necessary at the end of the roading hierarchy and, depending on the number of lots served, might be treated as private lanes.
4. Connection to areas around

This means connecting to existing streets and roads and providing for future connections where these may not yet exist. Streets at the periphery are designed and terminated to allow for future extension if/as required.
5. Connection to the beach

Direct connections into existing streets leading towards the beach are essential to integrate new residential areas into Waitārerere Beach.
6. Connection to the town centre

Direct and convenient connection allows ready access on foot or by cycle, contributes to minimising the need for vehicle use and also enhances connection to the beach.
7. Interconnected shared path network

This provides a recreational circuit as well as for safe off-road cycle access.
8. Integration of appropriate commercial development

Mixed use commercial area for small scale destination use that does not compromise or compete with the village centre.

Residential Lot Layout

The lots shown are indicative, but are sized in accordance with the ‘Density, Land Use and Housing Diversity’ plan. It is anticipated that as detailed site investigation is undertaken and development planned in any part of the master plan area that the lot boundaries may change as sizes are adjusted and/or landform or archaeological features are responded to.

9. Higher residential intensity around The Lakes and public reserves/ spaces in the Master Plan area.

The amenity benefit of these features is maximised with highest levels of development intensity around and close to these. At the same time, adjoining residential lots are to provide a positive frontage and visually connect to these spaces.
10. Otororoa Ridge recognised as a significant landform

The cultural significance of the Otororoa Ridge is recognised. Residential development is not provided for as part of the Master Plan.
11. Development sensitive to the natural landform and archaeological risk

Lot variation is anticipated as an outcome of allowing landform, and archaeologically responsive development and offers the benefits of residential diversity and choice.

Street Design and Streetscape

Street design and streetscape contributes to a combination of movement and access; a positive sense of place and address for residents; comfort and amenity for street users; and wayfinding.

12. Streets located and aligned to maintain dune form

Street placement and curvatures relate to dune form. Their precise location and geometry may be refined as detailed site investigation is undertaken in specific locations which may reveal archaeological sites and/or lead to further insights as to how to optimally address dune form there.
13. Roading and street hierarchy is expressed in streetscape and tree planting

This includes strong expression of avenue planting along key connectors, single sided planting, intermittent and clustered planting.
14. Consistent streetscape treatment along any street

This gives visual coherence and contributes to wayfinding.
15. Variation in streetscape treatment between streets

Differentiation between different types of streets allows for a local sense of place and will also assist with wayfinding. However certain streets will, as indicated, have the same streetscape treatment, and this relationship between streets is desirable to deliver aesthetic coherence.

Landscape and Open Space

The attributes below describe aspirations and intentions for landscape and public open spaces. All open spaces will be subject to future design development to a brief determined by HDC.

16. Pocket parks distributed around the neighbourhood to provide for recreational amenity and a focus for local community

The majority of lots are within 400m of a recreational space. Each will be developed to the standards required by HDC and will variously include green open space for kick-about play, and a landscape treatment that provides visual amenity and a distinctive sense of place.
17. The Lakes as a public amenity feature for Waitārerere Beach

Publicly accessible and connected with streets and walkways this is a prime feature of the master plan. The design and layout shown is indicative, however it signals sensitive stormwater management, habitat and biodiversity enhancement and public recreational use. ‘The Lakes’ is a working title, pending future work on naming this area.
18. Street frontage and view connections into the Lakes

View connections ensure the public can both see and access the lakes. A combination of a street edge and residential boundaries to The Lakes reserve also ensures the area is overlooked, and its amenity is maximised.
19. Naturalisation of Wairarawa Stream .

