



# **WBOPDC** Landscape Review

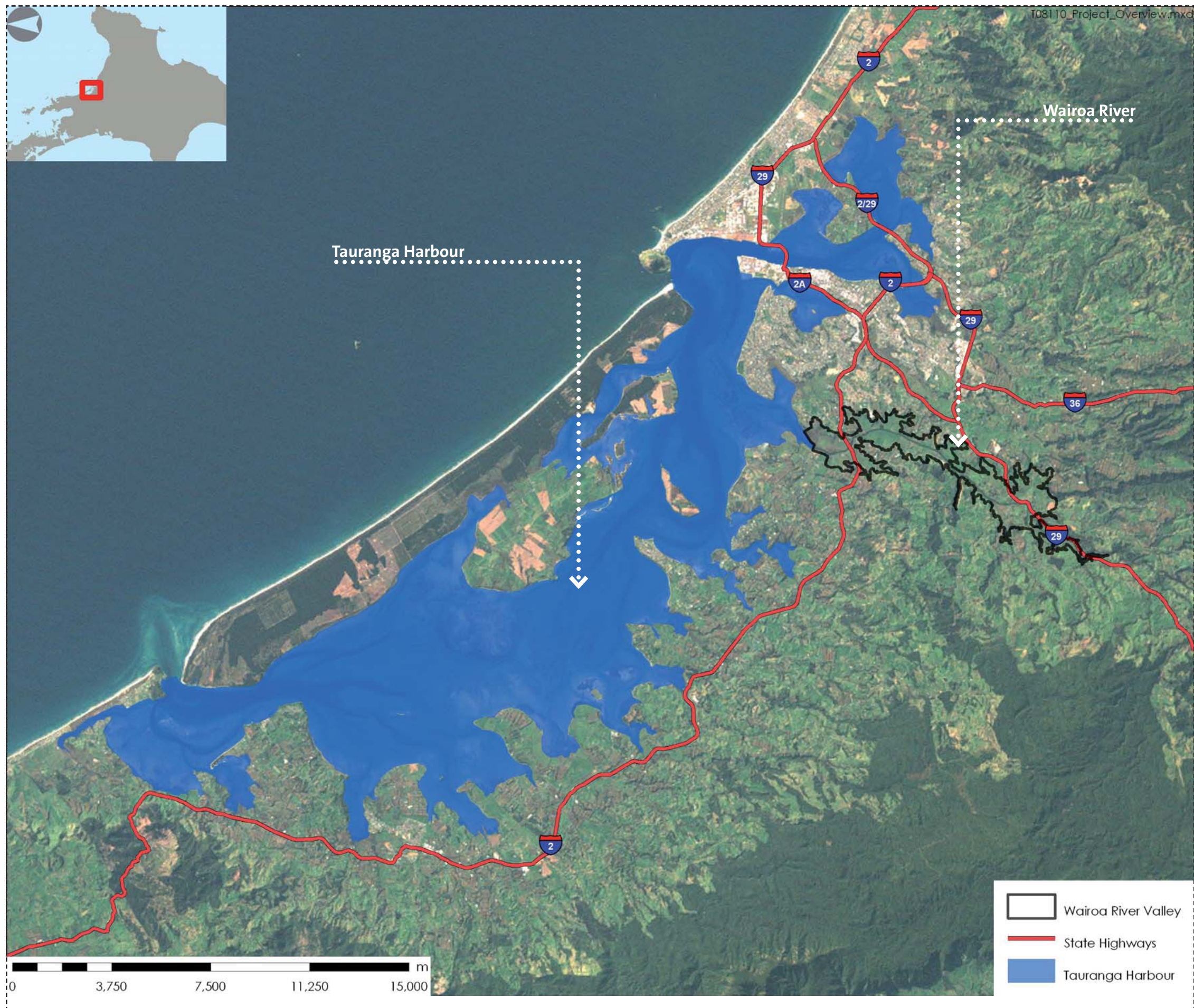
Assessment of Landscape Management Requirements  
for the Tauranga Harbour Margins and Wairoa River Valley.

October 2008



## PART ONE Background





**Western Bay of Plenty District Council** is currently undertaking a District Plan Review which considers issues and options for the protection of the District's landscapes. This review includes a re-evaluation of the Landscape Section (Chapter 10) of the Plan with the intention of ensuring that the Landscape Section effectively achieves its purpose under Sections 6(b) and 6(e) of the RMA 1991.

Having completed a comprehensive landscape assessment of the district in 1993, Boffa Miskell were approached by Council to contribute to the review process. This report looks specifically at **two of the key questions** posed by Council with regards to the Tauranga Harbour Margin and Wairoa River Valley.

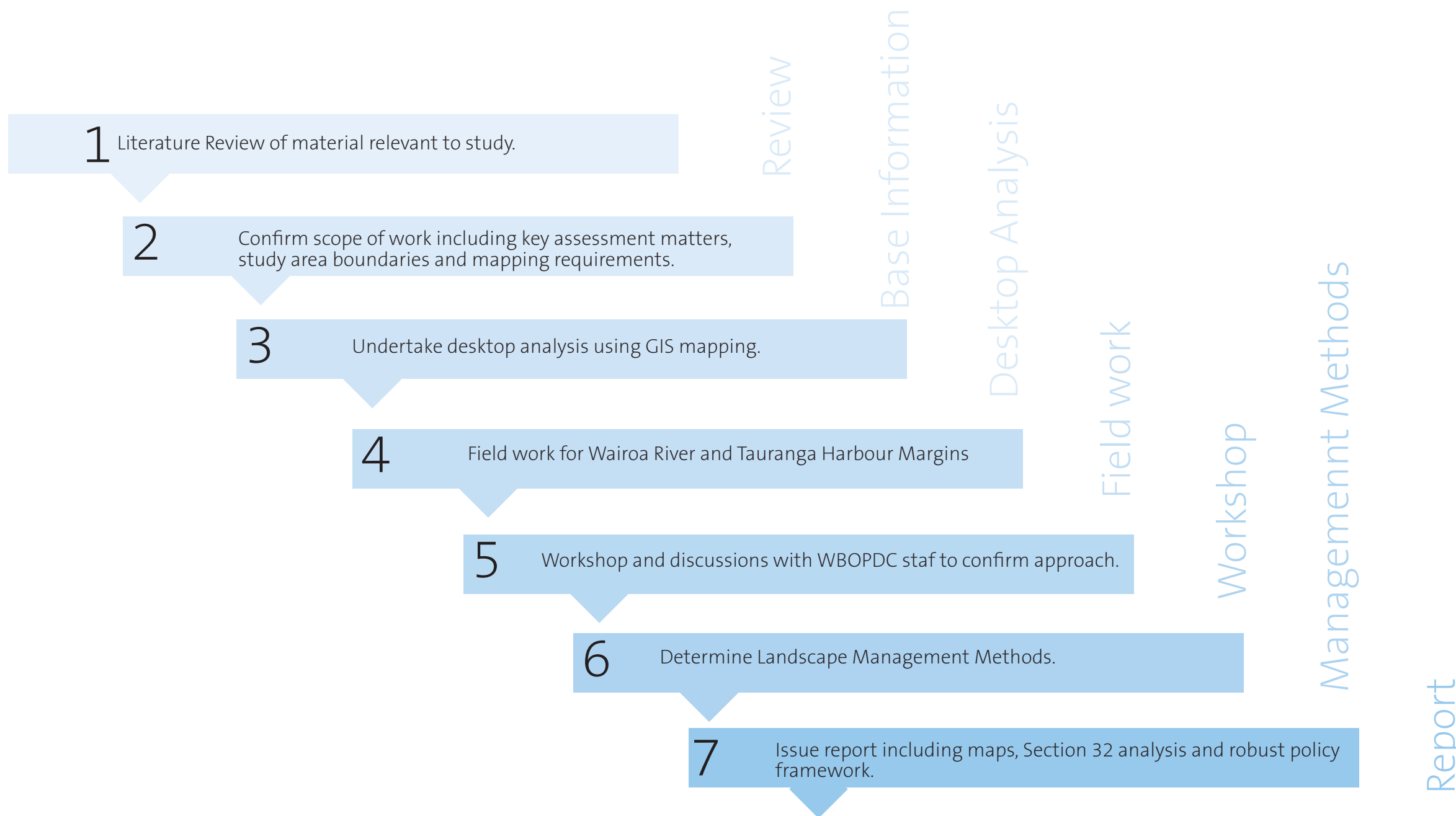
The Tauranga Harbour margins and Wairoa River Valley were identified by Council as being key areas of interest based on general community input, the issues presented through various resource consent applications and a general awareness of growth pressures in the district.

This report is divided into three parts including a background and overview section as well as a section addressing each of the questions raised by Council.

- **Part 1.** Background
- **Part 2.** Tauranga Harbour Margins
- **Part 3.** Wairoa River Valley
- **Part 4** Options Assessment
- **Part 5** Recommended Controls



The adjoining diagram summarises the process followed in completing this study. The process was developed in conjunction with Council staff to ensure a rigorous process would be followed to fulfil Section 32 Analysis requirements.



A review of existing policy and background studies has been completed to provide guidance to this study. The key points are summarised below.

### Western Bay of Plenty District Plan

Chapter 10 of the current District Plan addresses Landscape Matters, identifying significant issues.

Appendix (ii) of the current District Plan identifies both the Tauranga Harbour and the Wairoa River as Significant Landscape Features.

The Tauranga Harbour Landward Edge feature (S8) includes the land 40m inland from the MHWS.

The Wairoa River (S7) and margins of 20m to either side from McLaren Falls Dam to the Harbour is the extent of the identified Landscape Feature.

The existing objectives, policies and rules for the Tauranga Harbour margins and Wairoa River Valley are discussed in Part 4 of this report.

Consideration was also given to the effect of Plan Change 56 Katikati Structure Plan and Plan Change 68 Omokoroa Structure Plan, have on the Tauranga Harbour Margin.

### 'The Visual Landscape' District Landscape Study (Boffa Miskell Ltd 1993)

The 1993 study evaluates the landscape on visual quality, enhancers and detractors, visual absorption capability, visibility and overall sensitivity.

The assessment recognises the Tauranga Harbour as a broad landscape type, based predominantly on geomorphological characteristics. The land and water surrounding the Tauranga Harbour is identified including.

The study requires the protection of prominent landscapes including peninsulas, headlands, extensive areas of interface estuary and wetlands, remnant bush and horticultural/ pastoral land use along with the associated shelterbelts.

Landscapes were assigned a visual quality which establishes the ability to absorb change given the overall sensitivity. These units provided a guide for management.

Four main types of activities are identified that can manage visual effects; subdivision, view protection, identification of visually significant landscapes and features, and settlement growth areas.

### SmartGrowth

The Smart Growth initiative identifies growth management issues within the Tauranga district. Open space, arts and leisure are defining features of the Bay of Plenty lifestyle and the vision of Smart Growth aims to protect these values.

The document places particular importance on preserving the natural character of the Tauranga Harbour and protecting and restoring indigenous ecosystems on the Harbour edge.

The Natural Character of the Tauranga Harbour is discussed at length. Methods are provided for identified natural character units including; biodiversity, the open coast, harbours, land use, landscape, heritage and culture.

The Tauranga Harbour and the land adjacent to it was identified as requiring sub-regional strategies and structure plans. These shall take into account significant indigenous habitat and ecosystems and concentrate new coastal development around existing units.

Significant coastal landscapes, features and views must be identified and protected to reduce adverse effects of development.

### A Landscape Assessment of the Bay of Plenty Coastal Environment, prepared for Environment Bay of Plenty Regional Council (Boffa Miskell Ltd, 1993).

The 1993 Landscape Assessment of the Bay of Plenty Coastal Environment identifies both ONL and Regionally Significant Natural Features against the Heritage Criteria Set 2 (BOPRPS)

The assessment defines the coastal environment as; the coastal marine area, the zone of coastal dominance, the zone of coastal influence and the hydrological catchment.

### Outstanding Natural Features & Landscapes (February 2006), Bay of Plenty Coastal Environment. (Boffa Miskell Ltd)

The preliminary 2006 assessment (not yet adopted as at 7 April, 2008) applied the same Heritage criteria to identify the addition or removal of areas. The Tauranga Harbour remained as a recommended Outstanding Natural Landscape and Feature.

### Outstanding Natural Features & Landscapes (June 2007), Bay of Plenty Region (Boffa Miskell Ltd)

The Wairoa River was previously identified as an Outstanding Natural Landscape however the highly modified character resulted in local landscape values only and was recommended as being removed as an Outstanding Natural Landscape and Feature from the Regional Plan. Tauranga Harbour was confirmed as an area worthy of having 'outstanding' status.

Several landward boundaries were refined and all seaward boundaries were extended 200m offshore to capture intertidal and immediately adjacent sub tidal areas.

Further recommendations were recommended to refine the underwater survey for a comprehensive, multidisciplinary analysis.



## PART TWO Harbour Margin





## Study Area

The Tauranga Harbour and its estuarine fringe is recognised both by the district and the region as an Outstanding Natural Feature and Landscape (ONF & L).

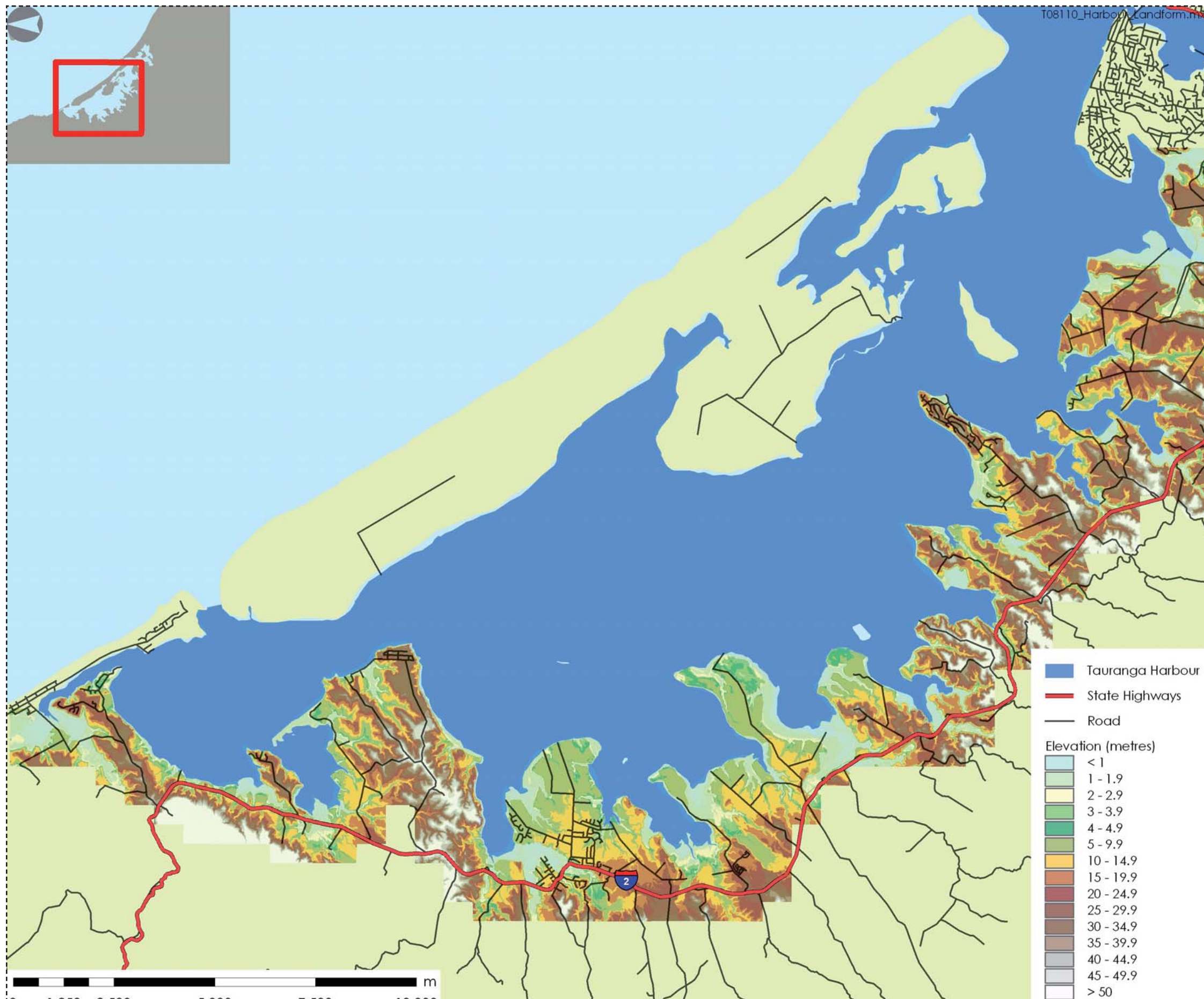
The harbour is significant to the identity of the Western Bay of Plenty district and particularly to the areas adjoining the harbour margin. Private residences, recreational users of the harbour and public open space areas are all adversely effected by inappropriate development on the harbour margin. Given that settlement in the Western Bay is concentrated around the coastal and harbour edge, the harbour is arguably the focal point of the district. It is therefore vital that the landscape values of the harbour are protected for all.

Uncontrolled development has the potential to detract from the natural character of the harbour and gradually diminish landscape character and amenity values. Councils Issues and Options paper (July 2008) posed the following question in terms of protecting harbour margins.

*'Would it be a good idea to increase the Tauranga Harbour Margin 40m Protection Yard to mitigate the adverse visual effects of inappropriate development?'*

In order to answer this question it is necessary to first understand the harbour environment and identify the land use activities and development that is considered to be inappropriate harbour.





## Landform Relief

The landforms of the Tauranga Harbour form a distinctive series of headlands, estuarine, bays, scarps and cliffs, terraces and plateau and islands.

Within the harbour landform there are four main landscape elements that are prevalent.

- **Harbour Plains**

Harbour Plains are generally long, flat plains within a height of 5m from the harbour edge. In the main these areas are found to be used for pastoral or horticultural farming practices. This landscape abuts the harbour margin directly.

- **Rolling Slopes**

Rolling Slopes form an undulating edge to the Tauranga Harbour with gently rolling landform. In many cases the landform forms a series of small valleys and ridges that extend down to meet the harbour margin.

