

# APPENDIX H

## Waitarere Beach Road Curves Project Landscape and Visual Assessment Report

Prepared for The New Zealand Transport Agency

November 2015



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# New Zealand Transport Agency

## Waitarere Beach Road Curves Project- Landscape and Visual Assessment

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# 1 Executive Summary

This landscape and visual assessment (LVA) informs the Assessment of Environmental Effects (AEE) report prepared for the Waitarere Beach Road Curves Project (the Project). The Project entails upgrading and realigning a section of State Highway 1 at Waitarere in order to address existing significant safety concerns.

## 1.1 Potential Landscape and Visual Effects

The main potential landscape and visual effects of the project are:

- Effects on rural landscape character and amenity.
- Effects on biophysical features (mainly sand dune landforms).
- Effects on community places (Huia Marae, Matau Marae, Poroutawahao School, Whare Rongopai).
- Visual effects during construction.
- Visual effects on individual properties.

## 1.2 Summary of Effects

There will be some incremental adverse effects on rural character and amenity because of the increased scale (footprint) of the highway and the prominence of such safety fixtures as the wire-rope barriers and lighting. To put these effects in perspective, they will occur in the context of the existing highway where it is reasonable to anticipate periodic upgrades and reconstruction as a consequence of increasing use and evolving standards. The highway will retain a single carriageway in each direction, and the surroundings will retain their rural character.

There will be some effects on biophysical elements, the most noteworthy being earthworks on the sand dune landforms between Paeroa Road and Waitarere Beach Road. However, the affected dune landforms have already been modified to accommodate the existing highway, and the adverse effects will be effectively mitigated by the proposed measures to grade/contour the batter slopes. There will also be removal of planted rural and amenity vegetation, and diversion of a watercourse. However, the vegetation is mainly planted (including exotic rural shelter trees, and amenity vegetation), and the watercourses in the area are all substantially modified. There will be no encroachments into the few areas of remnant indigenous vegetation or natural water bodies.

There will be negligible adverse visual effects on Matau Marae, Huia Marae, and Poroutawahao School. There will be moderate visual effects on the Whare Rongopai, but such effects can be mitigated by landscape design.

Taking these matters together, it is considered the overall landscape and visual effects (without mitigation) will be, at most, moderate, and that such effects can be effectively mitigated.

With regards individual properties, there will be significant adverse effects on three properties, each of which is traversed by the proposed designation, and which are proposed to be acquired by the Transport Agency. There will be moderate adverse visual effects on six properties which can be effectively mitigated through landscape design. Any adverse visual effects on the remaining properties in the vicinity of the Project will be minor or less. There will be positive visual effects on a small number of properties as a consequence of the highway being moved further away.

Visual effects during construction will be temporary and will occur in the vicinity of the existing highway where it is reasonable to anticipate periodic major works (such as upgrades and major maintenance).

### 1.3 Summary of Measures to Avoid, Remedy or Mitigate Effects

Potential adverse landscape and visual effects have been avoided to a large extent by confining the realignment to the vicinity of the existing highway (thereby minimising effects on landscape character), avoiding areas of remnant indigenous vegetation, and fine-tuning the alignment (and other aspects of the design) to minimise adverse effects on neighbouring properties.

The Project was refined through several iterations to reduce potential adverse effects and incorporate positive features. In particular, the most recent iteration eschews a link road between Paeroa Road and Waitarere Road, reducing potential impacts on dune landforms in this area.

Proposed landscape design measures will effectively mitigate the residual effects. The following table summarises proposed measures to avoid and mitigate such effects.

	Landscape Issues	Is Mitigation Required	Avoidance and Mitigation Measures
<b>Effects on landscape character</b>	<ul style="list-style-type: none"> <li>Incremental increase in scale and prominence</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Reinstatement of highway margins so that the character is in keeping with adjacent land. Left-over areas no longer necessary for the highway should be returned to productive use. Reinstated boundary fences or hedges should be in keeping with patterns existing in the area.</li> <li>Planting within the designation margin with typical rural or natural plant patterns to integrate the works into the landscape and retain rural character.</li> </ul>
<b>Effects on biophysical elements</b>	<ul style="list-style-type: none"> <li>Earthworks on sand dune landforms</li> <li>Diversion of modified watercourses south of Paeroa Road (Stream 2).</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Grading and contouring batter slopes where practicable to merge with landform and resemble natural profile.</li> <li>Planting to watercourse margins within the designation.</li> </ul>
<b>Effects on community places</b>	<ul style="list-style-type: none"> <li>Encroachment into curtilage of Whare Rongopai</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Planting to redefine boundary between Whare Rongopai and SH1, to screen parts of building, and frame the front of the building - to be carried out in consultation with owners)</li> </ul>
<b>Effects during construction</b>	<ul style="list-style-type: none"> <li>Temporary visual effects.</li> </ul>	No	<ul style="list-style-type: none"> <li>The works will be carried out in the context of the existing highway where it is reasonable to anticipate reconstruction or major maintenance from time to time.</li> </ul>
<b>Effects on individual properties.</b>	<ul style="list-style-type: none"> <li>Visual effects from increased scale and closer proximity of highway, in some instances removal of screening vegetation.</li> </ul>	In some instances	<ul style="list-style-type: none"> <li>Planting within the designation where it will help soften views and increase perception of a buffer.</li> <li>Specific design for the five properties assessed as having moderate visual effects</li> </ul>

## 1.4 Conclusion

Effects on biophysical elements of the landscape, and on rural amenity and character, will be, at most, moderate, and could be effectively mitigated to the point where any residual effects would be minor.

There will be negligible effects on community places (including Matau Marae, Huia Marae and Poroutawhao School) with the exception of the Whare Rongopai where there will be moderate adverse visual effects that can be effectively mitigated.

There will be significant adverse effects on three properties traversed by the proposed designation and are proposed to be acquired by the Transport Agency. There will be moderate visual effects on six other properties, which could be mitigated by landscape design. Otherwise, visual effects on remaining properties will be minor or less.

In addition, a number of properties will benefit from positive landscape and visual effects because of such matters as realignment of the highway further away from some properties and landscape design incorporated in the Project.

Therefore, there are no landscape and visual reasons to not undertake the works provided for in the Notice of Requirement.

## 2 Introduction

This Landscape and Visual Assessment (LVA) has been produced as part of the Assessment of Environmental Effects (AEE) for the New Zealand Transport Agency (The Transport Agency) Waitarere Beach Road Curves Project (the Project). It has been prepared to support the Notice of Requirement to alter the existing designation of the 'Waitarere Beach Road Curves' section of State Highway 1 (SH1) north of Levin.

The landscape assessment is prepared in accordance with Schedule 4 of the RMA, and draws upon landscape assessment guidelines contained in Appendix 1 of the Landscape Guidelines (New Zealand Transport Agency, 2014).

The method used included:

- A literature review.
- Identification of relevant provisions.
- Site visits.
- Description of the existing landscape including relevant biophysical, perceptual and associative aspects.
- Analysis of the nature and magnitude of effects based on field work and desk-top analysis.
- Recommended mitigation to address adverse effects.