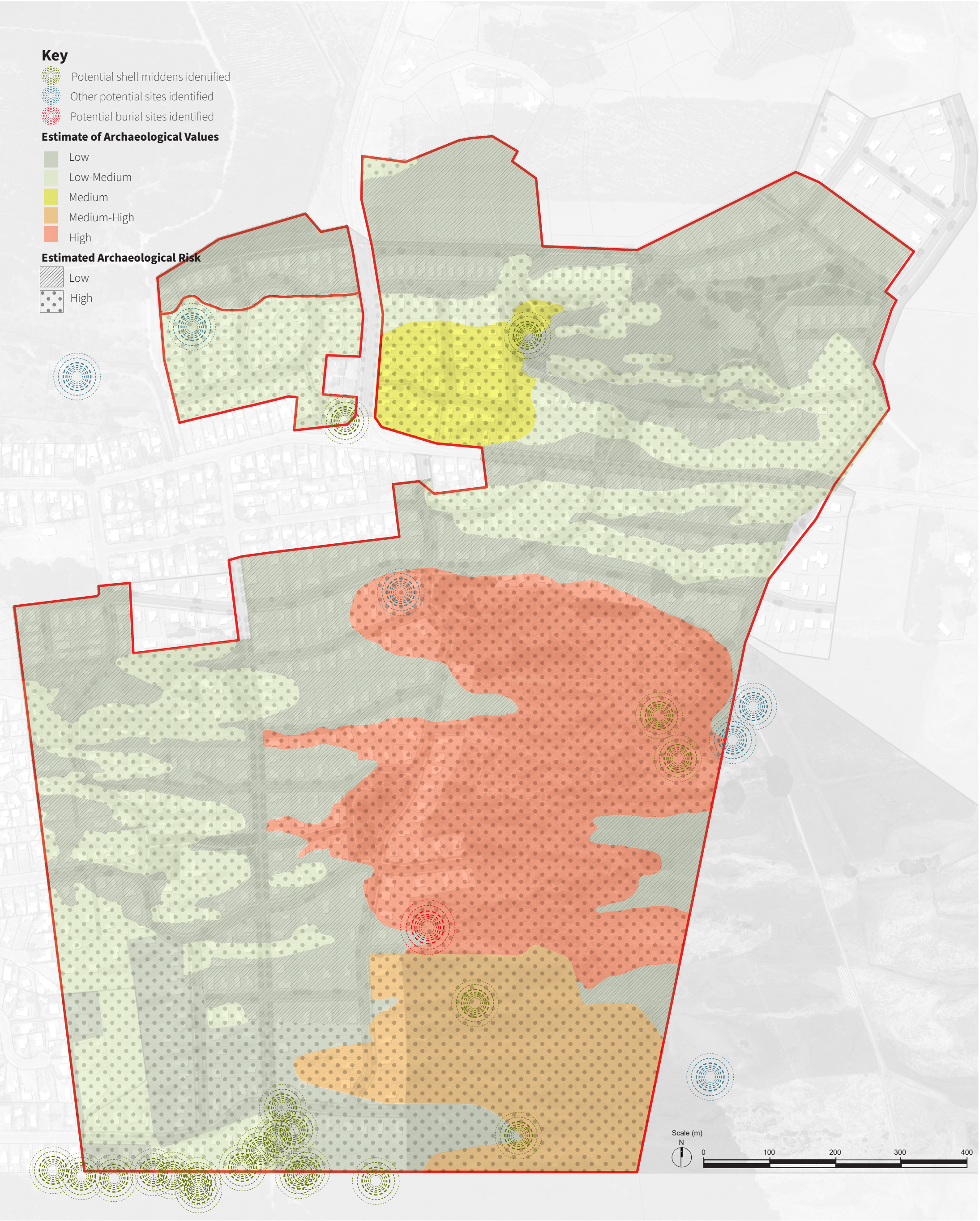
The Wairarawa Stream, and related watercourses in The Lakes area, have a critical drainage function and are currently treated as drains. The Wairarawa Stream is currently maintained via machine. Long term development and maintenance solutions will need to be found. Landscape design will develop these as features that add visual and recreational amenity to this part of the neighbourhood; include planting for ecological repair; allow for informal surveillance and safe public access along; and have a width that allows for required waterflow with a cross section and access that allows for necessary maintenance.
20. Low fence heights for any boundary fence adjoining the Lakes, the Wairarawa Stream reserve and any pocket park or fronting across the street to these spaces.

A maximum height of 1200mm to these fences will ensure that these public open spaces have a ‘front of house’ character, and that there is informal surveillance from the houses around.