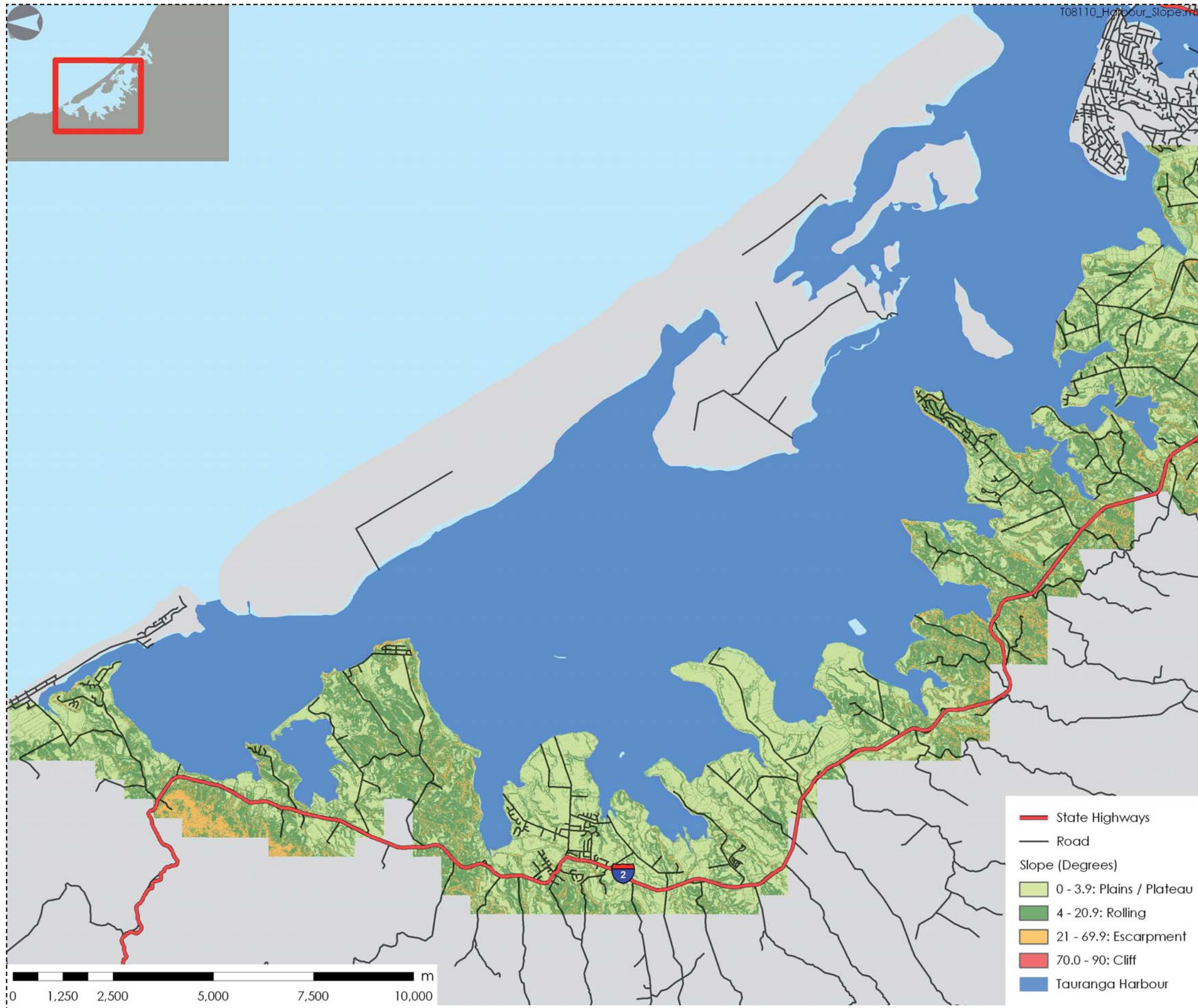
- **Escarpments/ Cliffs**

This landscape element forms a significant part of the headland landscape. The escarpment is a steeply sloping face with, in most cases, dense planting along its edge. The cliff element is vertical and in some cases inverted. In many cases these landscape types are subject to extensive erosion and are generally void of mass vegetation cover.

- **Plateau**

Plateau, similar to harbour plains, are generally flat or gradually sloping. These areas are raised above the harbour and generally include a characteristic escarpment or cliff.

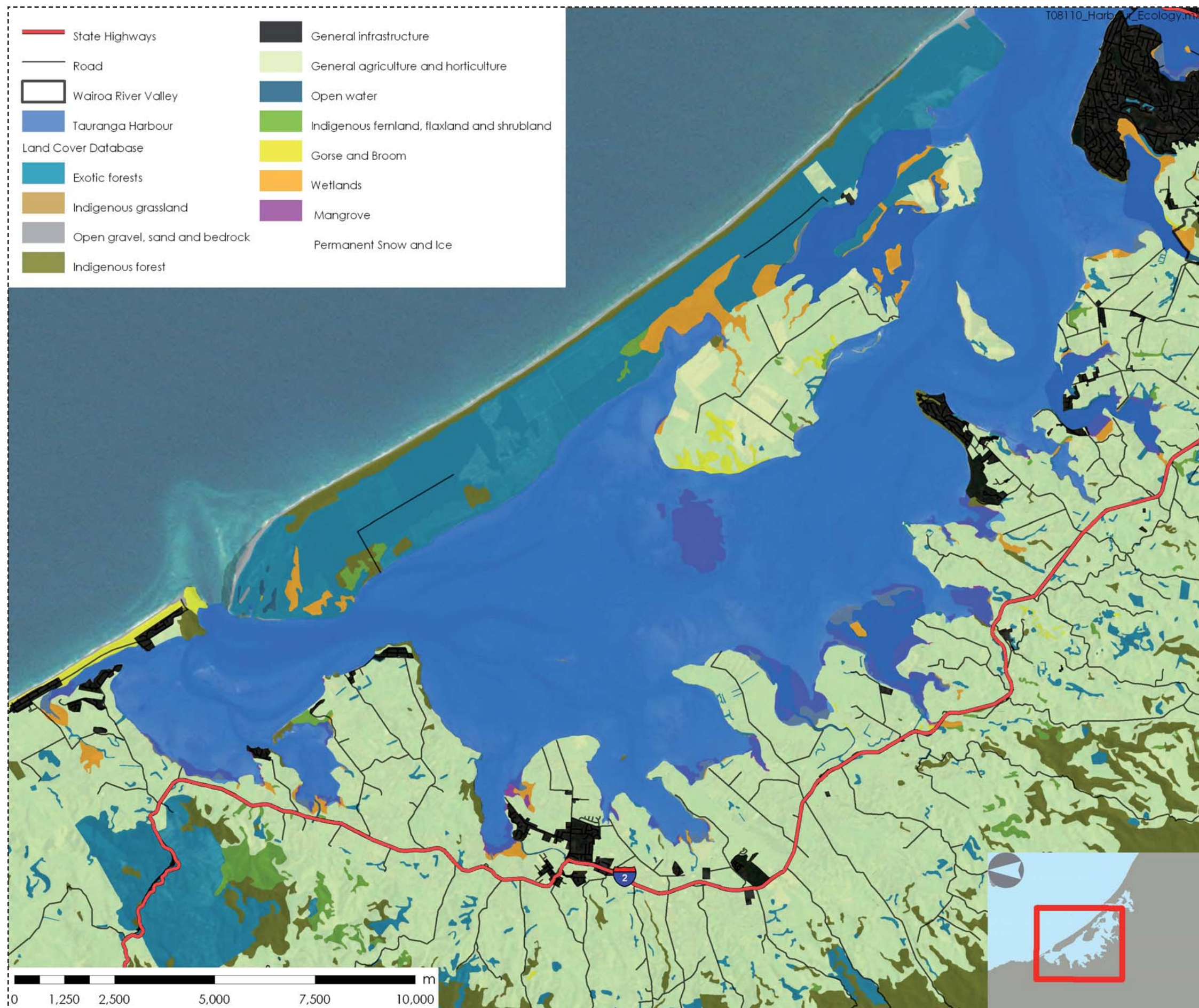




## Landform Slope

The adjoining map analyses the slope/ gradient of land adjoining the harbour to assist in defining landform types. The gradient classes have been simplified in order to distill areas into the distinct groups of harbour plain, escarpment/ cliff and plateau.





## Vegetation

The harbour margins are a dynamic natural environment presenting a diverse range and pattern of vegetation cover. Existing vegetation cover ranges from extensive mangrove and wetland areas, through to pohutukawa-fringed cliffs, orchards, windbreaks and exotic specimen trees.

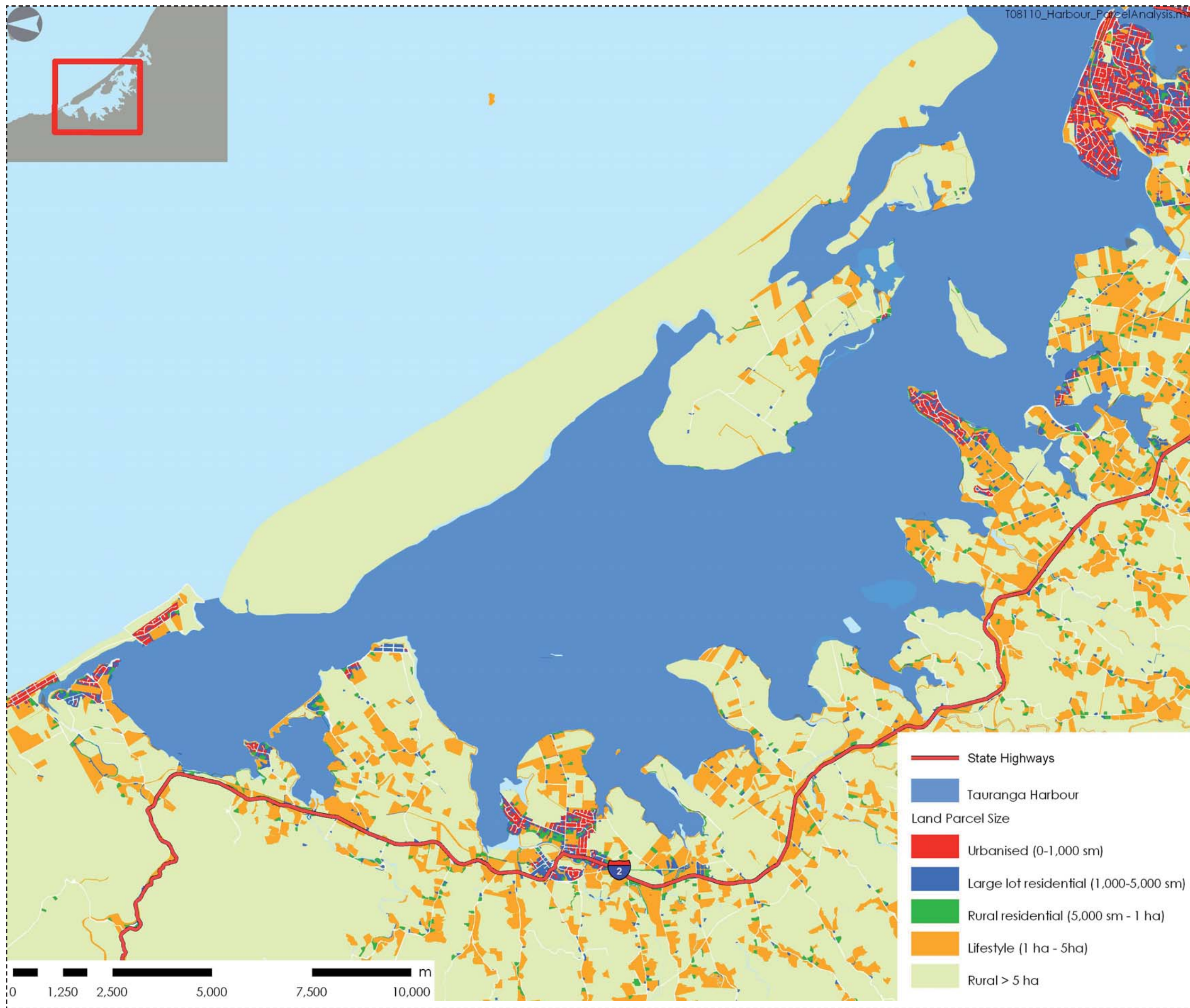
In terms of future growth and development, the cumulative loss of indigenous vegetation is a key threat. Only a small percentage of existing native vegetation remains on the fringes of the harbour and this is generally related to areas which presented significant obstacles for farming.

Both the district and the region clearly need to continue in the protection of native vegetation but there is also an imperative to encourage restoration of the vegetated coastal edge wherever practical.

From a landscape amenity perspective, exotic vegetation also plays a significant role. Large specimen trees, private gardens and horticultural blocks all add to the character of the harbour and in many situations absorb the visible impacts of built form.

There is an opportunity to promote development that protects and enhances the ecology and vegetation resource along the harbour margins.





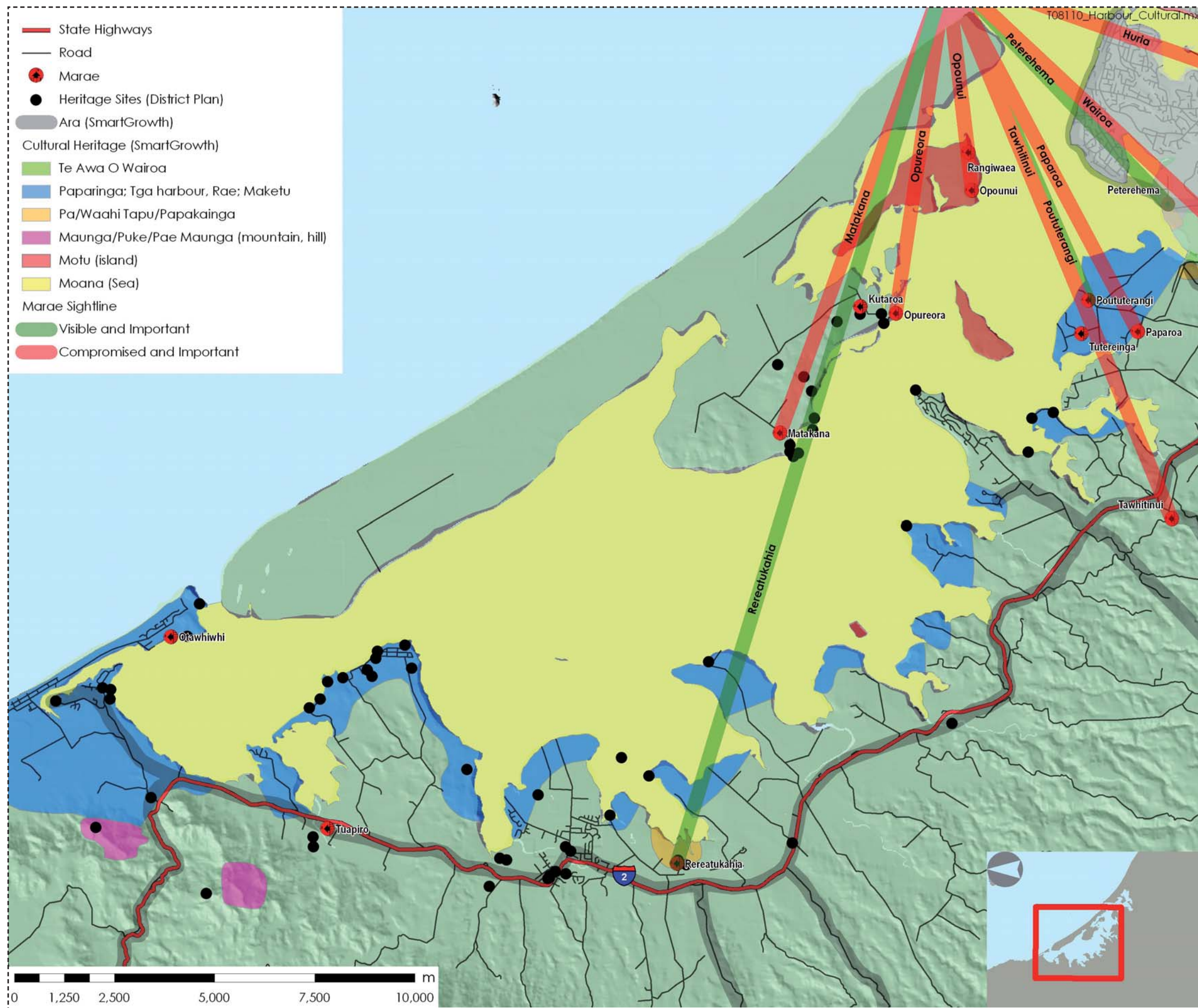
## Settlement

Historic settlement patterns have clearly been influenced by the presence of the Tauranga Harbour. The majority of the population between Te Puna and Waihi Beach is concentrated within 1.5kms of the harbour edge. Some of the primary reasons for the settlement of the harbour fringe are the coastal views, amenity and recreational benefits that the harbour provides.

The adjoining parcel analysis colour-codes existing titles based on area to show the degree to which larger rural blocks have been fragmented by subdivision. Aside from the existing settlements such as Otumoetai, Katikati, Kauri Point, Ongare Point and Tanners Point, the majority of the harbour is fringed by titles exceeding 5 hectares which are generally productive rural lots.

There is a growing number of 'lifestyle' or rural-residential lots in proximity to the harbour, as shown in orange. It is evident that the subdivision potential for lifestyle or non-productive rural lots is one of the main pressures on the harbour.





## Cultural Values

The Tauranga Harbour and its margins, is of particular significance to Tangata Whenua. Numerous historical pa sites were located on prominent headlands along the harbour edge.

A number of existing marae are found on the harbour margin and comprise views toward the Harbour and in some instances Mauao.

Tutaetaka Island comprises significant importance to Tangata Whenua, both in historical and current times, through its role as an urupa (burial ground).