The following five-point scale was adopted for consistency throughout the AEE to rank the magnitude of effects.

negligible	less than minor	minor	moderate	significant
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The LVA and landscape design were developed in conjunction with, and responded to feedback from, other disciplines – most notably geotechnics, ecology and archaeology. The landscape design also responds to iterative changes to the road geometry and the stormwater design.

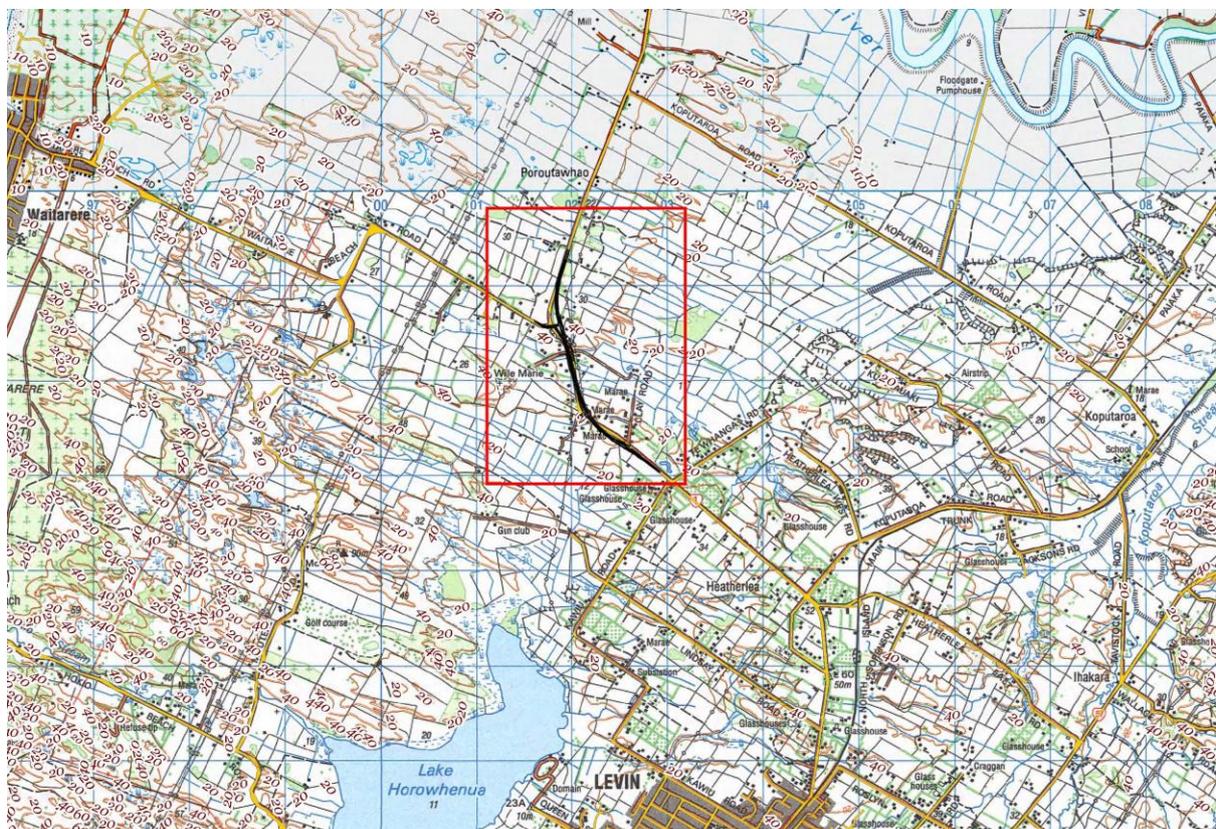
### 3 Project Description

The Waitare Beach Road Curves Improvements Project (the Project) is approximately 7km north of Levin and is part of the ‘North of Otaki to north of Levin’ section of the Wellington Northern Corridor ‘Roads of National Significance’ (RoNS) programme. It is proposed to upgrade this section of State Highway 1 (SH1) by:

- Replacing the three existing curves with two curves of increased radii, in order to improve the road alignment.
- Widening the highway cross section to provide a median strip and wider shoulders.
- Providing wire rope barriers in the median and outer edge of the hard shoulder.
- Reconfiguring the intersections of SH1 with Waitare Beach Road and Clay Road to improve the layout and visibility.
- Closing the Paeroa Road intersection with SH1, and connecting Paeroa Road by a parallel link road to a new intersection with SH1 further to the south at Hinaupio.
- Adding a right-turn bay opposite Poroutawhao School (note: these works are located roughly 500m beyond the northern end of the main improvement works).

While much of the Project area is relatively flat, more substantial earthworks will be required on the sand dune landforms that are located mainly between Paeroa and Waitare Beach Roads. (Such earthworks are required to remove the existing ‘S’ curves in this area and replace them with a safer alignment). However, recent iterations to the design considerably reduced the need for earthworks on the dune landforms on the western side of the highway.

The Project will also include roadside swales and stormwater retention ponds to improve stormwater management. New culverts will be installed for the realigned sections or upgraded where the existing SH1 alignment is to be retained.



**Figure 3-1 : Project location map. Source: Terraviva with project design overlaid.**

## 4 Statutory and Non – statutory Provisions

Statutory documents relevant to landscape matters include the Resource Management Act, the Horizons Regional One Plan, and the Horowhenua District Plan.

The site does not fall within the coastal environment and therefore the New Zealand Coastal Policy Statement is not relevant. By way of elaboration, although the highway traverses the inland edge of sand-dune landforms, the coast is over 6km away, it is separated by intervening dune hills, the biophysical elements are not predominantly coastal in nature, and there is no direct sensory experience of the coast. The coastal influence is therefore low.

### 4.1 Horowhenua District Plan

While the District Plan does not identify any Outstanding Natural Features or Landscapes (ONFL), the assessments commissioned by Horowhenua Council for that purpose did not identify any potential ONFLs in the vicinity of the Project.<sup>1</sup> It was equally clear from site visits that there are no potential ONFLs in the vicinity of the highway.

The District Plan (Chapter 2, Rural Environment) divides Horowhenua into the following three land types:

- Coastal sand dunes and formations.
- Inland plains and river terraces.
- Hill country.

The Project falls at the boundary between two of these land types or ‘Domains’, namely the inland plains and river terraces to the east (labelled ‘Levin - Koputaroa’) and the coastal sand dunes and formations to the west (labelled ‘Coastal Lakes’). While the latter is described in the District Plan as an area of high landscape amenity, it is important to note that such an appraisal applies across a substantial portion of the district that includes some dramatic dune landforms and picturesque lakes, whereas the Project is confined to a specific area where the amenity is lower and the character is determined in part by the existing highway.