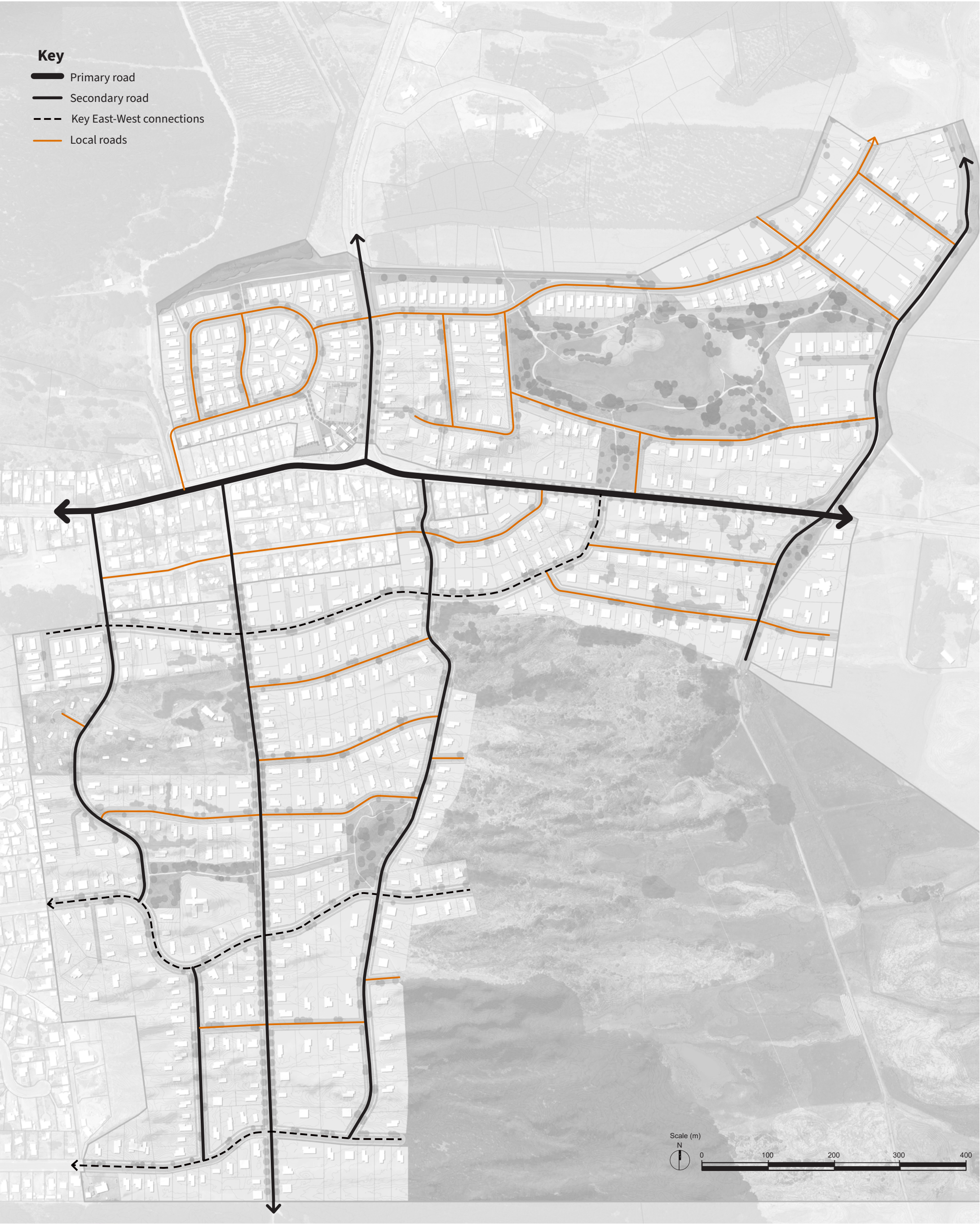


Archaeology

Archaeological spatial information drawn from “Waitarere Beach Master Plan: An Overview of Archaeological Risk” - inSite Archaeology, 2019.