The cultural landscape forms a significant edge to the Tauranga Harbour margin, through cultural landform modifications, for example, in the form of fortifications. In several cases these historical sites contribute to the management of the harbour margin through their role as historical and recreational reserves, found at Bowentown Heads, Tuapiro Reserve, Kauri Point, Gerald Crapp Reserve and Huharua Regional Park. This role of course is by default, due to their more recent role as historical and recreational reserves.





a



b



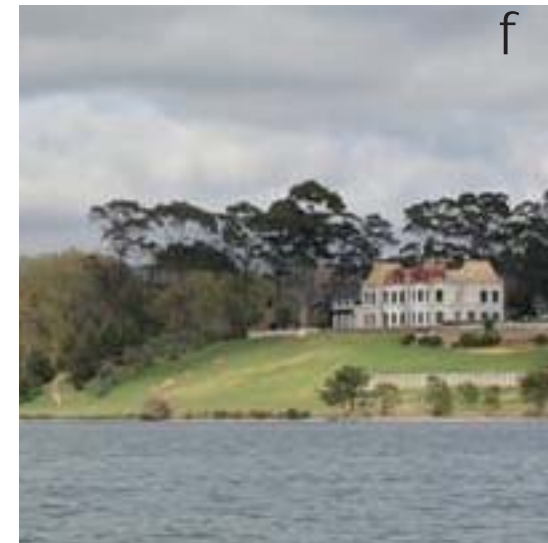
c



d



e



f

**a** View of existing dwellings atop headland as seen from Pahoia Beach. This shows the extent to which mature vegetation can assist in absorbing the visual impacts of housing.

**b** A typical view of the harbour plains.

**c** The residential edge of Omokoroa highlighting potential skyline impacts.

**d** A relatively new house on the harbour margin. The 40m setback and surrounding vegetation help to soften the impact of the two storey dwelling.

**e** The existing Ongare Point settlement creates a defined residential edge that would be inappropriate in many other rural areas of the harbour.

**f** A clear example of housing that is out of scale with the harbour setting.

**g** This photo clearly shows that existing Rural zone rules are providing for outcomes that detract from the amenity of the harbour.



g

## Key Issues

Concentrating on the areas within the Rural zone, the adjoining photos are typical of the development types occurring on the harbour margins.

Given the ONF&L status of the harbour, appropriate development must avoid, remedy or mitigate adverse effects on landscape character values. The harbour margins are thus highly sensitive to the changes introduced through subdivision and activities that are out of place in the rural zone.

Whilst there are numerous examples of buildings and activities that are appropriate at the harbours edge (refer a & b), there are increasing examples of development which detracts from the harbour landscape (refer f & g).

The key issues facing the harbour margins are as follows;

- Development pattern
- Scale and height of buildings
- Setback, Variable/ max and min
- Density, separation versus clustering
- Proximity to features
- Backdrop and skyline
- Colour and Reflectivity

The activities most commonly causing adverse landscape character effects are as follows;

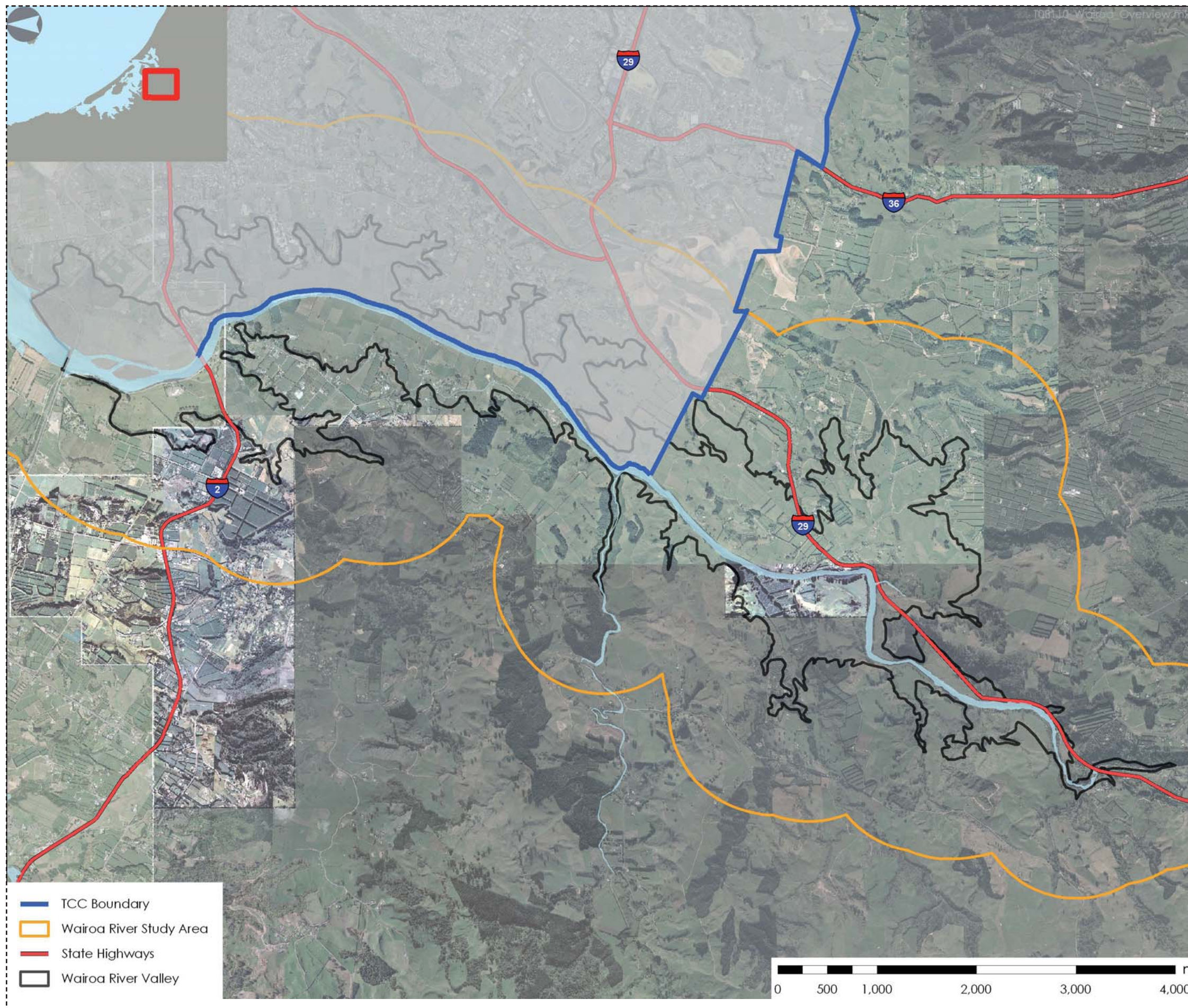
- Subdivision
- Buildings and structures
- Earthworks
- Reclamations
- Infrastructure
- Utilities
- Roading and access
- Vegetation clearance





## PART THREE WAIROA RIVER





## Study Area

The Wairoa River Valley is recognised as a Significant Landscape Feature (S7) in the District Plan and is described as follows (Refer District Plan Appendix (ii) – Schedule of Identified Significant Landscape Features)

*S7 - Wairoa River The Wairoa River and margins (20 metres each side) from the McLaren Falls Dam to MHWS.*

The River is significant both to the identity of the Western Bay of Plenty District and Tauranga City. The Wairoa River Valley Strategy was completed in 2005 to provide clear and integrated guidance for the protection of the river catchment.

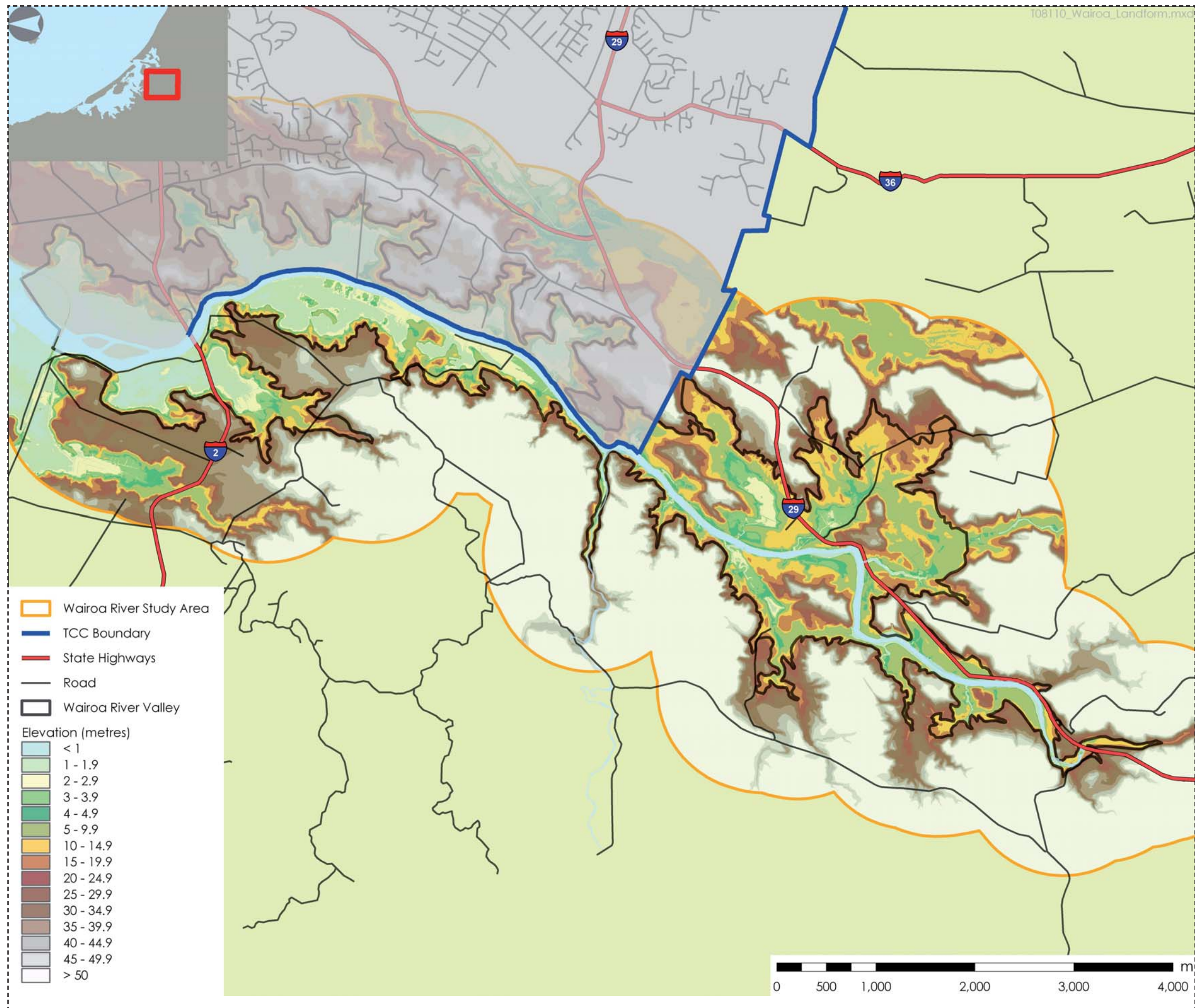
It recommended a review of the the District Plan to ensure that adequate regulation is set in place to protect both the river flats and plateaus from inappropriate development.

With increasing focus on the land use pressures, facing the river corridor, Council is seeking further clarification with regards to the management of the landscape character and visual amenity values of the Wairoa, posing the following question;

*'Should the Wairoa River 20m Landward Edge Protection Yard be extended to give Added Protection to this 'Identified Significant Natural Feature?'*

The following chapter of this report addresses this question in detail.





## Landform Relief

Landform is one of the principal determinants of landscape character. In the case of the Wairoa River, the landform pattern expresses the hydrological processes that have formed the landscape through time. Protecting the integrity of these natural landforms is of fundamental importance.

The river landform consists of four basic elements as follows;

- **River Flats**

Poorly drained river flats up to RL5m with a moderately high water table. These flats are subject to run-off from adjacent elevated areas. The flats and plains are primarily in pasture with some areas of forestry and a few examples of residential / lifestyle allotments.

- **Rolling Slopes**

Rolling to strongly rolling hill slopes with free draining soils. Generally in pasture with some areas in horticulture and forestry.

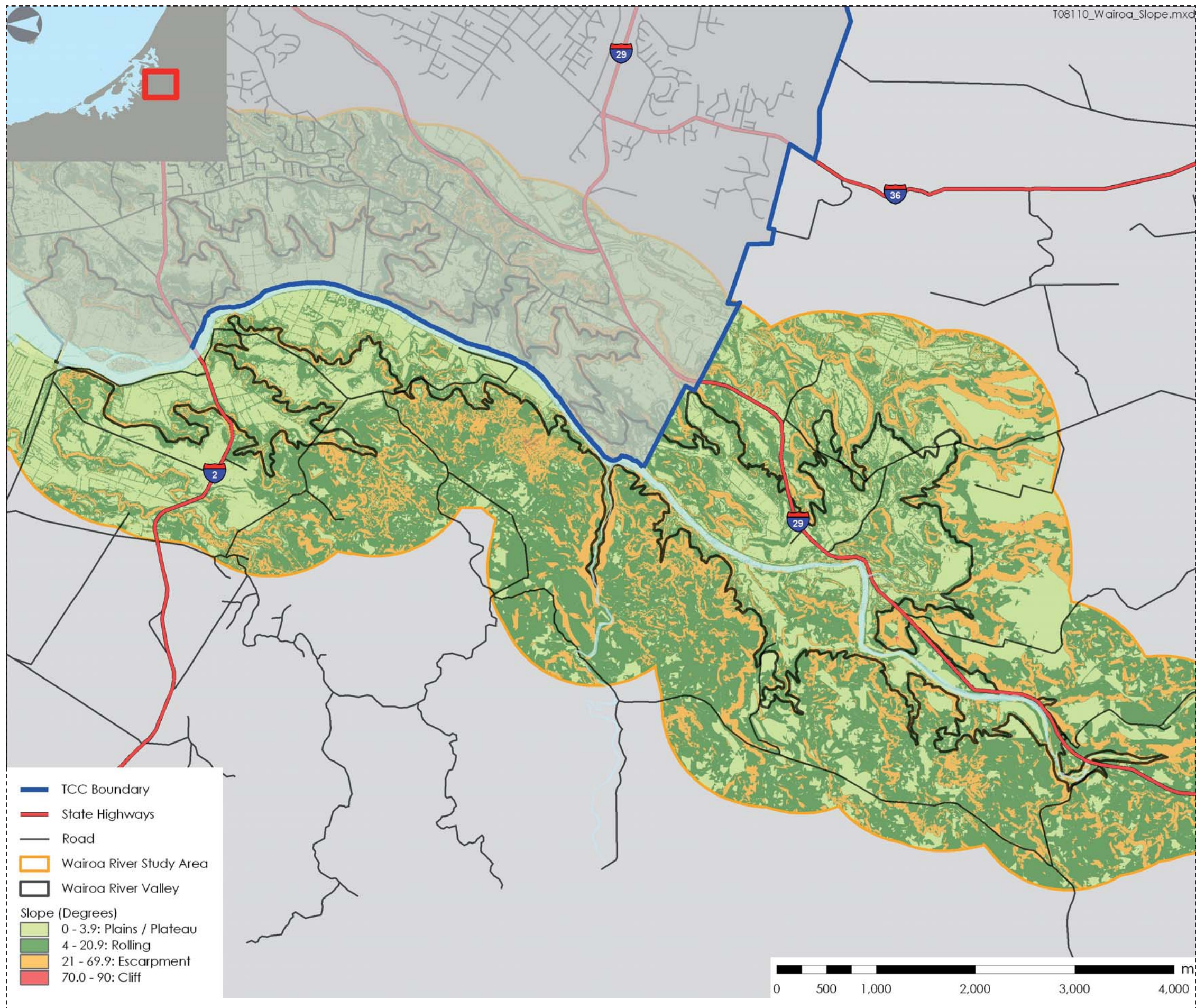
- **Escarments**

Moderately steep to very steep hill slopes with fertile soils. Generally contain vegetation, managed woodlots and rough pasture. Strong potential for erosion in these areas.

- **Plateau**

Flat to gently rolling terraces fertile soils. A range of land uses are located on the plateau, including residential, educational facilities, and other horticultural crops such as avocado, kiwifruit and citrus.

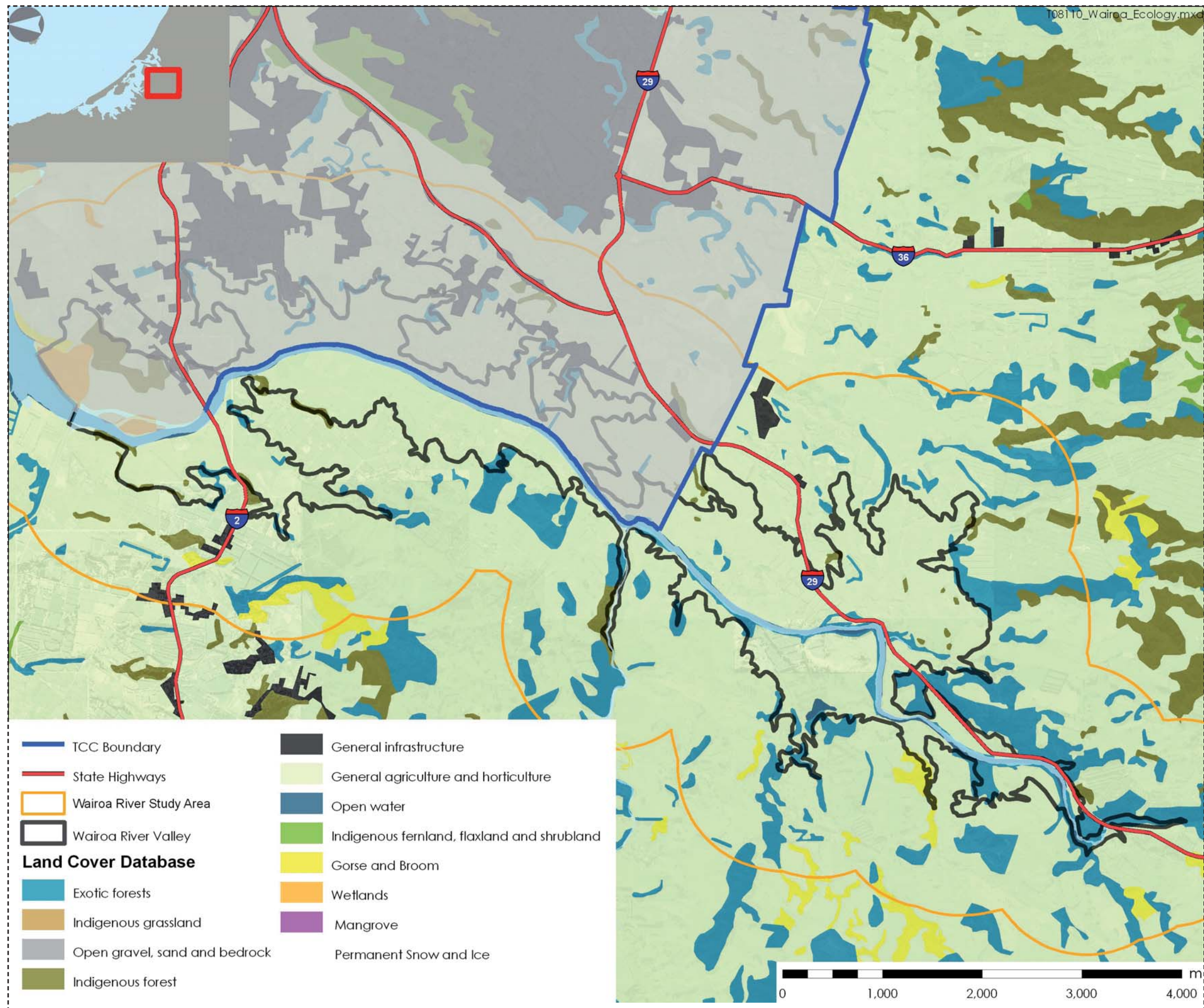




## Landform Slope

The adjoining map analyses the slope/ gradient of land adjoining the river to assist in defining landform types. The gradient classes have been simplified in order to distill areas into the distinct groups of river flats, escarpment/ cliff and plateau.