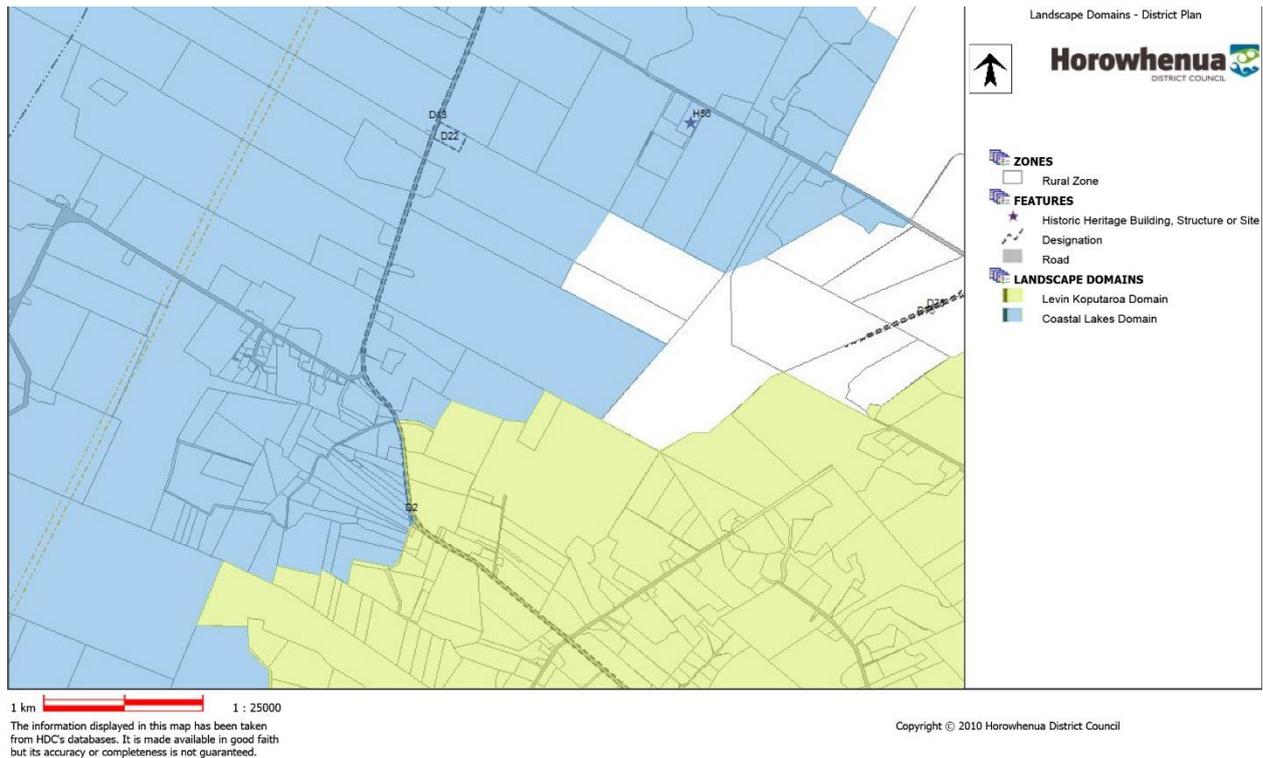
The District Plan includes policies relating to the landscape ‘Domains’. Those most relevant to landscape matters with respect of this Project include the following:

Policy LK4, which relates to the ‘Levin–Koputaroa Domain’, is to ‘ensure that natural habitats, particularly remnant indigenous forest areas and wetland areas are identified and protected’. This is relevant to remnant stands of indigenous forest at either end of the Project, and a wetland at the south end of the Project, although the Project satisfies the policy by avoiding these features.

Policy CL5, which relates to the ‘Coastal Lakes Domain’, is to ‘ensure that any new or upgraded roads, rights of way and driveways are sited sensitively to fit the natural dune landform and minimise visual and landscape effects’. The Project addresses this policy by retaining an alignment in the vicinity of the existing highway where the dune landforms have already been modified, and by the recommended regrading and contouring earthworks so that they tie into the landforms and re-create a natural profile (discussed further below).

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<sup>1</sup> See below under heading ‘other relevant reports’



**Figure 4-1 : Landscape Domains that the Project travels through: Source: <http://mapit.horowhenua.govt.nz>**

## 4.2 Horizons Regional Council One Plan – Part 1 Regional Policy Statement

Chapter 6 of the 'One Plan' addresses, amongst other things, 'natural features, landscapes and natural character'. The 'One Plan' relies on District Councils to identify outstanding natural features and landscapes, although section 6.4.2 lists the so-called 'revised Pigeon Bay criteria' to be used for such assessments. The assessments carried out by both Treadwell and Associates, and Boffa Miskell, for Horowhenua District covered such criteria and therefore satisfy this direction.

Policy 6-82 states that the natural character of wetlands, rivers and lakes and their margins must be preserved and protected from inappropriate subdivision, use and development, and the natural character of these areas must be restored and rehabilitated where appropriate and practicable. Policy 6-9, managing natural character, states that, 'development must generally (but without limitation) be considered appropriate if it is compatible with the existing level of modification to the environment'.<sup>3</sup> These two policies apply to watercourses traversed by the Project. Policy 6-9 is relevant because the existing watercourses are all modified: They have been realigned and formed into shallow drains, and are open to grazing stock. Policy 6-8 will be addressed by the proposal to rehabilitate and naturalise the stream to be diverted south of Paeroa Road.

## 4.3 Resource Management Act 1991

The over-arching purpose and principles set out in section 5 of the RMA are relevant to landscape and visual matters, as are provisions in sections 7(c) and 7(g) relating to amenity values and quality of the environment.

While the Project is not in the coastal environment, section 6(a) is still relevant insofar as the small watercourses traversed by the Project. As discussed, there are no outstanding natural features or landscapes in the vicinity so section 6(b) is not relevant. The Project avoids significant indigenous vegetation and significant habitats of indigenous fauna that would otherwise have brought section 6(c) into play.

<sup>2</sup> One Plan, Part 1- Regional Policy Statement, Chapter 6.

<sup>3</sup> One Plan, Part 1- Regional Policy Statement, Chapter 6.

## 4.4 Relevant Non-statutory Reports

The following technical reports are relevant background:

### **Treadwell and Associates and Horowhenua District Council 2008**

The report identified 'Landscape Character Domains' which were incorporated into the Rural Subdivision Chapter of the Operative District Plan. The descriptions of the 'Domains' are useful background information although such general descriptions are superseded by the more specific descriptions in this report relating to the Project area itself.

### **Treadwell and Associates 2009**

The 2009 document<sup>4</sup> was commissioned for the purpose of identifying 'outstanding natural features and landscapes'. It did not identify any ONF/ONLs in the vicinity of the Project.

### **Boffa Miskell Ltd 2011**

The report<sup>5</sup> was commissioned by HDC as an independent review of the ONFLs proposed in Plan Change 22. It confirmed the Lake Papaitonga and Lake Horowhenua ONFLs, and identified a Coastal Foredune ONFL. None of these are in the vicinity of the Project.

### **Boffa Miskell Ltd 2014**

The document<sup>6</sup> mapped the extent of the Coastal Environment, and any areas of 'high' and 'outstanding' natural character. The Project area is remote from the coastal environment mapped by Boffa Miskell.

### **Isthmus 2011**

This baseline landscape assessment of the Otaki to North-of-Levin RONS study area included the area traversed by the Project. The baseline assessment was carried out as part of route selection investigations for a potential RoNS dual-carriageway expressway. It described the landscape and ranked areas in terms of 'Landscape Quality' and 'Absorption Capability' (i.e. the relative ability of landscape areas to absorb a highway). Such rankings were made for the purpose of multi-criteria analysis. The study assessed a 'corridor'<sup>7</sup> along the existing highway in the area of the Waitarere Curves as having relatively low landscape quality and high absorption capability. To put it another way, it was considered a favourable 'corridor' in which to locate such an expressway.