Street network



Street Typologies

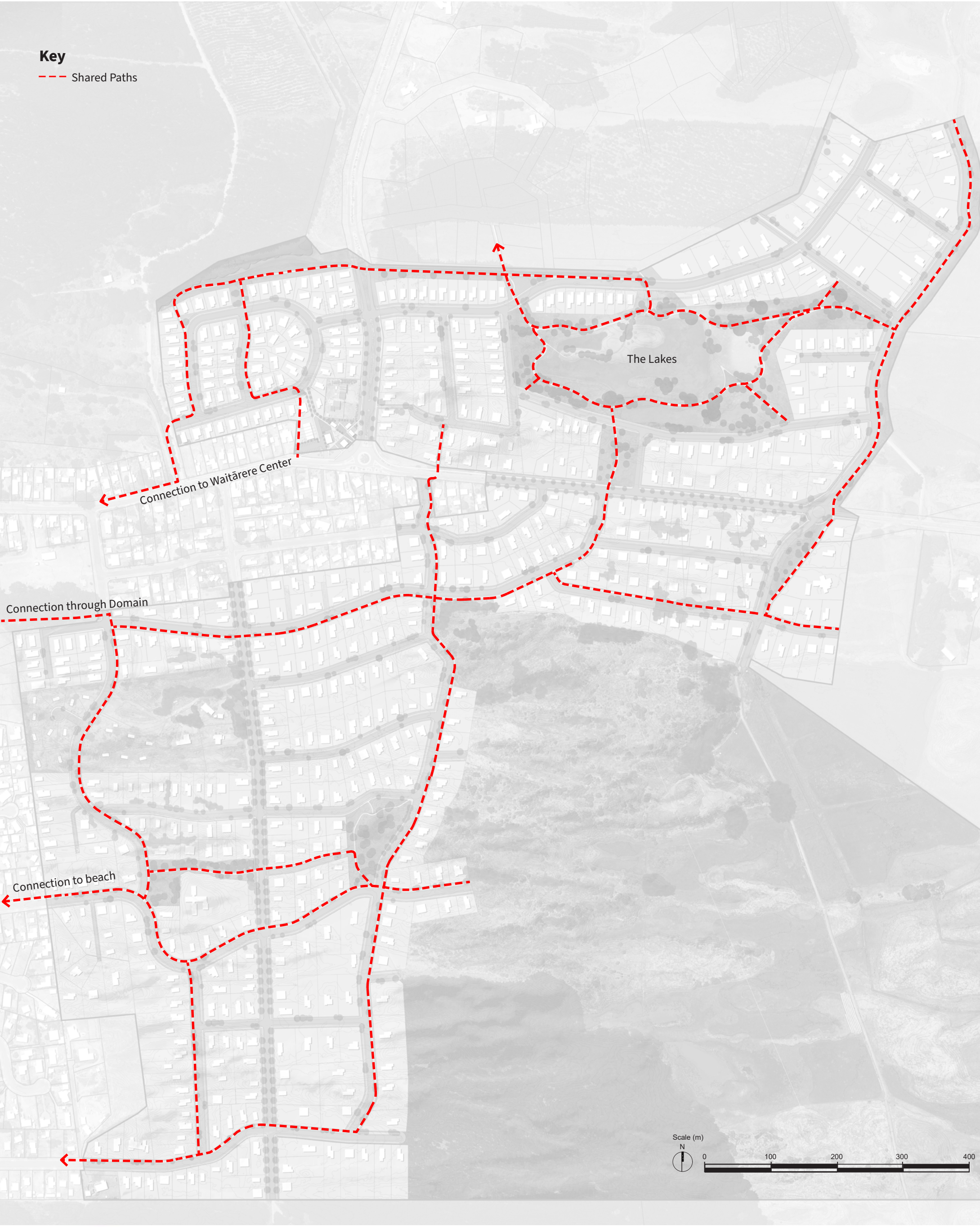
Secondary Road



Local Road



Shared Path Network



Vegetation and Open Space



Suggested Tree Species

The unique coastal environment provides opportunities to build upon the existing local character of Waitārere Beach and also reintegrate species that historically grew in the area.

Waitārere Beach Road and Forest Road

Trees need to be robust enough to thrive in coastal environments and of a scale appropriate to these large streets.

Species may include:



Pohutukawa

Informal street and open space planting

These trees need to occupy a wide variety of environmental conditions, with varied amounts of shelter, available water and soil conditions. They may be used individually where conditions permit or in small informal groupings.

Species may include:



Cabbage trees



Ngaio



Akeake



Akiraho



Nikau



Lancewood



Kanuka



Manuka



Mahoe



Pohutukawa x rata hybrids



Norfolk pine



Rewarewa



Puriri



Kowhai



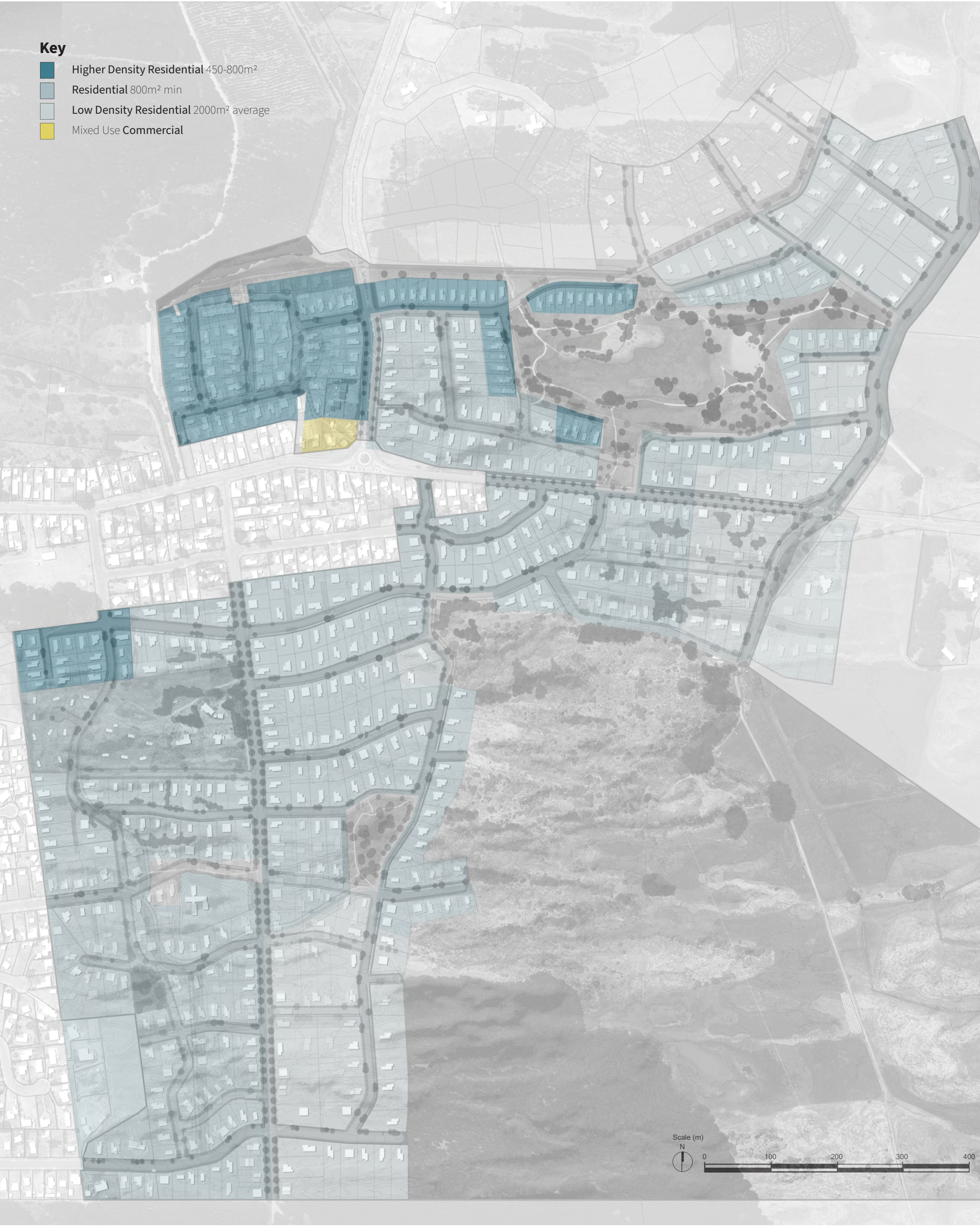
Pigeonwood

Conceptual Ideas for The Lakes Reserve

- Key**
 - A - Potential parking
 - B - Opportunities for picnic areas
 - C - Bird Hide
 - D - Decking areas
 - E - Viewpoint



Density, Land Use and Housing Diversity



Anticipated Staging of Development



Appendix 3 - 3 Waters Infrastructure Master Plan: Waitārere Beach

MASTERPLAN

3 WATERS INFRASTRUCTURE

Waitārere Beach



Paul Gaydon

February 2021

Version Control

Revision	Date	Revision Details	Prepared	Reviewed	Approved
0	07/07/2020	Draft	Paul Gaydon	A Crawford	
1	08/12/2020	Draft	Paul Gaydon	A Crawford	
2	9/2/2021	Draft	Paul Gaydon	A Crawford	

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1. INTRODUCTION

This document serves as a Masterplan detailing the 3 Waters infrastructure required, together with estimated costs, for the development of the Waitārere Beach Growth Area.

Waitārere Beach is an existing development area located to the West of State Highway 1, approximately 14km by road to the North West of Levin. It is an area that has appeal for development for people who wish to live at or close to the beach in a village type community. Development in the future Growth Area is fairly simple to add onto the existing infrastructure of Waitārere Beach in terms of wastewater, while stormwater will largely be managed on site due to the excellent drainage of the soil in the area. Water is provided privately by each property owner as Waitārere Beach does not currently have a reticulated water supply, although a feasibility study for this has been completed by Green Environmental Consultants. This report does not consider the impact of a reticulated water supply as there has been no Council decision on whether the settlement will be reticulated or not.

The development of the Waitārere Beach Growth Area aligns with Horowhenua District Council's Growth Strategy (Horowhenua Growth Strategy 2040). The Waitārere Beach Growth Area enables the potential development of approximately 700 sections, which will accommodate approximately 1,750 people, assuming 2.5 occupants per section. Depending upon the reason for the purchase of these properties the resident population may be lower due to some being used as holiday homes.

Council's adopted growth assumptions for the Long Term Plan 2021-41 identify a projected 690 dwellings need for the settlement over the next 20 years.

The current township of Waitārere Beach was engineered around the historical centre of the village which is the intersection of Waitārere Beach Road and Kahukura Ave, where the 4 Square dairy is situated.

Figure 1 below shows an aerial view of the Waitārere Beach, with the growth area shown in purple.

3. SUMMARY OF INFRASTRUCTURE REQUIRED FOR THE DEVELOPMENT OF WAITĀRERE BEACH GROWTH AREA

This Masterplan assumes that the status quo of private water supply will remain for the foreseeable future and stormwater will continue to be provided on-site.

In respect of wastewater services, the current arrangement is that all sewage either drains or is pumped to Rua Avenue on the beachfront with pumpstation number 5 transferring it up to the WWTP via a 150mm rising main which is currently at capacity.