## Vegetation

The extensive clearance of native vegetation from land adjoining the Wairoa River has left a predominantly pastoral landscape. Remaining pockets of saline and freshwater wetland are located near the mouth of the river and within the Wairoa Estuary.

Along the river corridor, the main vegetation patterns are as follows:

- **Cleared Pasture**

Cleared pasture predominates in the river flats and rolling slopes. Isolated and grouped specimen trees are also located on the flats. Horticultural areas are located in some areas.

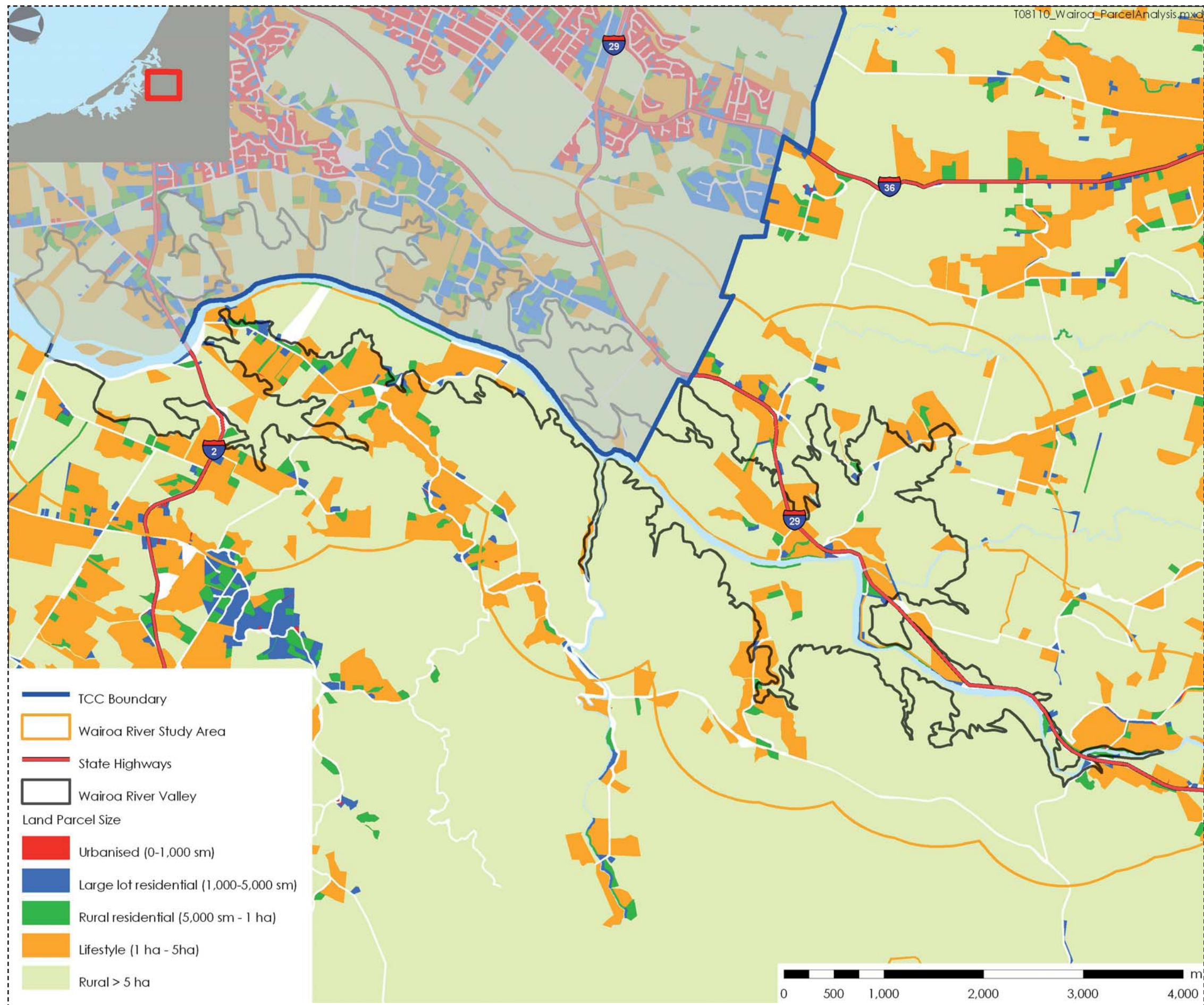
- **River Banks and Escarpments**

Vegetation on river banks, escarpments and sloping land varies with limited areas of remnant or regenerating native vegetation. Pine, Macrocarpa, Willow, Poplar, Eucalyptus and other common exotic species dominate the river margins and slopes. Many of these specimen trees do contribute to the long term visual amenity of the river corridor.

- **Recent Introduced Plantings**

In some areas, native revegetation has occurred alongside residential garden plantings. This has primarily occurred as a result of lifestyle and rural-residential scale properties. There is an opportunity to promote appropriate forms of restoration and planting to both remedy and mitigate visual effects as well as enhancing the overall amenity values of the river.





## Settlement

Historic settlement around the Wairoa River has responded to the natural landform and hydrology of the area with large farms located in the flood plain and housing generally located on the top of the plateau.

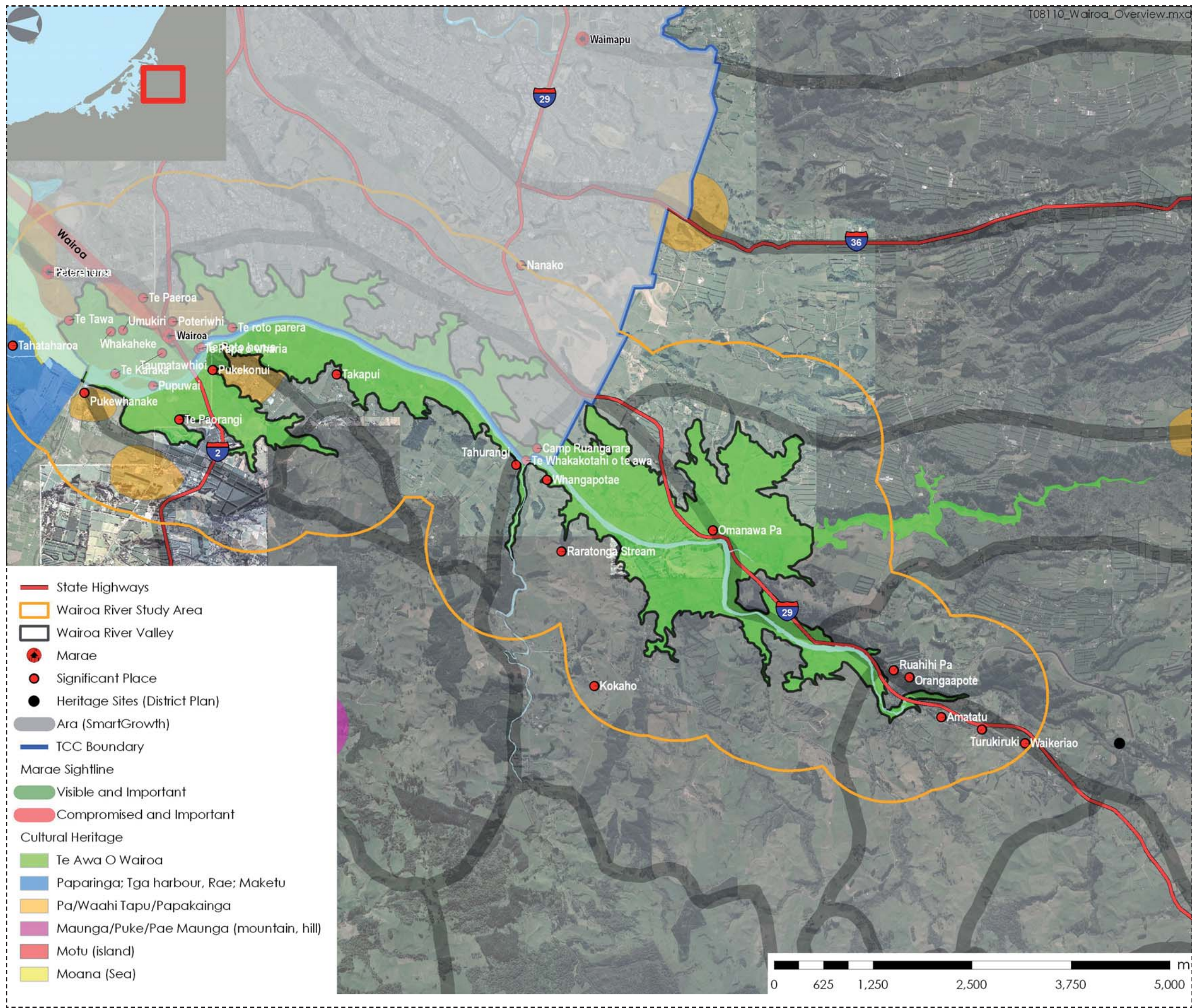
This pattern is shown clearly in the adjoining parcel analysis map which colour codes parcel sizes. The black line indicates the 20m contour which roughly relates to the top of the escarpment. The map reinforces the clear delineation between the undeveloped flood plain (primarily in yellow indicating large rural lots) and the plateau top where the majority of recent subdivision and residential intensification has occurred.

These historic settlement patterns are based on a clear logic determined by the following;

- Avoidance of building in areas presenting flooding and geotechnical risks;
- Retention of low-lying areas of flood-prone land as open pasture;
- Building houses and other structures on the plateau where sites have relatively easy access, require minimal earthworks and maintain good views and outlook.

Modern engineering now makes it possible to develop more marginal areas and build in the areas avoided by previous generations. Development that is out of step with the historic settlement pattern is a clear threat to the integrity of the cultural landscape and should be avoided.





## Cultural Values

As noted in Tauranga City Council's decision on Plan Change No. 1 in 1994, the visual effects of development on the Wairoa River have the potential to detract from its cultural value.

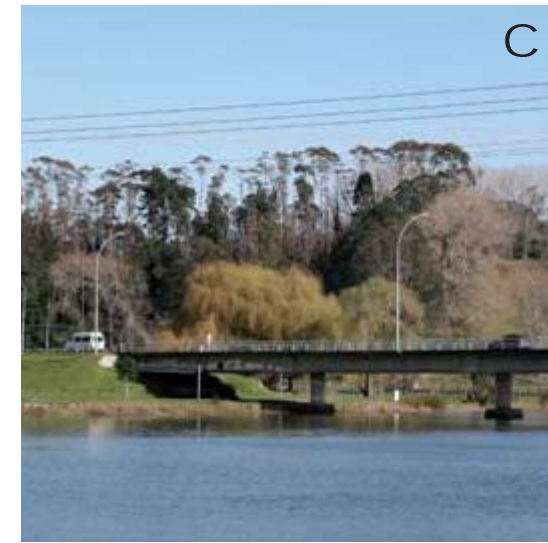
*'The Wairoa River is of cultural significance to Tangata Whenua. This cultural significance raises a concern that the natural character, privacy and serenity of the Wairoa River should be protected. This can be achieved in part by limiting the "overlook" of residential development into the river valley, and by avoiding an aggregation of buildings visible from the river.'*

The adjoining map identifies a number of sites and areas of cultural significance to tangata whenua. These include current and former settlements, food gathering and harvesting areas, burial places and natural landmarks. The marae sightlines were identified during site visits in 2004/05.

The cultural values can inform and reinforce the broader landscape management approach. The sites make the natural landscape legible in terms of historic settlement and traditions. The site distribution reflects the ancestral landscape settlement of mountains to the sea for example, the intensive settlement at the river mouth, taking advantage of proximity to harbour and river resources. Inland settlements took advantage of productive soils and forest resources.

The sense of identity that is retained in the Wairoa river valley landscape links people, places and traditions and if these elements are lost or degraded, the living traditions will be relegated to memory.





a - Rural Residential housing within close proximity to the river edge.

b - Building Platform earthworks resulting in a change in landform and character of the river corridor.

c- Views to the river are gained from State Highway 2 and 29, looking along the river corridor.

d- The river flats are occasionally dominated by buildings within close proximity to the river edge.

e - Rural Residential housing and its curtilidge dominating the river margin.

f- Structures dominating the river's riparian margin.

g- Commercial and Industrial development in close proximity to the rivers edge

## Key Issues

The adjoining photos show various views of the river environment and highlight the threats and opportunities for future management. The primary threat currently facing the river landscape is the cumulative spread of residential housing around the tops of escarpments and the river margins.

The residential creep resulting from the pressure for lifestyle properties is detracting from the open, rural character of the river valley.

The key issues facing the river valley landscape are as follows;

- Development in close proximity to river margins resulting in gradual loss of rural open space character, loss of the character of the river corridor and immediate effects upon the river's riparian margin.
- Scale and height of buildings, in conflict with the surrounding landform, dominating the landscape and skyline.
- Earthworks to create housing platforms and roading access, resulting in changing of the landform and character and resultant scarring of the landscape.
- Colour and reflectivity of structures and buildings that are highly visible and inconsistent with the rural character.



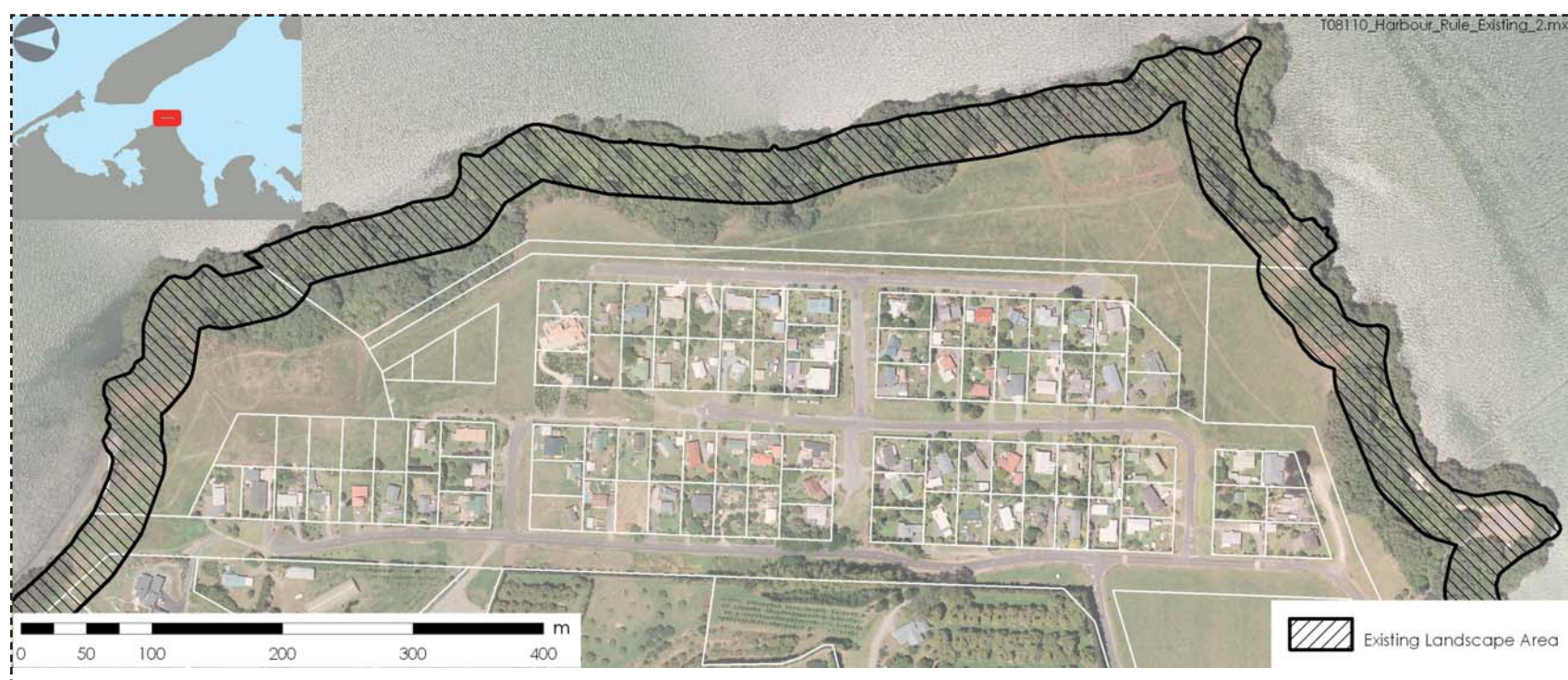


## PART FOUR Options Assessment





Plan view of the existing 40m protection yard overlaid onto recent aerial photography of Ongare Point settlement. This demonstrates that only development along the frontal edge of the plains is catered for within this protection yard.