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<sup>4</sup> Treadwell. (2009). *Assessment of the outstanding landscapes & natural features of the Horowhenua District*. Treadwell and Associates.

<sup>5</sup> Boffa Miskell. (2011). *Outstanding natural landscapes and features review*. Horowhenua District Council.

<sup>6</sup> Boffa Miskell Ltd. (2012). *Natural character assessment of the Horowhenua coastal environment - prepared for Horowhenua District Council*. Boffa Miskell Ltd.

<sup>7</sup> 'Corridor' in this context means a wider area than the existing highway designation

## 5 Existing Landscape

### 5.1 Biophysical Aspects

The highway is located on an alluvial plain on the inland edge of coastal sand dune country. Land to the east of the Project is flat to gently rolling, with the distant backdrop of the Tararua Ranges. Land to the west comprises a band of rolling sand dune country approximately 6km deep which separates the inland plain from the coast.

The existing highway passes through a moderately large outlier dune between Paeroa Road and Waitarere Beach Road, and through several smaller fingers of dune landforms that protrude across the plains north of Waitarere Beach Road. These landforms are already modified by the existing highway and other human activity such as driveways and farming. The topography of the area can be seen in figure 5-1.

Apart from such landforms, there are few natural features of note in the vicinity: The most notable features are an indigenous lowland forest remnant near the north end of the Project area, and lowland forest remnants and a wetland clustered near the south end. The Project works avoid these features.

The drainage in the surrounding area is substantially modified and typified by rectilinear drains. The Project crosses three watercourses (identified as 'Streams 1, 2 and 3' in the ecological report and on sheet C551 in appendix A). As with other watercourses in the area, these have been realigned and reformed into shallow drains and are open to grazing stock. They pass beneath the existing highway in culverts. The nature of the streams is also addressed in the ecological assessment report (Hall, 2015), Appendix G in Volume II of the Notice of Requirement documents.

### 5.2 Perceptual Aspects

Aesthetically, the area has a pleasant but ordinary rural character of which the characteristic features include the hummocky dune landforms in juxtaposition with the underlying plains; the rectilinear pattern of drains, paddocks and shelter belts; and the productive land uses (mostly dairying and cropping).

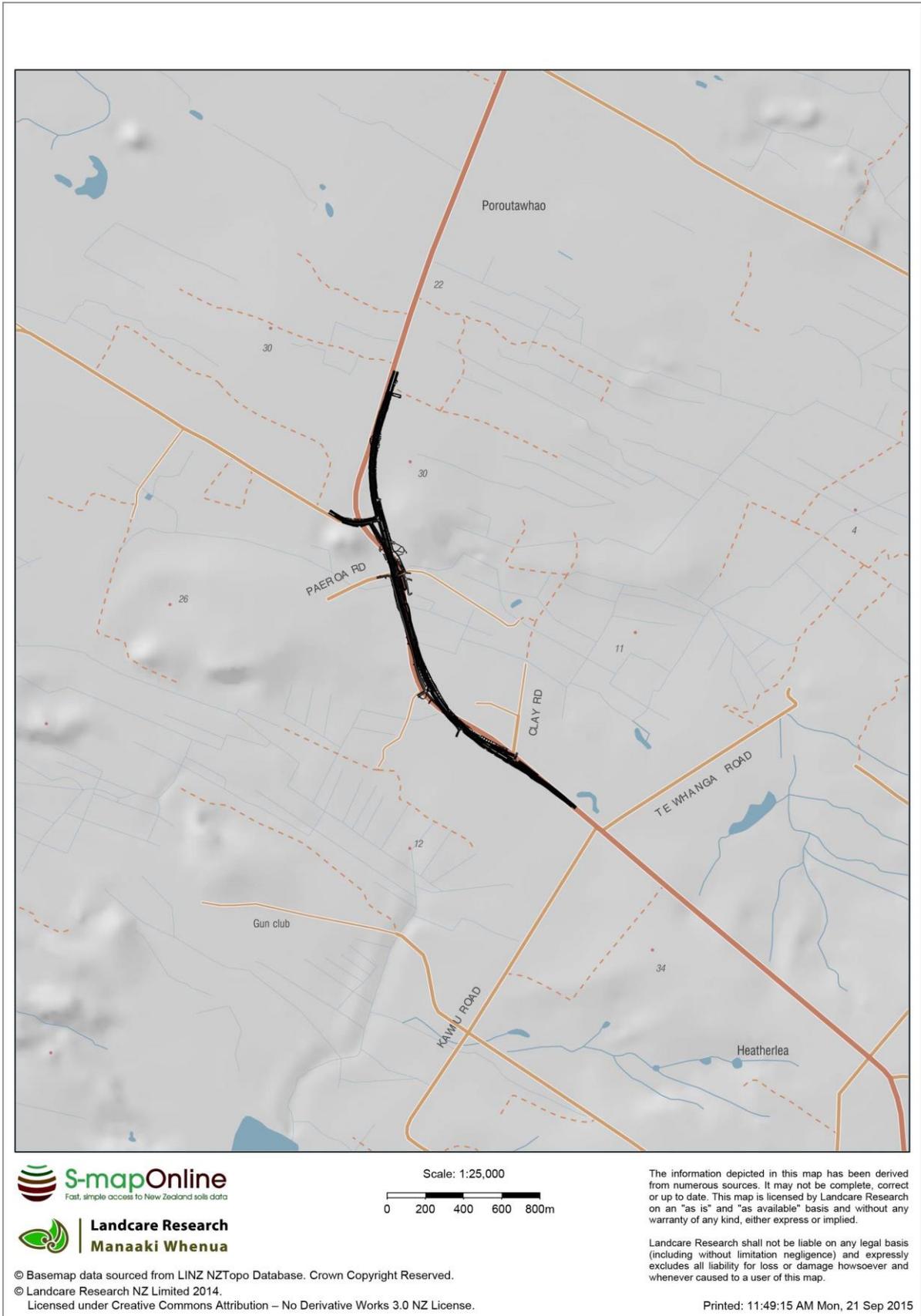
Farm houses and other farming buildings tend to be distributed parallel with, and set back from, the highway. There are also clusters of houses in the vicinity of the two maraes.

Poroutawhao School, a 'country school,' is located in a rural setting adjacent to State Highway 1 at the northern end of the Project area.

### 5.3 Associative Aspects

In addition to the typical farming landscape described above, the following distinctive characteristics are associated with the area:

- Huia and Matau Marae face each other on opposite sides of the highway near the southern end of the Project area. It is understood these two Marae are part of a broader landscape – centred in particular on Lake Horowhenua – that has significance to tangata whenua. The archaeological report identifies a number of features in the vicinity of the Project including an urupa at the end of Paeroa Road.
- A small Church, the 'Whare Rongopai', is located close to the highway at Hinaupiopio.
- There is also a small memorial on a hillock near the intersection of SH1 and Waitarere Beach Road. It is understood it was erected by a local landowner, Jim Stewart.