Included in this are 38 connections from Waitārere Rise. The properties from the Waitārere Rise area undertake on-site pre-treatment of wastewater using advanced wastewater treatment systems before being pumped to the sewer. The sewage from the Rise and from the eastern fringe of the town are collected at Pumpstation No. 1 in Allan Lindsay Avenue and pumped over the ridge in Waitārere Beach Road (at approximately 620 Waitārere Beach Road), before gravitating towards Rua Avenue (Figure 3).

Council has plans to divert the sewer from the Waitārere Rise area and all the new and existing sections East of Kahukura Avenue directly to the WWTP along a proposed rising main that runs North to South along Achilles Avenue (Figure 4). This prevents the sewage having to go around the current circuitous path over the ridge and down to Rua Avenue.

This route was planned alongside the development of Waitārere Rise and is budgeted for.

4. WATER SUPPLY

This Masterplan assumes that the status quo of private water supply will remain for the foreseeable future.

5. WASTEWATER

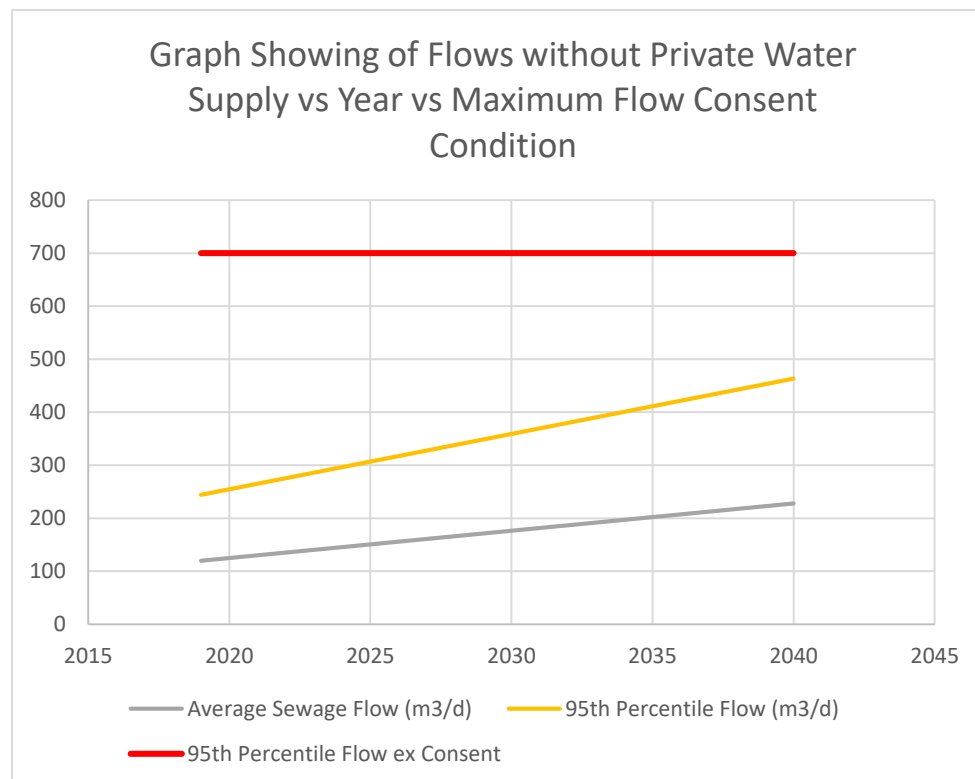
5.1 Introduction

Future flows without reticulated water supply are shown in tabular form in Table 1 below, and graphically in Figure 2.

Table 1: Future flows with private water supply

Year	2019	2041
Total number of dwellings	800	1490 ¹
Average Sewage Flow (m3/d)	120	204
95th Percentile Flow (m3/d)	244	414.8
95th Percentile Flow ex Consent (see discussion below)	700	700

Figure 2: Future flows with private water supply



¹ Based on Council's adopted growth assumption for the LTP 2021-41.

The data and graph shows that the current infrastructure at the Waitārere Beach WWTP have sufficient capacity for at least the next 20 years at the projected rate of growth that anticipates the need for an additional 690 dwellings. This is shown by the yellow line in the graph above (expected 95th percentile flow with growth of 700 sections) not intercepting or exceeding the red line which is the consent 95th percentile.

5.2 Importance of using the correct I/I factor

It's important to note that I/I (infiltration and inflow) is a function of a number of factors, not least of which is the material of construction of the reticulation network, including the laterals. In the case of Waitārere Beach the sewer reticulation was installed in the 1980's with PVC laterals being used.

PVC pipes have a lower infiltration rate compared with vitreous clay pipes often used historically in other areas. As such, a modern sewerage system with PVC laterals would typically have an I/I factor of 2 and not 4.

5.3 Sewage Reticulation

The current arrangement at Waitārere Beach is that all sewage either drains or is pumped to Rua Avenue on the beachfront with pumpstation number 5 transferring it up to the WWTP via a 150mm rising main which is currently approaching capacity.