Plan view of the existing 40m protection yard overlaid onto recent aerial photography of Kauri Point settlement. This demonstrates the protection of the escarpment area with no recognition of the plateau immediately above.

## Existing Provisions

The landward edge of the Tauranga Harbour environment is recognised by the Operative District Plan as being a significant landscape feature. The Tauranga Harbour provide high level amenity values for both the public and individuals who own property overlooking the harbour.

Existing District Plan provisions control development within an arbitrary setback area of 40 metres from Mean High Water Springs (MHWS). This is called the Tauranga Harbour Landward Edge Protection Yard and identifies a variety of activities that require resource consent. Where new buildings are proposed these are considered to be discretionary activities and require a landscape and visual assessment to support the application.

Council has reserved its control to matters identified in Rule 10.3.4.1, which includes guidance such as

- i. the extent to which the development will maintain the integrity of the landform and skyline profile; and
- ii. Structures should be aligned to the contour of the land.

An assessment of the Tauranga Harbour margins has revealed that in most cases development is being designed and located appropriately so not to significantly detract from the coastal environment.

However in some instances the rules are not appropriately addressing landscape effects resulting from development. For example, development located outside the 40m setback on raised terraces with large or tall buildings with insufficient landscape mitigation or location controls. This results in highly visible structures that detract from the natural values of the harbour environment.

To better address the effects of development on the Tauranga Harbour landscape feature it is considered that more effects based controls need to be in place taking into account the landscape elements of the Tauranga harbour margin.. This report considers a variety of options and identifies a preferred option to amend the District Plan.



# Alternative Options - Harbour

After undertaking the landscape monitoring work and identifying and analysing weaknesses with the current District Plan provisions four options were identified to manage the landscape character of the harbour margins.

- Option 1 Status Quo – Retain the existing district plan provisions
- Option 2 No landscape controls - Rely on other district plan control mechanisms such as coastal hazard and ecological protection rules.
- Option 3 Site Responsive Controls -Establish a landscape control area by responding to landform characteristics of the harbour margins.
- Option 4 More stringent arbitrary setback with revised assessment criteria –Increase Council control of development around the harbour margin by increasing the Coastal Edge Protection Yard through a 100m rather than a 40m set back.

Although the landscape protection provisions of the district plan appear to be failing in certain areas the assessment of landscape values around the Tauranga Harbour margins revealed that in most cases development is being designed and located appropriately so not to significantly detract from the coastal environment. However during the next planning period growth pressure and development around Tauranga Harbour is likely to increase resulting in cumulative adverse visual effects on the harbour margin landscape.

The cost of imposing additional development control and compliance on the community needs to be considered taking into account the risks of non reversible landscape and visual effects slowly eroding the natural character of the harbour environment – which is a matter of national importance. (Section 6(a) and (b) Resource Management Act 1991). The following options have been assessed taking in to key environmental outcomes embodied within the Resource Management Act.

## Option 1 - Status Quo

The status quo has been identified through field survey analysis to be working to a large extent. However with the likely foreseeable growth pressures for development around the harbour adverse landscape and visual effects may result from inappropriate development being built outside the 40m setback, on prominent escarpments, terraces or plateau areas.

Large development proposals may also be undertaken just outside the 40m setback significantly affecting the natural character and Tauranga Harbour. These developments may be caught by the other provisions of the district plan or regional plan rules, however better decision making guidance could be included in the district plan by way of stronger objectives, policies and rules.

It is considered that the status quo does not provide the protection that should be afforded the coastal environment as identified as a matter of national importance under Section 6 (a) and (b) of the Resource Management Act 1991. This will result in a slower erosion of the natural character of the harbour.

## Option 2 - No Landscape Controls

This option relies solely on other district plan provisions to control development such as the general rural zone provisions, control of works in identified ecological areas or areas that are subject to a coastal hazard.

Several non-complying subdivision applications and a marina proposal have been declined by Council and the Environment Court during the last 10 years. The landscape provisions of the plan have paid an important role in the consideration of these decisions.

The absence of controls may allow inappropriate development and little guidance for Council or the Environmental Court as decision maker. This approach is considered to result in inefficient resource management outcomes.

Costs in terms of a progressive erosion of the natural character of the coastal environment is likely and the district plan would not align with purpose and principles of the Resource Management Act (particularly sections 6(a) and (b)). Consequently this option is rejected.

## Option 3 - Arbitrary Setback & Site Responsive Controls

The site responsive control option seeks to control development within areas of visual influence on the Tauranga harbour margins. This is often referred to as the “zone of coastal influence” and has been used nationally for landscape and visual assessments. It has also been tested at an Environment Court level. Essentially this option seeks to establish a management area in response to landscape features that are visually prominent from the harbour or could be if they are developed. The likes of bays, terraces, escarpments are all visually prominent to Tauranga Harbour.

Establishing the management area in response to these features is effects focussed and in line with the purpose and principles of the Resource Management Act (Especially sections 6(a) and (b)). This option is also considered to be efficient as it helps identify areas of land that are visually prominent and those that are not. This avoids unnecessary planning administration costs for areas that may currently be subject to landscape controls.

Undertaking a landscape responsive approach around Tauranga Harbour, achieving accurate base information and then undertaking a ground truthing exercise to confirm its accuracy was beyond the Council’s current budgetary and time constraints for this District Plan review. Consequently it was not possible to implement this option in an effective manner.

## Option 4 - More Stringent Arbitrary Setback with Revised Landscape Assessment Criteria

This option would increase the 40m arbitrary setback to 300m to manage development within the harbours landward edge. This method is likely to be successful as it will allow a larger area of control and is likely to result in inherent retreat of development back from the coast as owners seek to minimise planning administrative costs.

It will also control development within the setbacks as revised landscape assessment criteria will be more effective at avoiding inappropriate development. The 300m setback was identified following a result of modelling and analysing a variety of setback scenarios using contour data and GIS mapping. This included the calculation of various arbitrary horizontal setbacks and comparing them against a height contour setback to respond to landscape features such as escarpments and cliffs.

This analysis confirmed that in most cases a 300m setback would successfully establish controls over the ‘zone of dominance’ and the ‘zone of influence’ resulting in an efficient control mechanism. It also avoids control over areas that were far enough away from viewing audiences so not to require controls. This option is considered to be the preferred option taking into account the quality of the contour information available, as it is easy to administer, provides additional protection to the coastal environment and provides a level of certainty for the property owner.

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Plan view of the existing 20m protection yard overlaid onto recent aerial photography, providing minimal management of the wider river corridor and its character values.



Plan view of the existing 20m protection yard overlaid onto recent aerial photography, demonstrating minimal management of the river corridor and its character values.

## Existing Provisions

The river margins of the Wairoa River have been subject to a significant amount of development over the past 10 years. The Tauranga City Council recognised the importance of the river for scenic and cultural values of the Wairoa River to Ngati kahu through their first generation district plan. A set of zoning and landscape provisions were included in that plan aimed to protect the river flat areas and keep development off prominent river margins and plateau areas. However these provisions only related to land within the Tauranga District boundary.

The WBOP District Plan currently has a 20m setback which provides limited protection with respect to the landscape values of the Wairoa River margins. At the time of drafting the first generation district plan the rate of subdivision and development within the Western bay of Plenty was sufficiently low so not to require stringent landscape controls. The standard Rural G and H zone provisions did however apply including extensive areas identified as flood prone on the river terraces adjacent to State Highway 2. These measures have ensured that development has not significantly detracted from the landscape qualities of the Wairoa River and its margins.

The next planning period is going to see a demand for lifestyle living adjacent to the Tauranga District boundary. This is likely to place additional pressure on the landscape values of the Wairoa River.

To better address the effects of development on the Wairoa River margin landscape feature it is considered that more effects based controls need to be in place taking into account the unique landscape elements. This report considers a variety of options and identifies a preferred option to amend the District Plan.



# Alternative Options - River

After undertaking the landscape monitoring work and identifying and analysing weaknesses with the current District Plan provisions three options were identified to manage the landscape character of the harbour margins.

- Option 1 Status Quo – Rely on other district plan control mechanisms such as flooding, flooding and ecological protection rules.
- Option 2 Establish an Arbitrary Setback Control –Provide a mechanism to allow Council to control development around the Wairoa River margin by establishing provisions to require a landscape assessment to be completed within an arbitrary landward setback from the edge of the Wairoa River.
- Option 3 Site Responsive Controls -Establish a landscape control area by responding to landform characteristics of the margins of the Wairoa River.

## Option 1 - Status Quo

This option relies solely on a 20m setback from the rivers edge other district plan provisions to control development such as the general rural zone provisions, control of works in identified ecological areas or areas that are subject to flooding. The growth pressures around the margins of the Wairoa River are likely to increase as the land is located relatively close to Tauranga City and the Bethlehem Commercial area.

The viability of developing subdivisions in this area will increase as land values increase. Having limited control mechanisms may result in a raft of inappropriate development having adverse cumulative visual impacts on the Wairoa River and its margins.

This approach is considered to result in inefficient resource management outcomes. Costs in terms of a progressive erosion of the natural character of the Wairoa River margins is likely and the district plan would not align with purpose and principles of the Resource Management Act (particularly sections 6(a) and (b)). Consequently this option is rejected.

## Option 2 - Site Responsive Controls

The site responsive control option seeks to control development within areas of visual influence on the Wairoa River margins. This is often referred to as the “zone of influence” and has been used nationally for landscape and visual assessments. It has also been tested at an Environment Court level.

Essentially this option establishes a management area in response to landscape features that are visually prominent from the river or river margins., or could be if they were developed. The likes of terraces, escarpments and plateau areas are all visually prominent to Tauranga Harbour. Establishing the management area in response to these features is effects focussed and in line with the purpose and principles of the Resource Management Act (Especially sections 6(a) and (b)).

This option is considered to be efficient as it would help identify areas of land that are visually prominent and those that are not. The option would be responsive to landscape elements, is defensible, meets RMA Section 6(a) and (b) matters of National importance to preserve the coastal environment and outstanding natural features, and provides certainty to landowners and administrators.

However during analysis of the topographical features using GIS modelling it became apparent that the quality of the information meant that defining these features was not always accurate and there were grey areas in terms of landscape prominence that would require extensive ground truthing to confirm. For this reason this option was discarded in favour of an arbitrary setback with assessment criteria responding to landscape features (Option 3)

## Option 3 - More Stringent Arbitrary Setback with Revised Landscape Assessment Criteria

This option would establish an arbitrary setback (300m) from the edge of the Wairoa River where development would be managed to avoid adverse landscape effects. This method is likely to have some success as it will establish a consenting process where developments are assessed against key landscape and design criteria.

This option is considered to be efficient as it is easy to administer, provides additional protection to the river margin environment It also provides a level of certainty for the property owner, and Council as administrator.

However this option may result in prominent landform features remaining unprotected. For example, the top of some plateaus greater than 300m from the edge of the river will not be covered by this rule and this may result in inappropriate subdivision or development. The risk of this occurring is moderate but will become an issue over time as prime life style lot development sites around the wider and more distant river margins are redeveloped.



## Management Area Definition

The NZ Coastal Policy Statement defines the coastal environment as "an environment in which the coast usually is a significant part or element".

The **Active Coastal Zone** is defined as the area extending from the back dune or cliff face which is directly influenced by coastal processes.

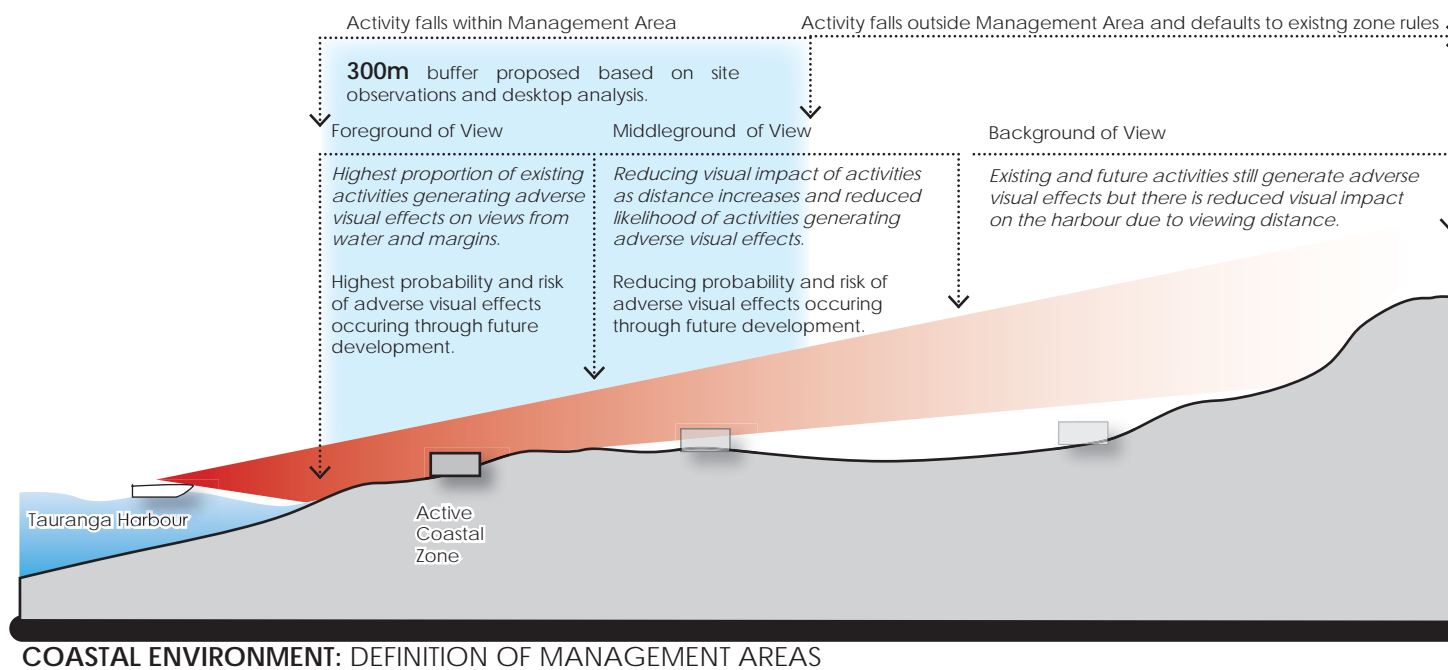
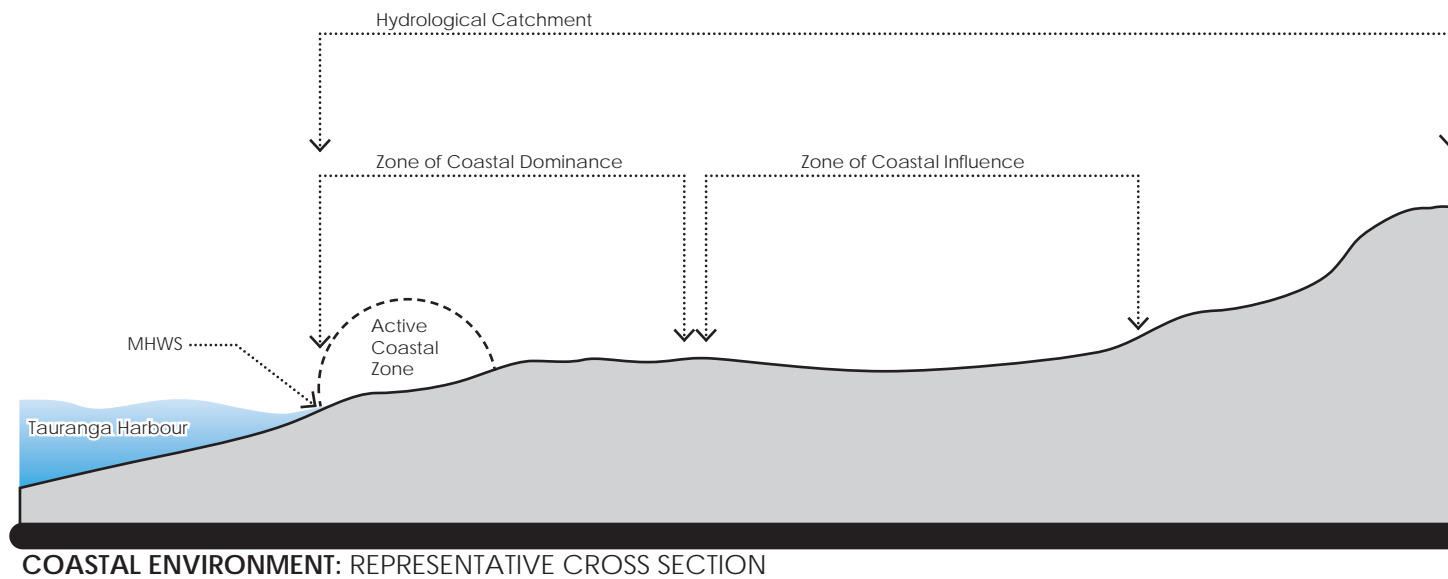
The **Zone of Coastal Influence** is either defined by the first visually enclosing ridgeline or a distance of 5-8km from mean high water springs.

The **Zone of Coastal Dominance** is visually discernable due to the derived landforms. This is the component of the coastal environment in which the coast is the dominant element and as such is the key area of focus for this study. The width of the Zone of Coastal Dominance obviously varies along the coast from the wider plains through to areas such as headlands where inland geology meets the coast.

The task of delineating management areas for both the harbour and the river needs to consider coastal processes as well as the practical realities of visual and amenity effects. The sensitivity of margin areas to landscape change is influenced directly by viewing distance from the harbour and river. Activities occurring within the existing statutory framework have a higher probability of resulting in adverse visual effects on the landscape features when in close proximity to the edge of that feature. As distance from the edge increases, the visual impact of activities generally reduces.

Site observations along the Wairoa Rive and from around the harbour showed that adverse landscape and visual effects are generally occurring where development is located within 300m of the harbour edge.

Adverse effects still occur beyond this distance but are less pronounced and more readily absorbed into the background of a view. Viewing distance is not the only criteria influencing landscape and visual effects however and ultimately the degree of responsiveness to landscape character attributes is critical. The general finding however was that management areas were best determined on the basis of areas with the highest visual sensitivity and that activities within this area have an increased need to be managed according to landscape character - based provisions.