**Figure 5-1 : Site Topography with project design overlaid. Source: S-map Online, Landcare Research.**

## 6 Landscape and Visual Effects

### 6.1 Potential Effects

Table 6-1 below lists potential landscape and visual effects that were assessed.

**Table 6-1 Identification of Potential Landscape Effects considered**

Potential Landscape Issues considered	RMA Provision
Effects on rural character and amenity.	s 7(c)
Effects on biophysical landscape elements	s 7(f), 6(c) and 6 (a)
Visual effects on community places	s 7(f), (c)
Visual and landscape effects on individual properties.	s 7(c)
Effects during construction	s 7(c)

### 6.2 Effects on Rural Character and Amenity

There will be an incremental increase in the scale (i.e. footprint) of the highway and prominence of highway elements in the course of accommodating the following safety upgrades:

- A median.
- Wider shoulders (to more safely accommodate cyclists and pedestrians, and slow moving agricultural vehicles).
- Wire rope barriers.
- Realignment to reduce the number of curves and to provide wider radius curves.
- Larger intersections at Waitare Beach Road (including additional lighting) and Clay Road
- A new local link road parallel to SH1 between Paeroa Road and Hinaupio, where a new intersection is provided, and a new access between that intersection and the Huia Marae driveway.
- A right turn bay at Poroutawhao School

While such increases in scale and prominence will have some effect on rural amenity and character, the landscape will remain the same in its fundamental attributes: it will continue to be a two-lane highway in a rural landscape. The changes will be experienced in the context of an existing highway where such periodic upgrading might be reasonably anticipated – bearing in mind that the rural landscape has developed around the highway.



**Figure 6-1 : The existing highway from outside 598 State Highway 1**

### **6.3 Effects on Biophysical Landscape Elements**

The highway re-alignment and widening will entail earthworks on some of the dune landforms. The most substantial modification will take place between Paeroa Road and Waitarere Beach Road where the existing highway cuts through one of the larger dune landforms (see figure 6-2). The realignment will remove a roughly 70m length of dune on the east side of the highway, and the slip road at the Waitarere Beach Road intersection will shave up to 20m off the existing cutting into the dune on the west side. To put such effects into context, the existing highway already cuts through this dune with cut batters on both sides of the road. The Project, in effect, will widen the existing cutting. (As discussed above, the final iterations avoided more substantial cuts into the higher dune on the west side of the highway by re-routing Paeroa Road to a new intersection with State Highway 1 at Hinaupio rather than with Waitarere Beach Road).

Otherwise, there will be much smaller encroachments into dune ‘fingers’ north of the Waitarere Beach Road intersection. These works will occur where the cuttings have already been made into the dunes to accommodate the existing highway – in effect pushing existing cut batters further back.

It is proposed to mitigate effects of the earthworks by contouring and grading the batters to blend into the landforms and recreate natural profiles. Batters are either to be re-grassed as pasture, or revegetated, to best tie in with adjacent landuse.



**Figure 6-2 : View of the dunes from outside 708 State Highway 1 looking towards the Waitarere Beach Road intersection.**

The alignment avoids any natural indigenous vegetation of note. Vegetation clearance will be limited to exotic shelter belts / individual trees and amenity planting (including some planted native species) within the immediate vicinity of the proposed works. The ecological report confirms that the vegetation to be removed is of minor ecological importance (Hall, 2015).



**Figure 6-3 : Native lowland swamp forest opposite 577 State Highway 1. The Project will not affect this vegetation.**

Likewise, there will be little effect on watercourses as landscape elements. The drainage patterns and processes in the area are already substantially modified. While one of the watercourses just to the south of Paeroa Road (Stream 2) is to be diverted, it is essentially a shallow drain both east and west of the highway, and passes beneath the highway in a culvert. Any landscape effects will be offset by the proposed wetland planting of the diversion within the designation which will help re-naturalise that short section of the watercourse. On the other hand, there will be an overall improvement in natural processes through the swales and stormwater detention wetlands incorporated into the upgrades.

## **6.4 Visual Effects on Community Places**

### **Matau Marae**

Matau Marae is set back a moderate distance from the existing highway (approximately 80m) and is oriented south-east away from highway. While there is a side outlook to the south-west toward the highway, such views are partially restricted by fences and planting. The Project will increase the scale of the highway, but will also shift it further away (to approximately 100m). The highway will also be below a shallow cut opposite the marae which will help reduce prominence. While the realignment will bring the highway closer to the rear of the marae to the north-west, it will still be greater than 200m in this direction. For these reasons it is considered there will be negligible adverse visual effects on Matau Marae.

### **Huia Marae**

Huia Marae is quite distant from the existing highway (approximately 230m). It is oriented north towards the highway, with a house and occasional tree in intervening paddocks. Although the Project will increase the scale of the highway and shift it closer to the marae, it will still be quite distant (approximately 200m away). The proposed planting between the access way and the highway will soften views of the highway, particularly as the highway will be cambered in the opposite direction. For these reasons it is considered there will be negligible adverse visual effects on Huia Marae.



**Figure 6-4 : View to the Whare Rongopai from opposite 559 State Highway 1**

### **Poroutawhao School**

The school buildings are aligned at right angles to the highway, and set back behind a roadside parking area, fence and planting. The main playground area is separated from the highway by a planted bund. The works opposite the school will be relatively low-key: they entail widening on the opposite side of the road in order to accommodate a right-turn bay in the middle of the road. The works will take place in a flat farmland, except for a small roadside cut into a dune landform north of the school that will be reformed and replanted. Any visual effects in this context will be negligible.

### **Whare Rongopai**

The Whare Rongopai is a small church building fashioned in the style of a whareniui (meeting house). There is a terrace in front of the Whare Rongopai so that it is elevated a little above the highway. It is located reasonably close to the existing highway (approximately 40m), and the curtilage is open to the highway except for an open post-and-rail fence. The Project will encroach at an angle across the front part of the curtilage around the Whare Rongopai. The highway will be larger in scale and closer to the church building (approximately 25m to the highway shoulder). The realigned highway will also curve around the Whare Rongopai to a greater extent so that the church will occupy a more central location on the inside of a sweeping curve. The highway will be more dominant from the grounds of the Whare Rongopai, although such effects will be less relevant from within the building given its internalised function. Such effects will be moderate in degree taking the nature of the church into account. On the other hand, there may be some positive effects because the church building will be more prominent from the highway.

Effects on the Whare Rongopai may be mitigated by landscape treatment. A proposed design for this site is provided as Appendix B and is to be finalised in consultation with the trustees of the Whare Rongopai. The design is intended to more strongly define the boundary of the Whare Rongopai, screen some of the less sightly rear areas, and frame views of the front of the building from the highway.

## 6.5 Visual Effects during Construction

There will be some visual effects during construction as a consequence of the appearance of raw earthworks, construction activity, machinery, and storage of materials. Such effects will be temporary in nature and will occur within the context of the existing highway where one might reasonably anticipate periodic major works (reconstruction upgrades or major maintenance works).

## 6.6 Cumulative Effects

The works are essentially incremental in nature: they entail re-alignment and upgrade of an existing highway. Such effects are the subject of the assessment above. There are no additional cumulative effects not already addressed.