Included in this is 38 connections from Waitārere Rise where the wastewater has on-site pre-treatment of wastewater using advanced wastewater treatment systems before being pumped to the sewer. The sewage from the rise is pumped to the traffic circle on Waitārere Beach Road from where it drains, together with other sewage from sections to the East of Achilles Avenue, to a pumpstation on the corner of Allan Lindsay Drive. From here it is pumped over the ridge (located at 620 Waitārere Beach Road) and drains down to Rua Avenue on the beachfront.

During the Waitārere Rise subdivision re-routing the sewage originating in Waitārere Rise directly to the WWTP in a North-South direction along a new pressure main was planned. This would negate the need to pump it over the ridge in Waitārere Beach Rd towards the beach, only to pump it all the way back up the hill to the WWTP, with the associated risks of a circuitous route and associated increased pumping costs.

The vast majority of the new subdivisions in Waitārere Beach will be served by this new pumpstation and rising main together with the existing sections to the East of Achilles Avenue (a total of 91 sections).

With further development occurring on the Eastern side of Waitārere Beach, and Waitārere Rise, it is planned to make use of a new pumpstation and pressure main to transfer the sewage the new developments directly to the WWTP.

The total number of properties to be served by the new pumpstation and North – South rising main can be calculated as in Table 2 below.

Table 2: Total number of sections to be served by the new pumpstation and north south rising main (2041)

Existing sections in Waitārere Beach	91
Existing connections in Waitārere Rise	38
Future development sections	700
Total	829

The total number of properties to be served by the new pumpstation and North – South rising main can be calculated as in Table 3 below.

Table 3: Total number of sections to be served by existing pumpstation in Rua Avenue and existing rising main (2041)

Existing sections in Waitārere Beach	800
Less	
Existing sections in Waitārere Beach East of Achilles Ave	91
Existing connections in Waitārere Rise	38
Total	671

Thus the effect of the new arrangement, where the flow is split 45:55 between the “traditional” Waitārere Beach township and the “newer” subdivisions, is shown below.

Approximately 45% of the flow of the township, once the Waitārere Beach Growth Area and the Waitārere Rise area are fully developed, will be collected at the existing Rua Avenue pumpstation and pumped up the existing rising main to the WWTP. The other 55% will be collected at a new pumpstation on Achilles Avenue and then pumped roughly south to a highpoint and then gravitated from there to a new pumpstation on Hydrabad Drive, from where it will be pumped via a new rising main to the WWTP.

No upgrade of the Rua Ave pumpstation or rising main will be required.

Table 4: - Expected flows at new and existing pumpstation 2041

Year	2019	2041
Total number of dwellings	800	1490
Average Dry Weather Flow (m3/d)	120	228
New Pumpstation ADWF (m3/d)	60	127
Existing Pumpstation ADWF (m3/d)	60	101
95th Percentile Flow (m3/d)	244	464
New Pumpstation 95th Percentile Flow (m3/d)	122	255
Existing Pumpstation 95th Percentile Flow (m3/d)	122	209
95th Percentile Flow ex Consent	700	700

5.4 Sewage Reticulation Upgrades Required

Below is an estimate of the upgrades required at a high level. This value may likely to change during detail design.

Table 5: Sewerage reticulation upgrade cost

Scenario 1: No Mains Water Supply

Item	Description	Unit	Qty	Rate	Amount
1	Pumpstations				
1.1	Forest Ave Pumpstation No 1 - upgraded pumpstation				
	Pumpstation upgrade to include chamber and pump(s) to pump PWWF of 207m ³ /d (414m ³ /d max flow)	Sum	1	137,700.00	\$137,700.00
1.2	Hydrabad Drive - new pumpstation				
	Pumpstation upgrade to include chamber and pump(s) to pump PWWF of 207m ³ /d (414m ³ /d max flow)	Sum	1	137,700.00	\$137,700.00
2	Rising Mains				
2.1	Forest Ave - Pumpstation No 1 to highpoint manhole				
	PVC 200mm	m	621	371.00	\$230,391.00
2.2	Hydrabad Drive to WWTP				
	PVC 200mm	m	971	371.00	\$360,241.00
3	Gravity Main				
3.1	Highpoint manhole to Hydrabad Drive pumpstation				
	PVC 250mm	m	549	942.22	\$517,280.00
	Manholes @ 120m apart	Sum	5	5,050.00	\$25,250.00
	Sub Total				\$1,408,562.00
	Escalation				\$0.00
	Construction Total (after escalation)				\$1,408,562.00
	Contingencies (15%)				\$211,284.30
	Total (construction)				\$1,619,846.30
	Professional Fees (design & project management)				\$242,976.95
	Total				\$1,862,823.25

Figures 3 and 4 provide a graphical view of the existing and proposed sewage reticulation for Waitārerere Beach. It is immediately clear that the proposed reticulation scheme provides greater resilience than the existing scheme, which markedly reduces risk.