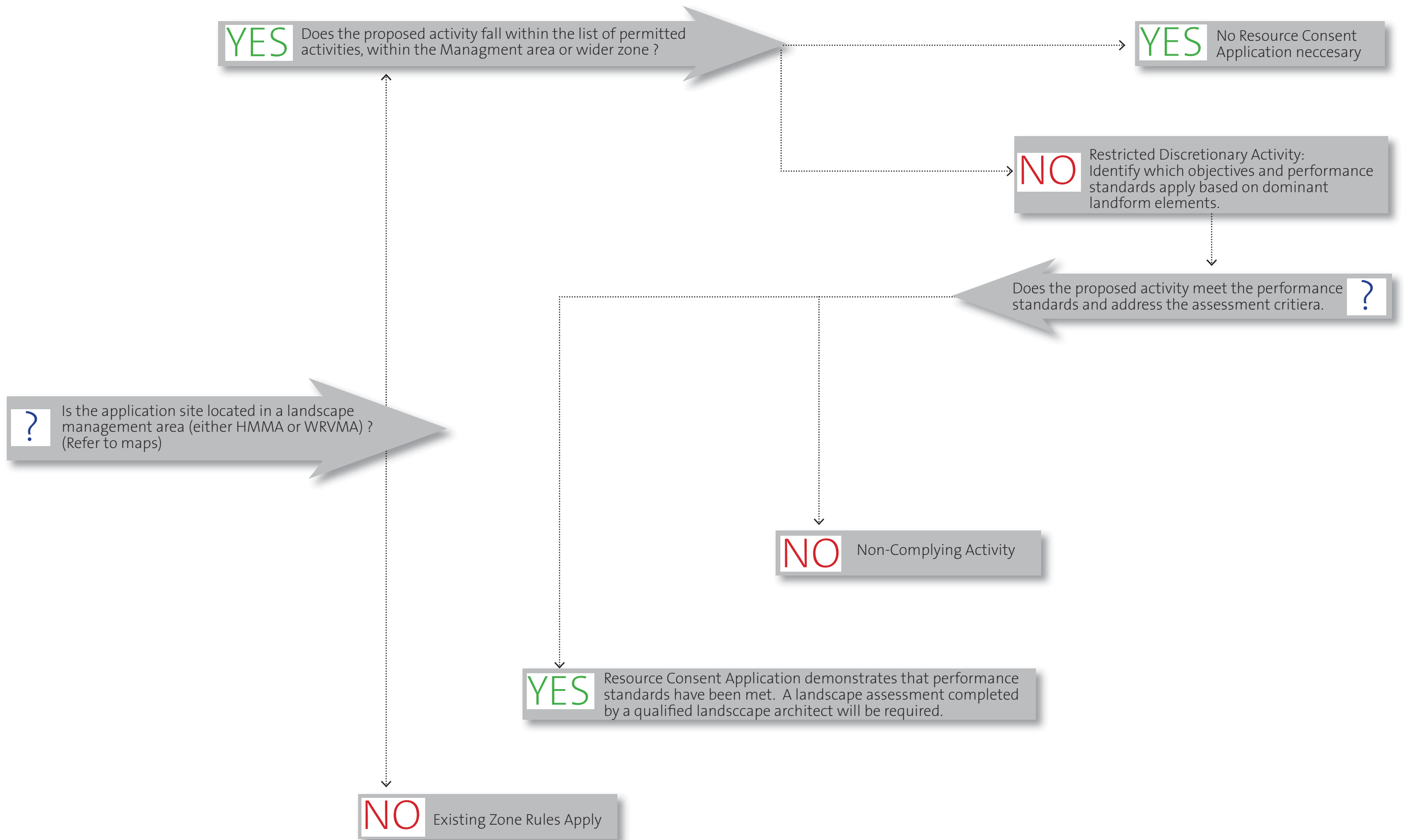




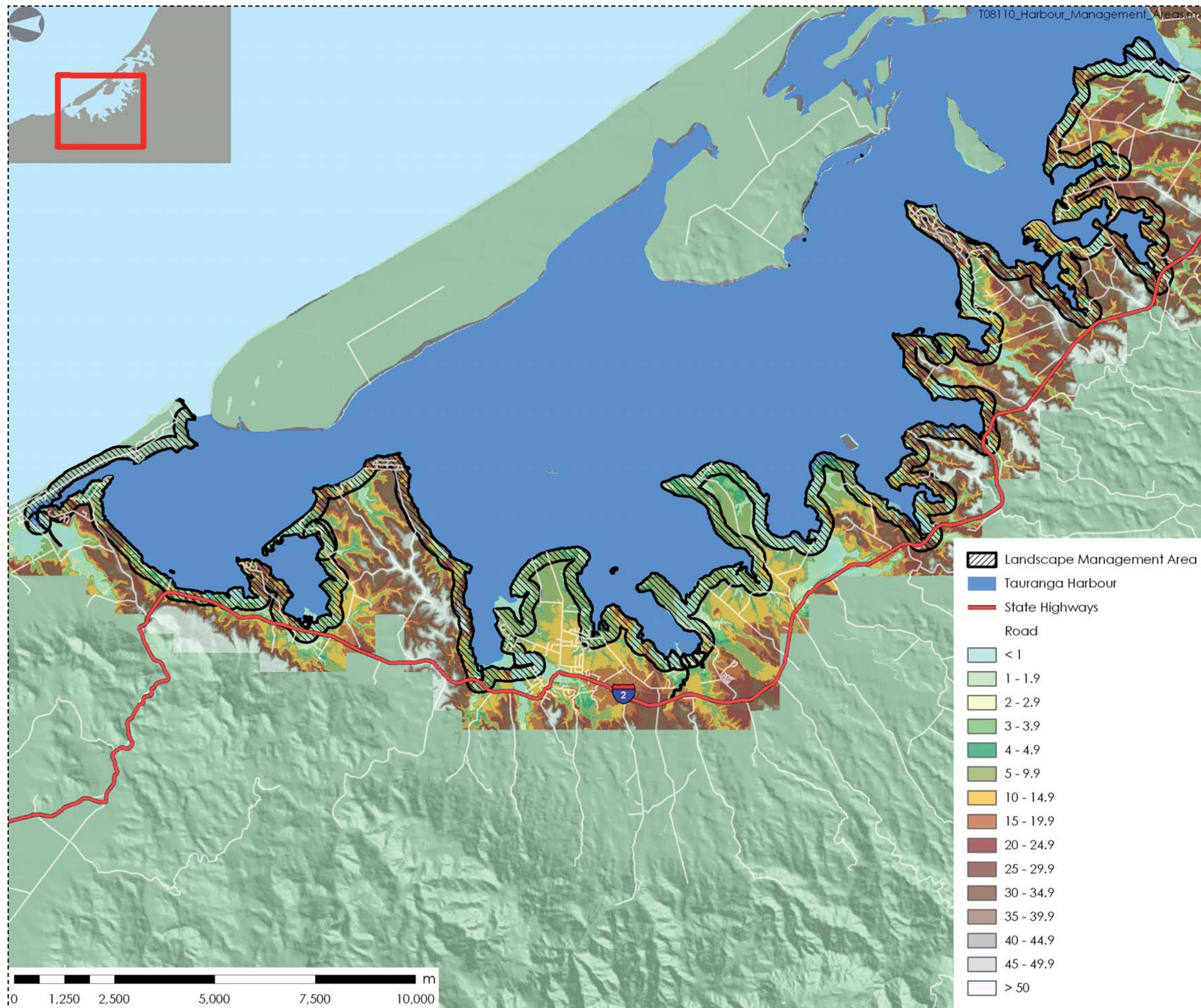


## **PART FIVE** Recommended Controls









## Harbour Margin Management Area

In planning for the management of the Tauranga Harbour in a manner that is both effective and easily understood, the first step was to identify a broad area which is the most sensitive to change. Through delineating the 'Harbour Margin Management Area' (HMMA), Council, landowners and developers will be able to quickly determine the landscape character and visual matters relevant to their particular situation.

The HMMA has been determined based on an analysis of topographic relief, slope analysis and their relationships to coastal processes. This area is particularly sensitive to the changes brought about by inappropriate development and subdivision.

All other activities will become a restricted discretionary activity, limited to the following assessment criteria...

Assessment criteria have been compiled on the basis of the predominant landscape elements relative to the development site. Applicants will be required to design and assess their proposed development in accordance with the criteria set out in the following pages;



# Harbour Margin Management Area

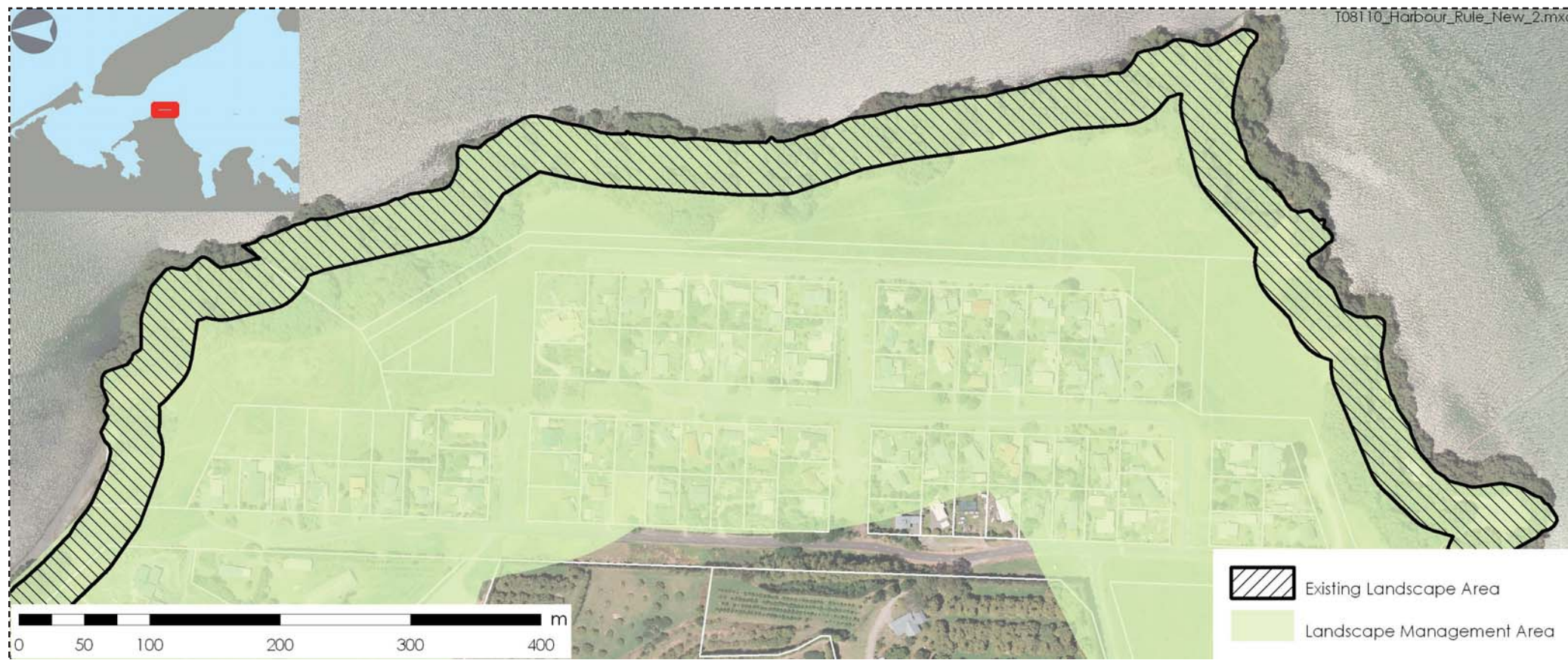
The proposed 300m setback along the harbour margin laid along the sensitive margins of the harbour, accomodating the most sensitive components of the landscape, those being:

- Harbour Plains along the edges of the Tauranga Harbour;
- Escarpments along the edges, in particular headlands;
- Rolling hills along the edges of the Tauranga Harbour, and;
- Plateau set above escarpments and cliffs, in particular headlands.

The management area is set to manage, and not restrict development, within its boundary. The purpose of this area is to provide more stringent controls on development whilst providing permitted activities that some activities can occur as of right, whilst ensuring the natural and rural character of the harbour margin is maintained.



Plan view of the proposed 300m Harbour Margin Management Area overlaid onto recent aerial photography. This demonstrates the sensitivity of the harbour plans area, in areas where built development can dominate the harbour edge.



Plan view of the proposed 300m Harbour Margin Management Area overlaid onto recent aerial photography. This demonstrates the sensitivity of the escarpments and plateau built development is common place.



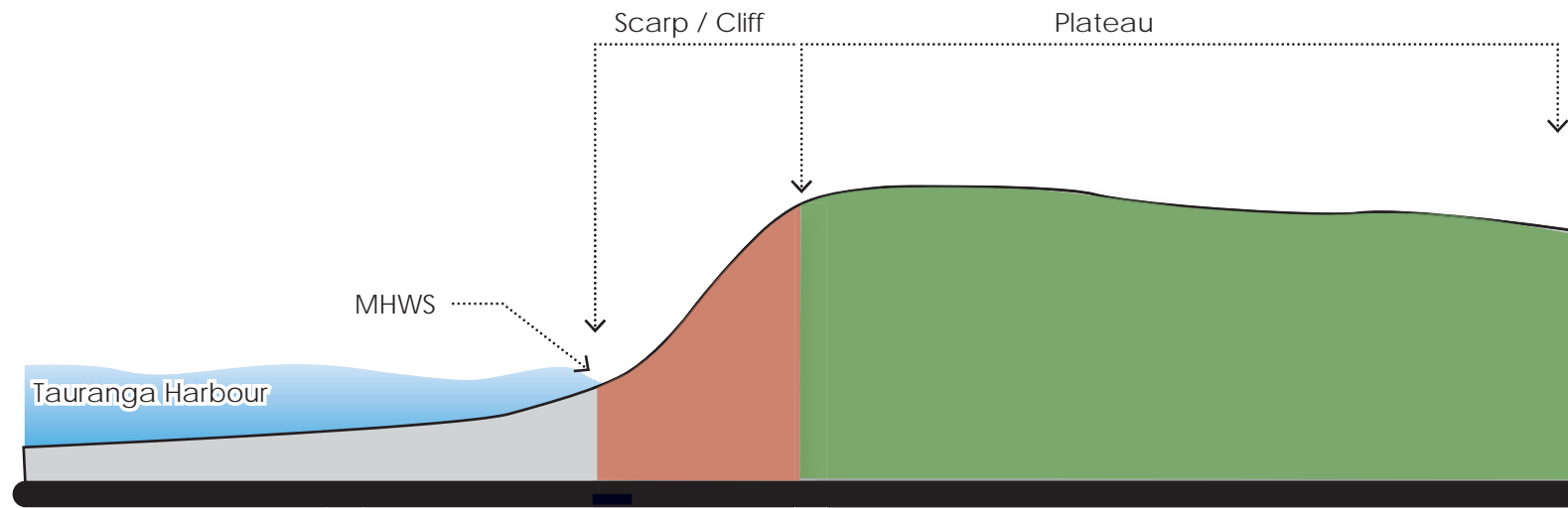
# Landform Elements

## MANAGEMENT OBJECTIVE:

the high visual sensitivity of prominent harbour plains, escarpment, cliff and plateau landforms. Development in these areas must demonstrate that potential effects upon the landform, skyline and landcover, when viewed from the harbour, have been avoided where possible.

### H1 - SCARP / CLIFF - PLATEAU

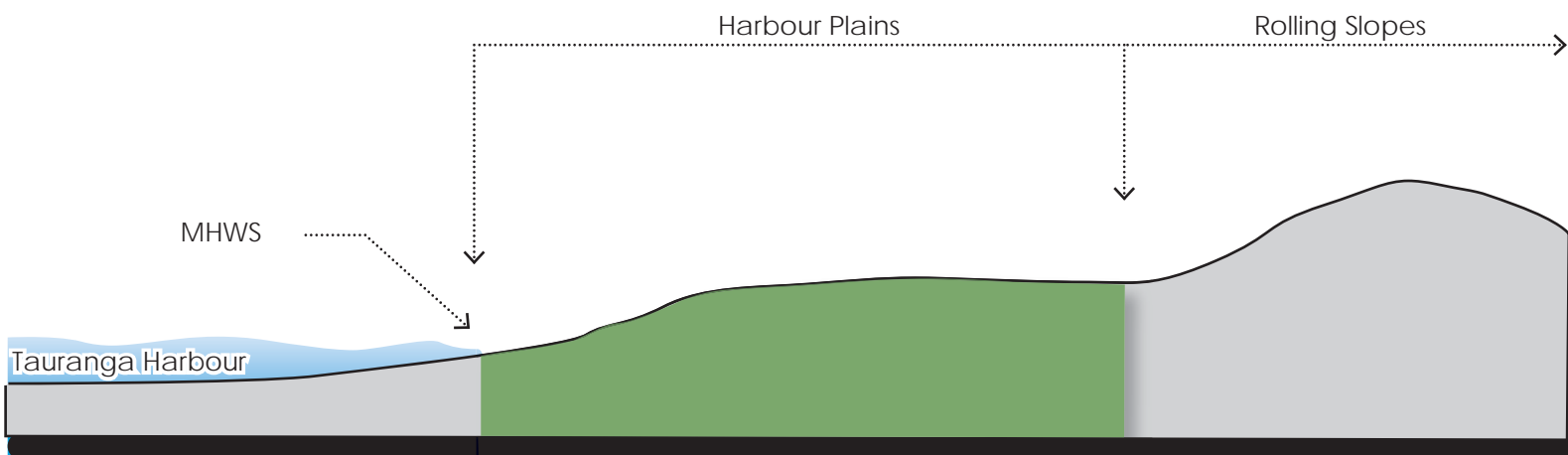
This landscape type is found mostly along the varying headlands within the Tauranga Harbour. The plateau in many cases support a variety of land uses, including horticulture, agriculture and residential housing. The plateau landform comprises a range of 0 - 3.9 degrees slope. These landscape elements are in most cases found adjoining an escarpment, which drops to the harbour edge. Built development is generally upon the plateau with the key generator of adverse effects derived from the relationship development has to the top of the escarpment.