## 6.7 Visual Effects on Individual Properties

Residential properties in the vicinity of the Project are listed below in Table 7-2 and labelled on drawings 80500902-04-0853-C551 and C552. The table assesses the nature and magnitude of visual effect for each property derived from road-side observations and desk-top analysis. Potential effects are largely a function of (i) changes in proximity of the highway to houses, (i) the incremental increases in visual prominence of the highway, and (iii) removal of vegetation and parts of gardens because of encroachment onto properties. Other relevant factors include the orientation of houses and the presence or otherwise of buffer vegetation.

**Table 6-2 Effects to houses and properties**

Address	Notes on changes	Degree of effect
	<b>Effects associated with right turn bay at Poroutawhao School</b>	
827 State Highway 1	House is approximately 60m beyond the northern extent of works, and is oriented north in the opposite direction. The works will entail the tapered extremity of road widening to accommodate the right turn bay at Poroutawhao School some 200m to the south.	Negligible
791 State Highway 1	Building is used as a small-bore rifle club. Oriented north parallel to the highway. Reasonably close to highway (approx. 30m). No garden or softening vegetation. The Project will result in widening of the near side of the existing highway in order to accommodate a right turn bay opposite the property. Although the highway will be wider and slightly closer, the change in visual amenity will be less than minor in this context, particularly taking into account the internal focus of the use to which the property is put.	Less than minor
769 State Highway 1	House reasonably close to existing highway (approx. 30m). In woodland setting adjacent to stand of remnant indigenous forest. Oriented north-east and east toward highway. The Project will be entail	Negligible

Address	Notes on changes	Degree of effect
	widening of the near side of the highway to accommodate a right turn bay some 200m to the north. The widening will taper to the existing highway approximately 60m north of the house. The extent of the works will be visually minor in this context, and further softened by foreground trees.	
	<b>Effects associated with main part of Project</b>	
717 State Highway 1	House set back long way from existing highway (approx. 120m). Surrounded by established garden and trees, including avenue of trees in direction of highway. House oriented north in opposite direction to proposed works. The Project will tie in with the existing highway just to the south of the driveway entrance, and will be screened by vegetation.	Negligible
708 State Highway 1	House set back from existing highway (approx. 65m) beyond hummocky landforms. House slightly elevated. Appears oriented to the north, away from the highway, although there are views to the south-west from the rear of the house. Shelter belts intercept longer oblique views to the north-west. The Project will increase the width of the highway and move it slightly closer (to approx. 60m). A stormwater detention wetland will also be located on the south west boundary. The main adverse visual effect will be earthworks into a hummocky mound adjacent to the gateway, and removal of the vegetation on that mound. It is recommended that measures be investigated to avoid the need for such work given that the cut batter will 'chase' the existing slope and might be avoided by small changes to the design or a low retaining wall. The proposed planting within the wetland will also help soften views to the south-west.	Minor
670 State Highway 1	House slightly elevated on undulating landforms. Set back from existing highway (approx. 90m). Appears oriented to outlook through roughly 270°, including west toward highway. A pine plantation is located to the south and south-west of the house and a macrocarpa shelter belt is located along the boundary with existing highway. The Project will encroach across the south-west corner of plantation and along the western frontage of the property, requiring removal of the shelter belt, excavations into the dune landform, and encroachment into an area that appears (from aerial photos) to be a motorcross track. The highway will be a little closer (approx. 5 – 15m), but the main visual effects will be opening up of views because of the removal of vegetation. Adverse visual effects could be mitigated by re-establishing screen vegetation along the new boundary with the highway.	Moderate
648 State Highway 1	House elevated on low dune land form. Set back from highway (approx. 140m), visually anchored by	Moderate

Address	Notes on changes	Degree of effect
	dune landforms, surrounded by trees, and appears to be oriented north-east away from the highway. The Project will move the highway and major intersection to approximately 60m from house, encroach across flat paddocks south of house, and will remove most of avenue of willow trees leading into the property (A truncated section will remain). The realigned highway will be in a shallow cut opposite the boundary (reducing prominence slightly). The existing trees will remain around the house, and the existing shelter belt to the west. An additional hedgerow of trees is suggested as mitigation along the fence-line behind the house which will be effective mitigation.	
13 - 15 Waitare Beach Road	The dwellings and farm buildings on this property are set back from the state highway and also from Waitare Beach Road. The Project will result in minor road widening to accommodate road-side shoulders relative to these dwellings. The major intersection will move roughly 90m further away and will be partially screened beyond foreground dune landform.	Negligible
607 State Highway 1	House located on knoll above existing highway. Reasonably close (approximately 35m) and appears to be oriented north and east toward highway, but surrounded by trees. The Project will significantly encroach into property. It will move the highway closer (approximately 20m) to front of house, require cut batter into side of knoll (approx. 5m from house), remove most of the trees and garden between house and highway, and result in an elevated view of a larger scale road.	Significant  (property located within proposed designation)
12 Paeroa Road	House set back approx. 80-100m from existing highway. Appears oriented east toward highway, but hedging and trees in intervening landscape. The highway will move closer to the house (to approximately 50m) but will continue to be separated by informal hedging and trees. Effects could be effectively mitigated by further planting adjacent to the highway.	Moderate
24 Paeroa Road	House is located some distance along Paeroa Road (approx. 250m) from existing highway. Appears to be oriented to north-east, diagonally away from highway (there is an intervening knoll to the north). While the Project will shift the highway a little closer (approx. 210m), it will continue to be separated by substantial trees and hedging, and the intervening property at 12 Paeroa Road.	Negligible
25 Paeroa Road	House is located some distance along Paeroa Road (approx.270m) from existing highway. Appears oriented to north, diagonal to highway. The Project will shift the highway a little closer (approximately 210m to new link road) and will be visible in diagonal	Less than minor

Address	Notes on changes	Degree of effect
	outlook across open paddocks to north-east. However, house and some trees in intervening middle-ground will provide some separation. (new planting adjacent to highway would further soften views).	
9 Paeroa Road	House set back approximately 120m from existing highway. Appears to be oriented north, parallel to highway. Views of highway will be softened by foreground vegetation and trees adjacent to highway. The Project will move highway closer (approximately 50m to new link road), encroaching across flat paddock that currently separates house from road. The highway will be in slight cut opposite the house (i.e. it won't be elevated). Existing trees will provide some separation. Effects could be effectively mitigated by planting adjacent to the highway.	Moderate
43 Paeroa Road	House quite distant from existing highway (approx. 290m). Appears oriented north and east, with diagonal outlook in direction of highway. However, there is foreground hedging in direction of highway, and intervening middle-ground houses and shelter belts. The Project will shift the highway slightly closer (approx. 260m to new link road), but it will still be quite distant and separated by intervening buildings and vegetation.	Negligible
577 State Highway 1	Building use and orientation not clear from aerial photo or road. Set back approximately 90m from existing highway. Reasonably screened by vegetation from existing highway. The Project will shift the highway significantly closer (approximately 30m to new link road), encroach across front half of property, and remove some of the screening vegetation. The new link road will provide some separation from highway itself (approx. 50m to highway itself). Effects could be partially mitigated by new foreground screen planting.	Significant (property located within proposed designation)
598 State Highway 1	House reasonably close to existing highway (approx. 30m). Appears to have garden to west in direction of highway, but also in opposite direction to north-east and east away from highway. Substantially screened by existing vegetation along boundary with highway. The Project will shift the highway further away (approx. 60m). While it will have a larger scale, it will be twice as far away as at present. Stormwater detention ponds in the intervening area would provide further separation and softening of views if designed and planted well.	Negligible (potentially positive)
563 State Highway 1	House set well back from existing highway (approx.250m). Appears oriented north and east toward highway, but views softened by foreground trees and garden. Oblique views along highway prevented by intervening shelter belt. The Project will	Minor