Figure 3: Current Sewerage Reticulation to WWTP



Figure 4: New Sewerage Reticulation to WWTP



5.5 Waitārere Beach WWTP

The current consent conditions for Waitārere Beach WWTP are summarised below in two excerpts from the LEI O&M Manual:

Figure 5: Consent Conditions for Flow

4.2 Resource Consent Limits and Monitoring Requirements

The key limits and monitoring requirements specified in the discharge consent conditions are summarised below. A copy of the entire set of consent conditions is presented in Appendix A.

The discharge volume conditions that must be met are:

- The 95th percentile daily discharge must not exceed 700 m³; and
- The maximum daily volume of treated wastewater that can be discharged onto land by way of spray irrigation and overflow from the WWTP ponds is 1,400m³; and
- The maximum daily depth of discharge must not exceed 35mm per line; and
- There must be no run-off to surface water or surface drains and no ponding; and
- The discharge flow meter must be calibrated annually to an accuracy of ±5%.

In the second week of January, April, July and October treated wastewater samples must be taken from the pipeline prior to the Land Treatment System. At the same time groundwater samples must be taken from Bores 1-6 and analysed for a range of parameters.

Figure 6: Consent Conditions for Discharge Quality

There are no limits for treated wastewater quality. There are no consent limits for groundwater parameters except for nitrate-nitrogen which must be below 90 g/m³ (stock drinking water standard) in at least two samples collected in any 12-month period from Bores 2 and 3. If this is breached, the discharge regime must be reviewed by HDC. The results for all parameters are used to assess whether the operation of the irrigation field is having a detrimental effect on groundwater quality downstream.

In the month of November 2018, 2022 and thereafter every 5 years for the term of the Resource Consents soil samples must be taken from a reference site and a site within each of the two irrigation areas and analysed for a range of parameters. There are no consent limits for these parameters.

The consent limit for nitrate-nitrogen is of no particular concern as nitrification can only occur if the DO is in excess of 2mg/l which is extremely unlikely in the case of this treatment plant. On top of that nitrification requires a carefully maintained biomass of the correct sludge age and a consistent temperature of >10°C.

The current flows are detailed in a further extract from the LEI O&M Manual.

Figure 7: Current Flows Entering the WWTP

4.4.1 Wastewater Flow Considerations

The mean daily wastewater flow rate into the WBWWTP is approximately 120 m³/d. The volume of stormwater infiltration and inflow (I & I), particularly during winter months, elevates the daily total wastewater inflow rates, but generally the daily volume is below 300 m³/d. WBWWTP receives a 5th percentile flow of 77 m³/d, a 90th percentile flow of 205 m³/d, and a 95th percentile flow of 244 m³/d. These flows are well within the treatment capacity of the WWTP's design.

Peak holiday visitor numbers residing at Waitarere Beach during January generate the highest dry weather inflows to the WBWWTP, but elevated flows from increased population numbers also occur in October, December, February, and April. Monthly total flows average 3,670 m³/mth and vary between about 1,800 m³/mth and 10,000 m³/mth. Annual total flows average 42,000 m³/y and vary between about 34,000 m³/y and 53,000 m³/y.

The assumption that a peaking factor of 2 is appropriate for PVC laterals is borne out by the 95th percentile flow being a factor of 2.03 times the average sewage flow given by LEI in the WWTP's Operations and Maintenance Manual (2018).

6. STORMWATER

The stormwater infrastructure required for servicing the roading infrastructure will be provided by developers, and the stormwater for individual sections will be managed on-site. The latter will be managed by means of rainwater tanks for domestic use, and soakaways for the excess. Drainage is good due to the high infiltration experienced in the sand country.

7. SUMMARY AND RECOMMENDATIONS

The development of approximately 700 sections in the Waitārere Beach Growth Area will not present a significant challenge.

7.1 Water

The occupants of Waitārere Beach currently provide their own private water supply by means of rainwater tanks and sand traps.

7.2 Wastewater

The provision of wastewater reticulation can be accommodated by the construction of a new rising main running north-south along Achilles Avenue which has previously been planned, but yet to be implemented. The cost of the upgrades required are estimated to be \$1.9 million.

The WWTP has capacity to cope with the additional demands from the development of the Waitārere Beach Growth Area.

7.3 Stormwater

The stormwater from the roading for the new sections will be managed within the road reserve, and the stormwater within the individual sections will be managed by way of rainfall tanks and soakaways. This is possible due to the high infiltration rate of the sand country on which the new developments are based. It is not anticipated that any additional costs will be incurred.