**HARBOUR LAND TYPE 1 (H1)**  
TYPICAL HARBOUR MARGIN CROSS SECTION A: Escarpment or cliff edge.

### H2 - HARBOUR PLAINS

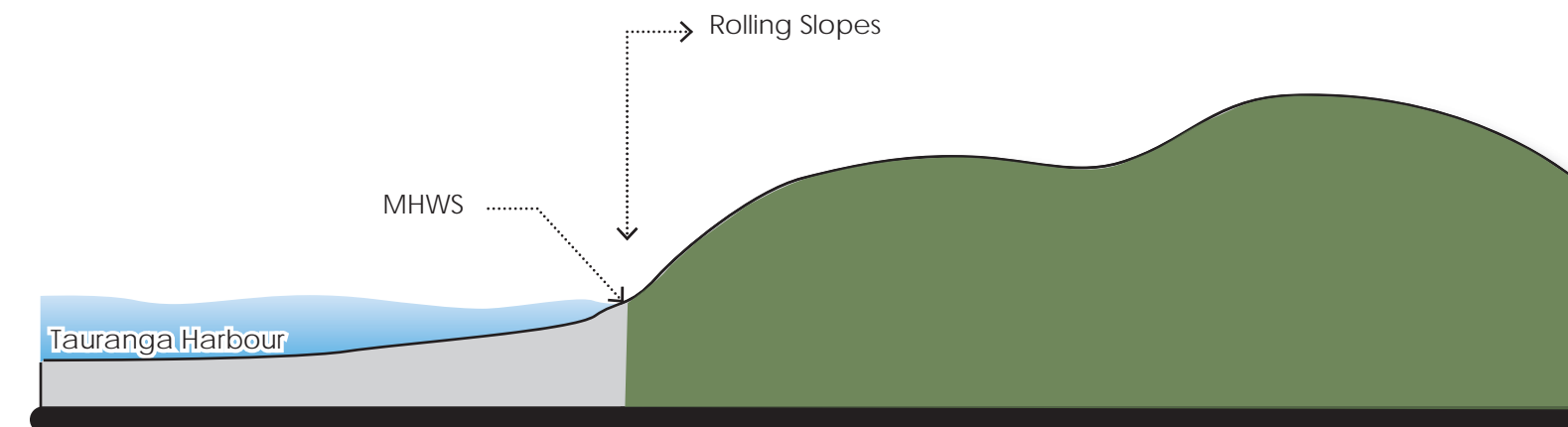
This landscape type is found mostly within the bays, along the harbour margin. Generally the estuarine margin is dense or a sandy beach is found. The depth of the harbour plains element varies eventually meeting a rolling slopes landscape. The slope for this landscape element also ranges from 0 - 3.9 degrees with the rolling landscape ranging from 4 - 20.9 degrees. The rolling landscape can vary from gentle rolling to strong rolling hillsides with deep valleys and dominant ridgelines. Built development is found within both landscape types and the key generator of adverse effects derived from the spatial relationship between the plains and rolling slopes, with the hills providing a backdrop for built form.



**HARBOUR LAND TYPE 2 (H2)**  
TYPICAL HARBOUR MARGIN CROSS SECTION B: Harbour Plains with rolling slopes.

### H3 - ROLLING SLOPES

This landscape comprises rolling landscape can vary from gentle rolling to strong rolling hillsides with deep valleys and dominant ridgelines. In some cases the rolling slopes drop to meet the harbour margin directly with some estuarine margin abutting the edge. Slopes range from 4 - 20.9 degrees. This landscape can support both open pastoral and densely planting vegetation cover. Key issues for generation of adverse effects are the impact upon skyline, earthworks and loss of recognition of landform processes, and the dominance on the harbour edge.



**HARBOUR LAND TYPE 3 (H3)**  
TYPICAL HARBOUR MARGIN CROSS SECTION C: Rolling Slopes meeting the harbour edge.



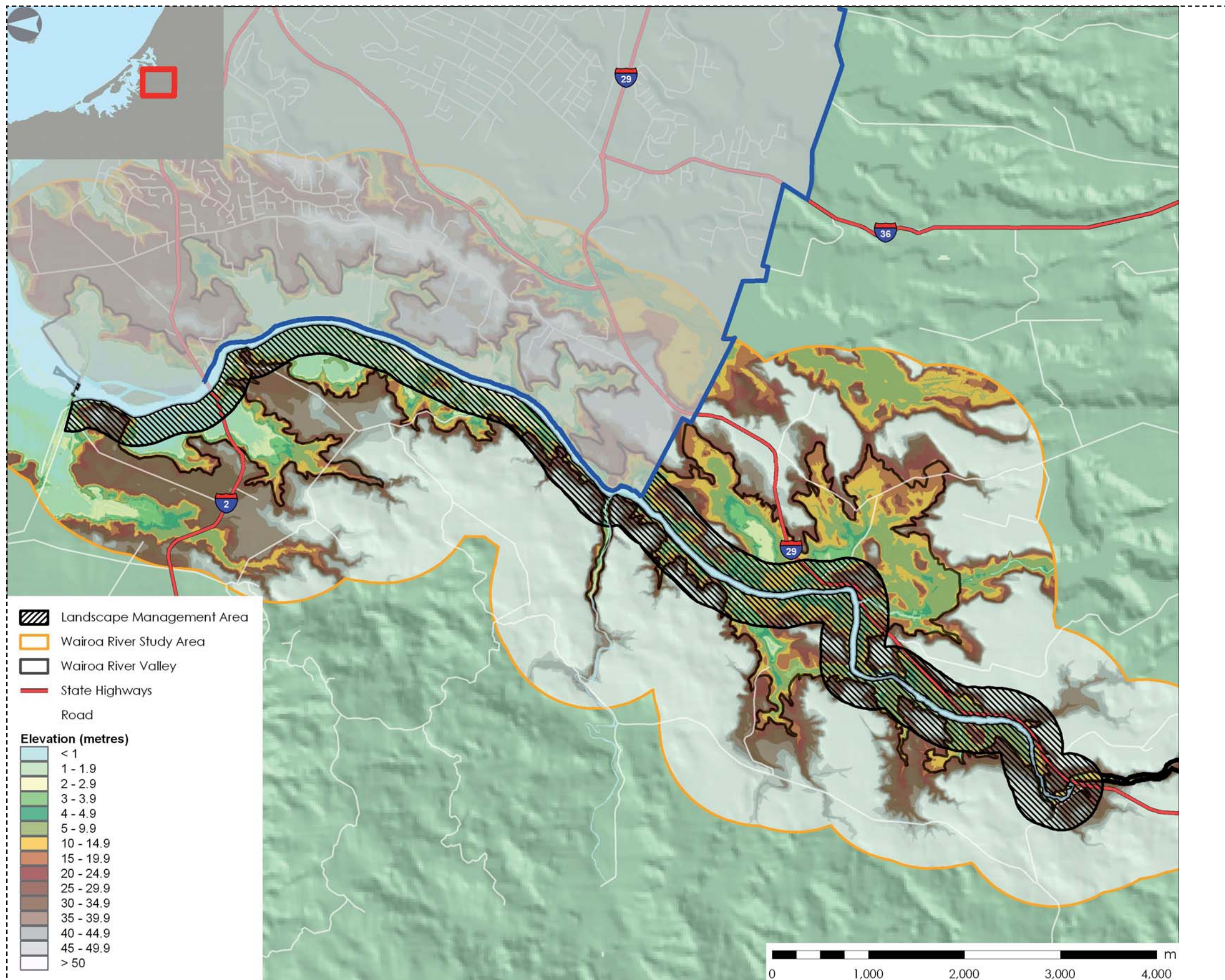
## River Valley Management Area

The proposed approach to managing the Wairoa River Valley landscape is similar to that used for the Tauranga Harbour. The 'Wairoa River Valley Management Area' (WRVMA), has been identified in acknowledgment of the landscape, visual and cultural sensitivity of the broader river valley landform.

The WRVMA has been determined based on an analysis of topographic relief, slope analysis and their relationships to hydrological processes. This area is particularly sensitive to the changes brought about by inappropriate development and subdivision.

A set of permitted standards are applied within the Landscape Management Area with all other activities will become a restricted discretionary activity. The assessment criteria are detailed in Part 5 of this report.

Assessment criteria have been compiled on the basis of the predominant landscape elements relative to the development site. Applicants will be required to design and assess their proposed development in accordance with the criteria set out in Part 5 of this report.







Plan view of the proposed 300m River Valley Margin Management Area overlaid onto recent aerial photography. This demonstrates the sensitivity of the river flats area along the Wairoa River corridor.



Plan view of the proposed 300m River Valley Margin Management Area overlaid onto recent aerial photography. This demonstrates the sensitivity of the river escarpments and rolling hills where built development is common place.

## River Valley Management Area

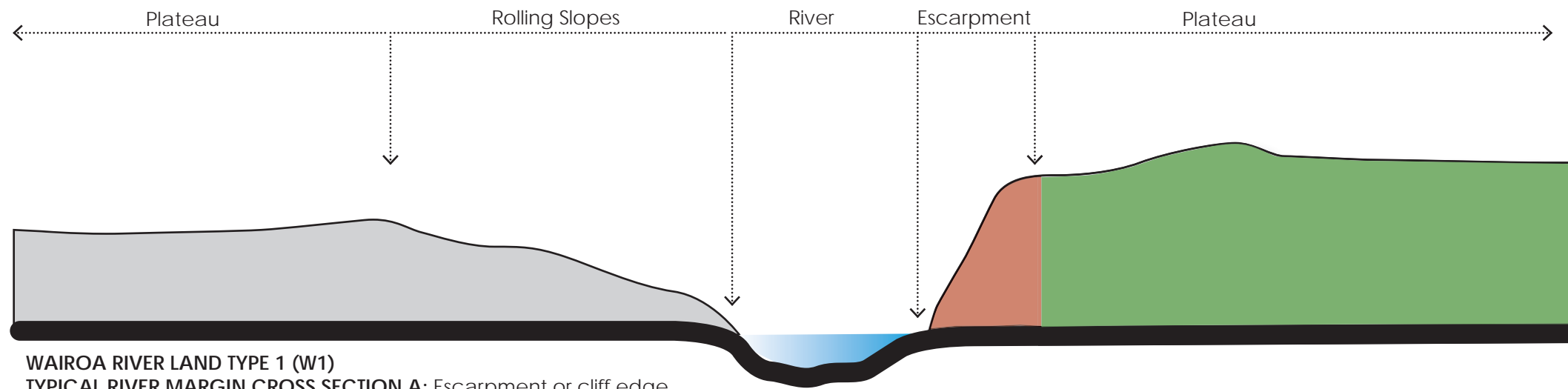
The proposed 300m setback along the river valley corridor is laid along the sensitive margins of the river. The management area is set to manage, and not restrict development, within its boundary. The purpose of this area is to provide more stringent controls on development whilst providing permitted activities that some activities can occur as of right, whilst ensuring the natural and rural character of the river corridor is maintained.

The key areas the 300m Wairoa River Valley Management Area apply to the:

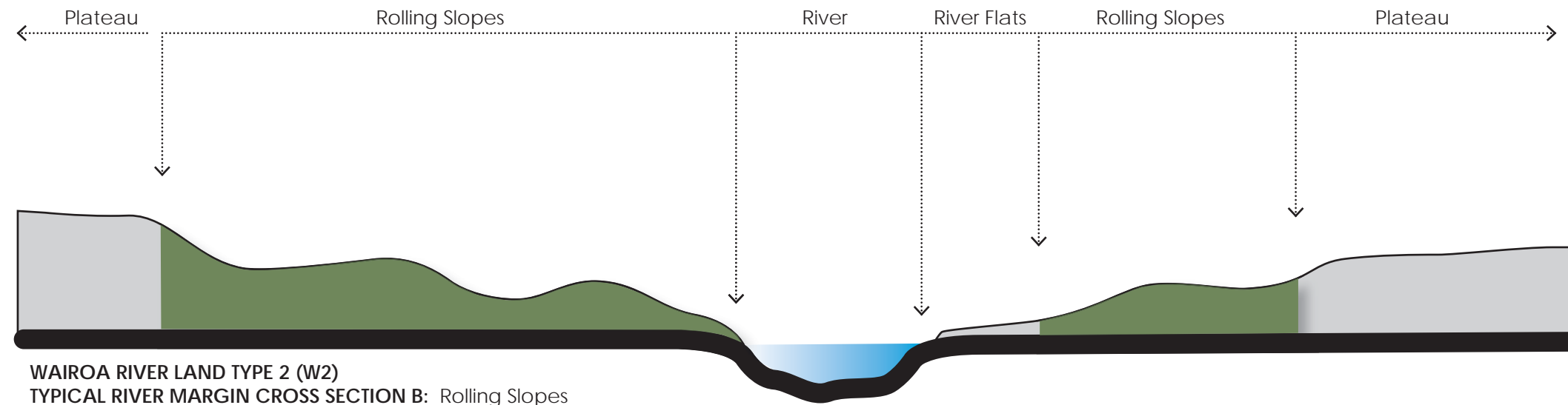
- River Flats along the lower reaches of the River.
- Escarpments along the edges of the River corridor
- Rolling hills along the mid and upper reaches of the River.



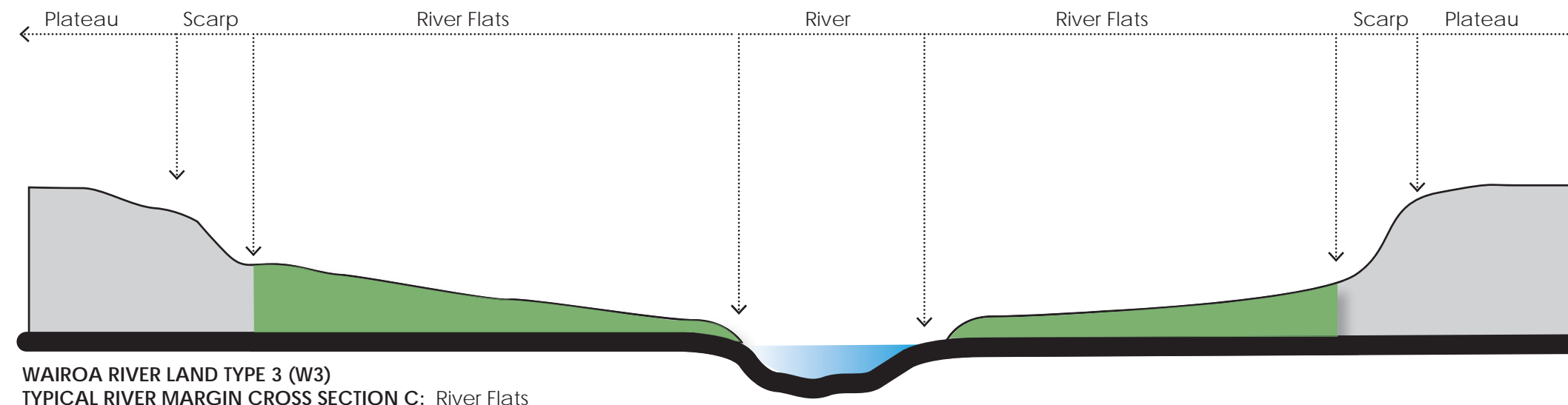
# Landform Elements



**WAIROA RIVER LAND TYPE 1 (W1)**  
TYPICAL RIVER MARGIN CROSS SECTION A: Escarpment or cliff edge



**WAIROA RIVER LAND TYPE 2 (W2)**  
TYPICAL RIVER MARGIN CROSS SECTION B: Rolling Slopes



**WAIROA RIVER LAND TYPE 3 (W3)**  
TYPICAL RIVER MARGIN CROSS SECTION C: River Flats

**MANAGEMENT OBJECTIVE:**

Proposed activities should take into account the high visual sensitivity of the distinctive river plains, escarpment, ridges and plateau landforms. Development in these areas must demonstrate that potential effects upon the landform, skyline and landcover, when viewed from the harbour, have been avoided where possible.

**W1 - SCARP / CLIFF - PLATEAU**

This landscape type is found mostly along the edge of the river plains landscape. Plateau in many cases support a variety of land uses, including horticulture, agriculture and residential housing. The plateau landform comprises a range of 0 - 3.9 degrees slope, with the cliff scarp being a between 26 - 90 degrees. These landscape elements are in most cases found adjoining an escarpment, which drops to the river plains and in the upper reaches of the river, directly to the rivers edge. Built development is generally upon the plateau with the key generator of adverse effects derived from the relationship development has to the top of the escarpment.

**W2 ROLLING SLOPES**

This landscape comprises rolling landscape can vary from gentle rolling to strong rolling hillsides with deep valleys and dominant ridgelines. In some cases the rolling slopes drop to meet the river edge. Slopes range from 4 - 20.9 degrees. This landscape can support both open pastoral and densely planting vegetation cover. Key issues for generation of adverse effects are the impact upon skyline, earthworks and loss of recognition of landform processes, and the dominance on the river corridor.

**W3- RIVER FLATS**

This landscape type is found mostly within the lower reaches of the Wairoa River. The depth of the river plains element varies eventually meeting a rolling slopes landscape. The slope for this landscape element also ranges from 0 - 3.9 degrees with the cliff and escarpments abutting this landscape type. Built development is found within both landscape types and the key generator of adverse effects derived from the spatial relationship between the plains and the escarpment.