Address	Notes on changes	Degree of effect
	shift highway a little closer (approx. 210m to new link road), encroaching across front of paddock the currently separates the house from the highway. The new link road will provide some separation from highway itself. (Effects would be readily mitigated by planting adjacent to highway).	
559 State Highway 1	House is moderately close to existing highway (approx. 50m). Appears oriented north-east towards highway. Some foreground planting provides some perspective depth. The Project will encroach across front part of garden. It will shift the highway itself marginally closer, but the new link road will be significantly closer to the house (approx.30m to new link road). The road will be at-grade opposite the house. Effects would be readily mitigated by planting adjacent to the boundary with the property.	Moderate
549 State Highway 1	House is moderately close to existing highway (approx. 40m). Appears oriented north but also with garden area on east toward highway. Surrounded by established garden and trees. The Project will shift the highway itself a little further away (approx. 60m). The highway will be wider and slightly elevated, but also cambered in the opposite direction. The existing highway will become the local link road. Existing garden and trees will continue to soften any views. Planting between link road and highway would further soften views.	Minor (potential benefits)
535 State Highway 1	One of a cluster of houses around private road to the west of Huia Marae. House is set back from existing highway (approx. 100m). Appears oriented north towards highway, with outlook across open paddocks. While the Project will result in a larger scale highway, the highway will be further away (approx. 130m). The existing highway will become local link road with a reformed intersection with new highway.	Minor (potential benefits)
533 State Highway 1	One of a cluster of houses around private road to the west of Huia Marae. House is moderately close to existing highway (approx. 60m). Appears oriented north toward highway and west. While the Project will result in a larger scale highway, the highway will be further away (approx. 80m). The new local link road will likewise be further away than the existing foreground access road. Foreground garden vegetation will soften views and provide some perspective depth.	Less than minor
527 State Highway 1	One of a cluster of houses around private road to the west of Huia Marae. House is close to existing highway (approx. 30m). Appears oriented north toward highway. While the Project will result in a larger scale highway, the highway will be further away (approx. 50m) and cambered in opposite	Less than minor

Address	Notes on changes	Degree of effect
	direction. The new local link road will likewise be further away than the existing foreground access road. Proposed planting between the main highway and foreground link road will help soften views and provide some perspective depth.	
537, 537A, 539, 541 State Highway 1	These houses are well set back from existing highway and are behind other houses. The Project will shift the highway further away.	Negligible
519 State Highway 1	One of a cluster of houses west of Huia Marae. House is close to existing highway (< 20m). Appears oriented north toward highway and west. The Project will result in a larger scale highway although the highway itself will be slightly further away and cambered in the opposite direction. However a new access way is to be formed in front of the property, and will encroach across a corner of the garden and adjacent paddock. The access will have low use and will create an intervening element between the garden and highway. Foreground garden vegetation will continue to soften views and provide some perspective depth. Similarly, the proposed planting on the batter between the access driveway and highway will help soften views (the highway itself will be cambered in the opposite direction which will assist softening of views)	Moderate
511 State Highway 1	House is close to the existing highway adjacent to the intersection with the access road to Huia Marae. The Project will completely traverse the property and require removal of the house.	Significant (property located within proposed designation)
514 State Highway 1	The house is adjacent to the Whare Rongopai. It is moderately close to the existing highway (approx. 50m). It appears somewhat derelict and currently unused. The Project will result in a larger scale highway, but similar distance to the existing highway. The earthworks will encroach across a front corner of the section.	Minor
19 Clay Road	House is adjacent to the south side of Matau Marae. Set back moderate distance from existing highway (approx. 70m). Appears oriented north away from the highway. Hedge and garden planting soften views toward highway. While the Project will increase width of highway, it will shift it further away (approx. 100m). Highway will be in shallow cut opposite property.	Negligible (potentially positive)
7 Clay Road	House is close to existing highway (approx. 30m) at the intersection with Clay Road. Trees and garden vegetation to south of house in direction of highway, but appears to outlook across paddocks to the west. The Project will shift the main highway further away, particularly in the more open outlook to the west. The slip lane providing a left turn into Clay Road will	Less than minor (potentially positive)

Address	Notes on changes	Degree of effect
	remain in the location of the existing highway.	
6 Clay Road	House is close to existing highway (approx. 20m) at intersection with Clay Road. Appears oriented north away from highway. Dense vegetation south of house in direction of highway. The Project will result in a larger scale highway, but will shift it further way (to approx. 40m). Proposed planting will further increase separation.	Negligible (potentially positive).
9 and 10 Clay Road	The houses are set back from the existing highway, are beyond existing houses, and are separated by substantial vegetation. The Project will move the highway further away.	Negligible (potentially positive)
16, 18, 22, 27 Clay Road	The houses are all set back from the existing highway, are beyond existing houses, and are separated by substantial vegetation. The Project will move the highway slightly further away.	Negligible

In summary, there will be significant adverse visual effects on three properties, each of which fall within the proposed designation and are anticipated to be acquired by the Transport Agency.

Otherwise, there will be moderate visual effects on six properties. In each case the adverse effects are able to be effectively mitigated by proposed landscape design.

Any adverse landscape/visual effects on the remaining 30 properties assessed will be minor or less (5 minor, 5 less than minor, 18 negligible). The Project will also have potential positive effects in several instances where the highway is moved further away.

## 6.8 Evaluation of Overall Effects

Taking the above aspects together, and without mitigation, there will be moderate adverse effects on rural character and amenity, and localised dune landforms. Such effects can be readily mitigated by landscape design.

There will be significant adverse visual effects on three properties that are traversed by the proposed designation and which are anticipated to be acquired by the Transport Agency. There will be moderate visual effects on six properties. Such effects can be readily mitigated by proposed landscape treatment. The effects on the remaining 31 houses in the vicinity will be minor or less. The Project will also have potential positive effects in several instances.

# 7 Design and Mitigation Measures

## 7.1 Overall Design Approach

Potential adverse landscape and visual effects have been avoided to a large extent by confining the realignment to the vicinity of the existing highway (thereby minimising effects on landscape character), avoiding areas of remnant indigenous vegetation, and fine-tuning the alignment (and other aspects of the design) to minimise adverse effects on neighbouring properties.

The Project was refined through several iterations to reduce potential adverse effects and incorporate positive features. In particular, the most recent changes avoided the need for a link road between Paeroa Road and Waitarere Road, reducing potential impacts on dune landforms in this area.