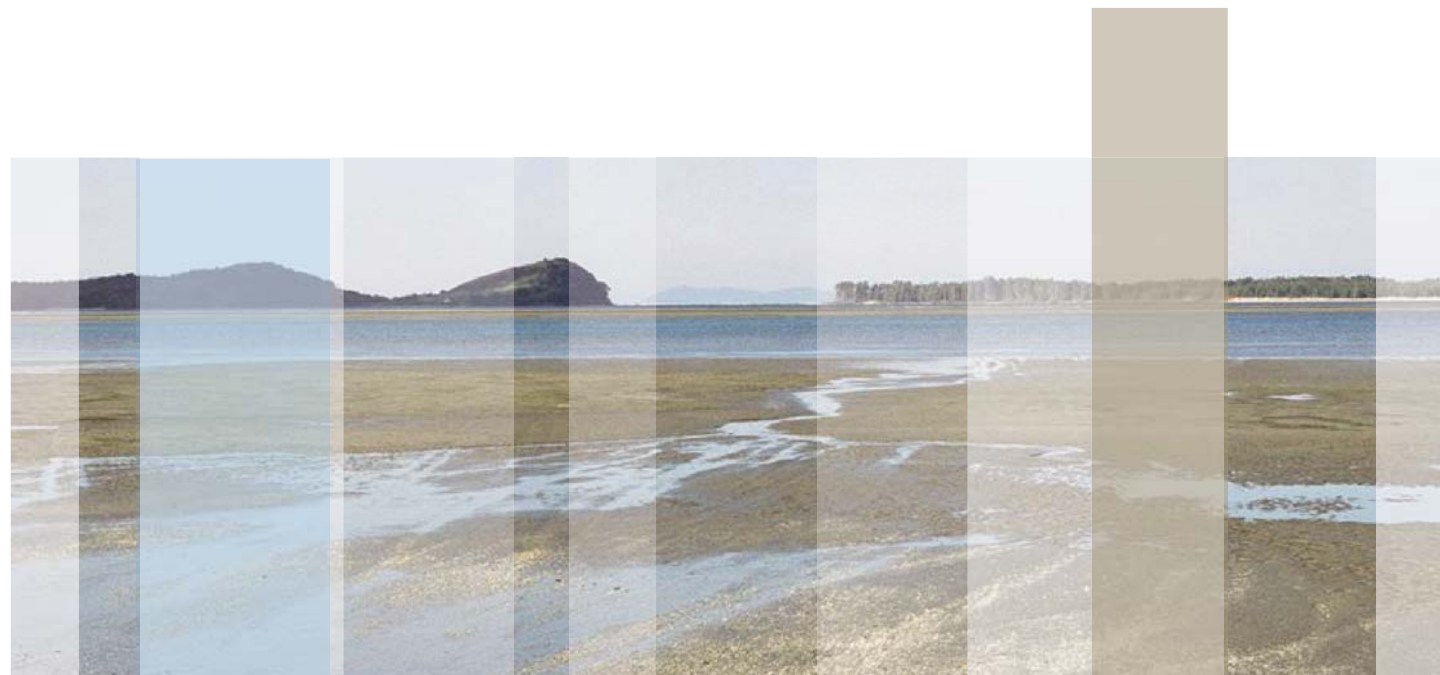
WBOPDC Landscape Review 2008.



**TAURANGA HARBOUR AND WAIROA RIVER MARGINS - LANDSCAPE MANAGEMENT AREA RECOMMENDED PLANNING METHODS**

Criteria	URBAN AREAS		RURAL AREAS				
	Urban Areas	Anticipated Outcome	Permitted Activities Performance Standard	Restricted Discretionary Activities - Assessment Criteria			
				Plains / River Flats	Rolling Hills / Slopes	Scarp / Cliff	Plateau
<b>Building Location</b>	Does not apply to existing urban settlement Residential Zones and Commercial Zones. Any activity within 40m of MHWS shall be a Restricted Discretionary Activity and the Rural Restricted Discretionary Assessment Criteria shall apply.	The siting of the structure or activity is sympathetic to the underlying landform and minimises visual impacts when viewed from the Tauranga Harbour and Wairoa River.  Note building platforms must be clearly designated within the resource consent application.	Buildings and structures shall be located a minimum of 100m from MHWS.	To provide an adequate buffer and spatial separation from the waters edge, structures should be set back from the harbour and river margin to ensure the open space values of the harbour plains and river flats are maintained.  Buildings and structures should utilise adjoining rolling hills or scarp / cliffs to provide immediate backdrop.	Building on elevated ridgelines should be avoided, to minimise adverse effects on the skyline. Structures should be set back against the toe of the rolling hills to provide a landform backdrop to the built form. Where structures are viewed from the harbour and river a setback should be applied to minimise the visual effects of the built form on the harbour and river margins and on the skyline.	All activities and development should be avoided on scarps and cliff faces.	Structures are to be located at minimum distances from both MHWS and the edge of the plateau landform at the point where it meets the adjoining cliff or escarpment. Structures should be setback from the scarp edge to minimise visual dominance of the built form on the harbour and river margins, and upon the skyline.
<b>Building Form and Scale</b>	Guidance only to those existing activities within the management areas.	The scale and form of the structure or activity is compatible with its landscape setting and the relative scale of the underlying landforms.	Buildings and structures limited to a height of 5.5m above existing ground level and:  Buildings to a maximum floor area of 200m <sup>2</sup> .	Given the availability of flat land in the plain/ river flat areas, structures are to be limited in height to reflect the surrounding landform. Analysis must clearly establish the role of existing landscape elements such as vegetation buffers or a backdrop that will assist in absorbing the adverse effects of the building or structure into the landscape.	Proposed structures shall not be visible along the skyline (horizon line) when viewed from the harbour or harbour margins.	All activities and development should be avoided on scarps and cliff faces.	Proposed structures shall not dominate the skyline (horizon line) when viewed from the harbour or harbour margins.
<b>Reflectivity</b>	Guidance only to those existing activities within the management areas.	All external surfaces and materials of buildings within the HMMA and WRVMA shall be selected to minimise visual contrast with the receiving landscape.	All external surfaces of buildings (excluding glazing) comply with the following reflectivity standards: Walls = 35% Reflectance Value Roofs = 25% Reflectance Value Mirrored glass is not permitted. (Note: In accordance with BS5252 Reflectance Value)	All external surfaces of buildings (excluding glazing) comply with the following reflectivity standards: Walls = 35% Reflectance Value Roofs = 25% Reflectance Value Mirrored glass is not permitted. (Note: In accordance with BS5252 Reflectance Value)			
<b>Earthworks / Landform</b>	Guidance only to those existing activities within the management areas.	The activity or development requires minimal landform modification and the finished contour integrates with the surrounding natural landform.	Earthworks to a maximum of 200m <sup>3</sup> in volume, with a maximum vertical face of 1.5m in height, provided the face is grassed and/or mass planted	The landform shall be recontoured to marry in with the surrounding landform. Scarring or cut faces shall be avoided and recontoured to grades similar to those found in the immediate surrounding landform. Vegetation cover on cut faces or fill slopes shall be consistent with the surrounding vegetation patterns, for eg, pasture within a pastoral landscape or native vegetation cover, within a vegetated landscape.			
<b>Existing Vegetation</b>	Guidance only to those existing activities within the management areas.  Guidance only to those existing activities within the management areas.  Guidance only to those existing activities within the management areas.	Both native and stands of exotic vegetation contribute to the character of the Harbour and River environments. Activities and developments should protect or enhance the overall vegetation resource to benefit the long term amenity and character of these important landscapes.	No native vegetation shall be removed.	Areas of native vegetation should not be removed except where there is no alternative for building location or access. Any native vegetation removed must be replaced and maintained on site, to achieve a net gain in native vegetation.  Where existing native and appropriate exotic vegetation provides a backdrop (or buffer) to the proposed structure, this shall be retained in perpetuity or gradually replaced to ensure ongoing, long-term mitigation is achieved.  Where planting is to be utilised for purposes of mitigation, appropriate species, densities and maintenance regimes must be set in place to ensure that an adequate level of mitigation is achieved within 5 years of the commencement of an activity. Plant species and layout must be consistent with the rural and natural character of the immediate landscape.			





## Conclusion

The project brief for this landscape review was to consider “would it be a good idea to increase the landscape setback yard around the periphery of the Tauranga Harbour and Wairoa River to mitigate potential adverse landscape effects of inappropriate development”.

To address this question Boffa Miskell Ltd has reviewed the existing District Plan objectives, policies and rules, considered Section 6 matters of national importance under the Resource Management Act 1991 and relevant national policy.

A broad field work exercise was undertaken to assess whether existing development has created an impact on the Tauranga Harbour and Wairoa River landscape areas. The field work revealed that in most cases development was not creating a significant adverse impact on the landscape areas. However trends in growth and development revealed that likely future lifestyle development along the Harbour margins and the margins of the Wairoa River was highly likely and this would erode the natural character and landscape values of these environments. It was therefore considered appropriate to increase the level of regulatory control in these landscape areas to manage potential significant and cumulate adverse landscape effects.

Options consider included:

- Retaining the Status Quo
- Having no landscape controls
- Increasing an arbitrary setback area; and
- Establishing site responsive controls

During the first round of assessment it was considered that establishing site controls in response to different landscape types would be the most effective method of controlling development. However the second level of assessment included modeling these features and it was found that due to the irregularity of the harbour and river landforms mapping these elements in an accurate and meaningful way was difficult and problematic. It also revealed that the extent of differentiation between the landscape types was very similar.

Consequently a more stringent arbitrary setback aligned to the findings of the GIS modeling with revised assessment criteria and permitted activity performance standards would be the most effective method of control. This provides a framework that better manages the landscape to achieve the protection as identified in Section 6(a) and (b) of the RMA.

The preferred option for landscape management requires amendments to the district planning maps and also the Landscape section of the plan. Provided the assessment criteria and permitted activity performance standards are clearly drafted the plan should remain easy to administer and resulting a robust framework for the management of the significant harbour margin and river landscape features.



# References

## 1.0 MAPS

### 1.1 Background

This table defines the data layers used to create each map. Detailed information on each data layer follows these tables.

Map	Page	Data Layers	Map Document
Introduction	3	Satellite Image, State Highways, Tauranga Harbour, Wairoa River Valley	T08110_Project_Overview.mxd

### 1.2 Harbour Margin

This table defines the data layers used to create each map. Detailed information on each data layer follows these tables.

Map	Page	Data Layers	Map Document
Study Area	7	Roads, Satellite Image, State Highways, Tauranga Harbour	T08110_Harbour_Overview.mxd
Landform Relief	8	Roads, State Highways, Tauranga Harbour, Harbour Elevation model	T08110_Harbour_Relief.mxd
Landform Slope	9	Roads, State Highways, Tauranga Harbour, Harbour Slope model	T08110_Harbour_Slope.mxd
Vegetation	10	Roads, Satellite Image, State Highways, Tauranga Harbour, Land Cover Database	T08110_Harbour_Ecology.mxd
Settlement	11	Land Parcels, State Highways	T08110_Harbour_ParcelAnalysis.mxd
Cultural Values	12	Ara (Tracks), Cultural Heritage, Heritage Site, Marae, Marae Sightlines, Roads, Satellite Image, State Highways, Tauranga Harbour	T08110_Harbour_Cultural.mxd

### 1.3 Wairoa River Valley

This table defines the data layers used to create each map. Detailed information on each data layer follows these tables.

Map	Page	Data Layers	Map Document
Study Area	15	Aerial Photography: EBOP, Aerial Photography: Harbour, Aerial Photography: TCC, Aerial Photography: WBOPDC, Roads, TCC Boundary, Wairoa River Study Area, Wairoa River Valley	T08110_Wairoa_Overview.mxd
Landform Relief	16	Roads, State Highways, TCC Boundary, Wairoa Elevation model, Wairoa River Study Area, Wairoa River Valley	T08110_Wairoa_Relief.mxd
Landform Slope	17	Roads, State Highways, TCC Boundary, Wairoa Slope model, Wairoa River Study Area, Wairoa River Valley	T08110_Wairoa_Slope.mxd
Vegetation	18	Aerial Photography: EBOP, Aerial Photography: Harbour, Aerial Photography: TCC, Aerial Photography: WBOPDC, Land Cover Database, Roads, State Highways, Tauranga Harbour, TCC Boundary, Wairoa River Study Area, Wairoa River Valley	T08110_Wairoa_Ecology.mxd
Settlement	19	Land Parcels, State Highways, TCC Boundary, Wairoa River Study Area, Wairoa River Valley	T08110_Wairoa_ParcelAnalysis.mxd
Cultural Values	20	Aerial Photography: EBOP, Aerial Photography: Harbour, Aerial Photography: TCC, Aerial Photography: WBOPDC, Ara (Tracks), Cultural Heritage, Heritage Site, Marae, Marae Sightlines, Roads, Satellite Image, Significant Places, State Highways, TCC Boundary, Wairoa River Study Area, Wairoa River Valley	T08110_Wairoa_Cultural.mxd



## 1.4 Options Assessment

This table defines the data layers used to create each map. Detailed information on each data layer follows these tables.

Map	Page	Data Layers	Map Document
Ex. Provisions - Harbour	23	Aerial Photography: Harbour, Existing landscape Area, Land Parcels	T08110_Harbour_Rule_Existing_1.mxd T08110_Harbour_Rule_Existing_2.mxd
Ex. Provisions - River	25	Aerial Photography: Harbour, Aerial Photography: TCC boundary, Existing landscape Area, Land Parcels	T08110_Wairoa_Rule_Existing_1.mxd T08110_Wairoa_Rule_Existing_2.mxd

## 1.5 Recommended Controls:

This table defines the data layers used to create each map. Detailed information on each data layer follows these tables.

Map	Page	Data Layers	Map Document
Harbour Margin	30	Wairoa River Valley, State Highways, Tauranga Harbour, Satellite Image.	T08110_Harbour_Management_Areas.mxd
Examples	31	Aerial Photography: Harbour, Existing landscape Area, Landscape Management Area: Harbour.	T08110_Harbour_Rule_New_1.mxd T08110_Harbour_Rule_New_2.mxd
River Valley	33	Landscape Management Area, TCC Boundary, Roads, State Highways, Wairoa River Study Area, Wairoa River Valley	T08110_Wairoa_Management_Areas.mxd
Examples	34	Aerial Photography: Harbour, Aerial Photography: TCC, Existing landscape Area, Landscape Management Area: Wairoa River	T08110_Wairoa_Rule_New_1.mxd T08110_Wairoa_Rule_New_2.mxd

## 2.0 DATA LAYERS

Data Layer	Discussion	Date/Version	Projection	Source	Accuracy	Supply Date
Aerial Photography: EBOP	Aerial photography.	2003	NZMG	EBOP	+/- 2m	September 2008
Aerial Photography: Harbour	Aerial photography.	2007	NZMG	EBOP	+/- 1m	September 2008
Aerial Photography: TCC	Aerial photography.	2007	NZMG	EBOP	+/- 1m	September 2008
Aerial Photography: WBOPDC,	Aerial photography.	2007	NZMG	EBOP	+/- 1m	September 2008
Ara (Tracks)	Ara were defined by Des Kohotea, from historical documents.	July	NZMG	SmartGrowth	1:50,000	September 2008
Cultural Heritage	Broad areas of high significance to Tangata Whenua, as identified by Tangata Whenua Representatives during the SmartGrowth Project.	July 2003	NZMG	SmartGrowth	1:50,000	September 08
Existing Landscape Area	The Landscape areas as shown in the Western Bay of Plenty District Plan.	Operative District Plan	NZTM	WBOPDC	1:5000	September 2008
Harbour Elevation Model	Created from LIDAR information supplied by Environment Bay of Plenty. A TIN was created from the raw LIDAR data. The resulting TIN was converted to a GRID of 2m cell size.	2007	NZMG	Boffa Miskell Limited	+/- 0.5m	October 2008



Data Layer	Discussion	Date/Version	Projection	Source	Accuracy	Supply Date
Harbour Slope Model	The slope model was derived from the Harbour Elevation model GRID.	2007	NZMG	Boffa Miskell Limited	+/- 0.5m	October 2008
Heritage Sites	The Heritage Sites as shown in the Western Bay of Plenty District Plan.	Operative District Plan	NZTM	WBOPDC	1:5,000	September 2008
Land Cover Database	This database is a thematic classification of land cover and land use classes. The LCDDB2 was derived primarily from Landsat 7 ETM+ satellite imagery.	Summer 1997/98 and Summer 2001/02	NZTM	Ministry of the Environment	1:50,000	2004
Land Parcels	The cadastral survey parcel polygons.	July 2008	NZTM	Land Information New Zealand	+/- .002m - +/- 30m	September 2008
Landscape Management Area: Harbour	The derived Harbour Margins Landscape Management Areas.	October 2008	NZMG	Boffa Miskell Limited	1:5,000	October 2008
Landscape Management Area: Wairoa River	The derived Wairoa River Landscape Management Areas.	October 2008	NZMG	Boffa Miskell Limited	1:5,000	October 2008
Marae	Marae location have been determined from Tauranga City Council, Western Bay of Plenty District Council and Consultation with the SmartGrowth Tangata Whenua Representatives and the SmartGrowth Tangata Whenua Project team.	July 2003	NZMG	SmartGrowth	1:50,000	September 2008
Marae Sightlines		2007	NZMG	Boffa Miskell Limited	1:50,000	2007
Roads	The centrelines of the road parcel polygons.	July 2008	NZTM		+/- .002m - +/- 30m	September 2008
Satellite Image	Satellite Imagery from LandSat 7 ETM	14 August 2000	NZMG	SmartGrowth	1:200000	July 2003
Significant Places		May 2007	NZMG	Boffa Miskell Limited	1:50,000	September 2008
State Highways	Generalised State Highway road network.	November 2006	NZMG	LINZ Topo data	1:50,000	2007
Tauranga Harbour	Indicates the extent of the Tauranga Harbour Area. Derived from the Land Parcel information	July 2008	NZTM	Boffa Miskell Limited	1:5,000	October 2008
TCC Boundary	Derived from the Council Boundary supplied by TCC.	October 2008	NZTM	Boffa Miskell Limited	1:5,000	October 2008
Wairoa Elevation Model	Created from a mixture of LIDAR (2007) and photogrammetric (2003) information supplied by Environment Bay of Plenty. A TIN was created from the data. The resulting TIN was converted to a GRID of 2m cell size.	2003 and 2007	NZMG	Boffa Miskell Limited	+/- 0.5m and +/- 2m	October 2008
Wairoa Slope Model	The slope model was derived from the Harbour Elevation model GRID.	2003 and 2007	NZMG	Boffa Miskell Limited	+/- 0.5m and +/- 2m	October 2008
Wairoa River Valley	Defined during the SmartGrowth project as a line following the 20 metre contour (1:50	2003	NZMG	SmartGrowth	1:50,000	September 2008
Wairoa River Study Area	A 1 km buffer around the Wairoa River Valley.	October 2008	NZTM	Boffa Miskell Limited	1:50,000	October 2008