In addition, the landscape design includes the following recommended approaches:

- Retaining the rural character of the highway margins including reinstating typical fencing and resolving land ownership post-construction to avoid left-over areas.
- Planting adjacent to the highway to reduce its prominence from adjacent properties and to help tie the highway into the rural landscape.
- Planting stormwater wetlands to re-naturalise them, so that they are an amenity feature as well as functional devices.
- Grading and contouring the cut batters so that they blend into the dune landforms and resemble natural slopes in profile.
- Site specific landscape design for those five properties assessed as having 'moderate' visual effects. Such design to be carried out in consultation with the respective owners.
- Site specific design for the Whare Rongopai, to be carried out in consultation with the owners.

The measures are summarised in Table 7-1 following and depicted on drawings C551 and C552, included as Appendix 1.

## 7.2 Effects and Mitigation Summary

Table 7-1 : Effects and Mitigation Summary

	Landscape Issues	Is Mitigation Required	Mitigation Measures
<b>Effects on landscape character</b>	<ul style="list-style-type: none"> <li>Incremental increase in scale and prominence</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Reinstatement of highway margins so that the character is in keeping with adjacent land. Left-over areas no longer necessary for the highway should be returned to productive use. Reinstated boundary fences or hedges should be in keeping with patterns existing in the area.</li> <li>Planting within the designation margin with typical rural or natural plant patterns to integrate the works into the landscape and retain rural character.</li> </ul>
<b>Effects on biophysical elements</b>	<ul style="list-style-type: none"> <li>Earthworks on sand dune landforms</li> <li>Diversion of modified watercourse south of Paeroa Road (Stream 2).</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Grading and contouring batter slopes where practicable to merge with landform and resemble natural profile</li> <li>Planting to watercourse margins within the designation.</li> </ul>
<b>Effects on community places</b>	<ul style="list-style-type: none"> <li>Encroachment into curtilage of Whare Rongopai</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Planting to redefine boundary between Whare Rongopai and SH1, to screen parts of building, and frame the front of the building (to be carried out in consultation with owners)</li> </ul>
<b>Effects during construction</b>	<ul style="list-style-type: none"> <li>Temporary visual effects.</li> </ul>	No	<ul style="list-style-type: none"> <li>The works will be carried out in the context of the existing highway where it is reasonable to anticipate reconstruction or major maintenance from time to time.</li> </ul>
<b>Effects on individual properties.</b>	<ul style="list-style-type: none"> <li>Visual effects from increased scale and closer proximity of highway, in some instances removal of screening vegetation.</li> </ul>	In some instances	<ul style="list-style-type: none"> <li>Planting within the designation where it will help soften views and increase perception of a buffer.</li> <li>Specific design for the six properties assessed as having moderate visual effects</li> </ul>

## 8 Conclusion on Effects

There will be some incremental adverse effects on rural character and amenity because of the increased scale (footprint) of the highway and the prominence of such safety fixtures as the wire-rope barrier and lighting. To put these effects in perspective, they will occur in the context of the existing highway where it is reasonable to anticipate periodic upgrades and reconstruction as a consequence of increasing use and evolving standards. The highway will retain a single carriageway in each direction, and the surroundings will retain their rural character.

There will be some effects on biophysical elements, the most noteworthy being earthworks on the sand dune landforms between Paeroa Road and Waitare Beach Road. However, the affected dune landforms have already been modified to accommodate the existing highway, and the adverse effects will be effectively mitigated by the proposed measures to grade/contour the batter slopes. There will also be removal of planted rural and amenity vegetation, and diversion of a watercourse. However, the vegetation is mainly planted (including exotic rural shelter trees, and amenity vegetation), and the watercourses in the area are all substantially modified. There will be no encroachments into the few areas of remnant indigenous vegetation or natural water bodies.

There will be negligible adverse visual effects on Matau Marae, Huia Marae, and Poroutawhao School. There will, however, be moderate visual effects on the Whare Rongopai, which can be mitigated by landscape design.

Taking these matters together, it is considered the overall landscape and visual effects (without mitigation) will be, at most, moderate, and that such effects can be effectively mitigated.

With regards individual properties, there will be significant adverse effects on three properties, each of which is traversed by the proposed designation, and which are anticipated to be acquired by the Transport Agency. There will be moderate adverse visual effects on six properties which can be effectively mitigated through landscape design. Any adverse visual effects on the remaining properties in the vicinity of the Project will be minor or less. The project will also have potential positive effects in several instances..

Visual effects during construction will be temporary and will occur in the vicinity of the existing highway where it is reasonable to anticipate periodic major works (such as upgrades and major maintenance).

## 9 Additional References

Lister, G. (2014). *Landscape assessment guidelines, Appendix 1 of Landscape Guidelines Final Draft*. New Zealand Transport Agency, Wellington.

<http://www.nzta.govt.nz/assets/resources/nzta-landscape-guidelines/docs/nzta-landscape-guidelines-20140911.pdf>

<https://www.nzta.govt.nz/assets/resources/bridging-the-gap/docs/bridging-the-gap.pdf>

Hall, K. (2015). *Otaki to Levin roads of national significance: Waitarere Beach Road Curves Project Ecological Assessment*. MWH Ltd.

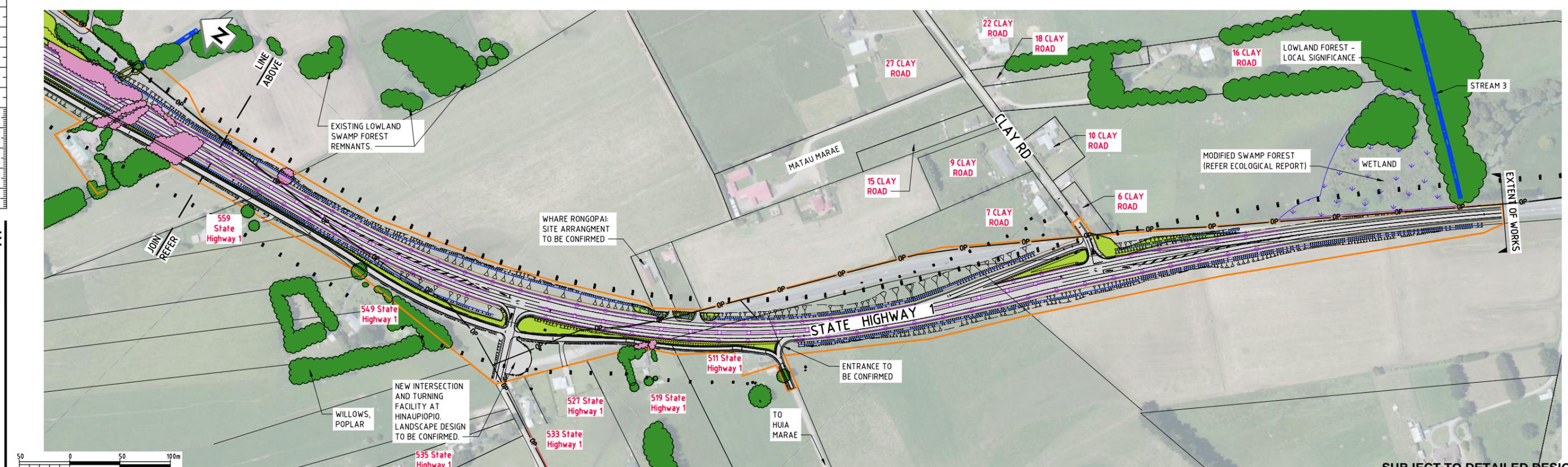
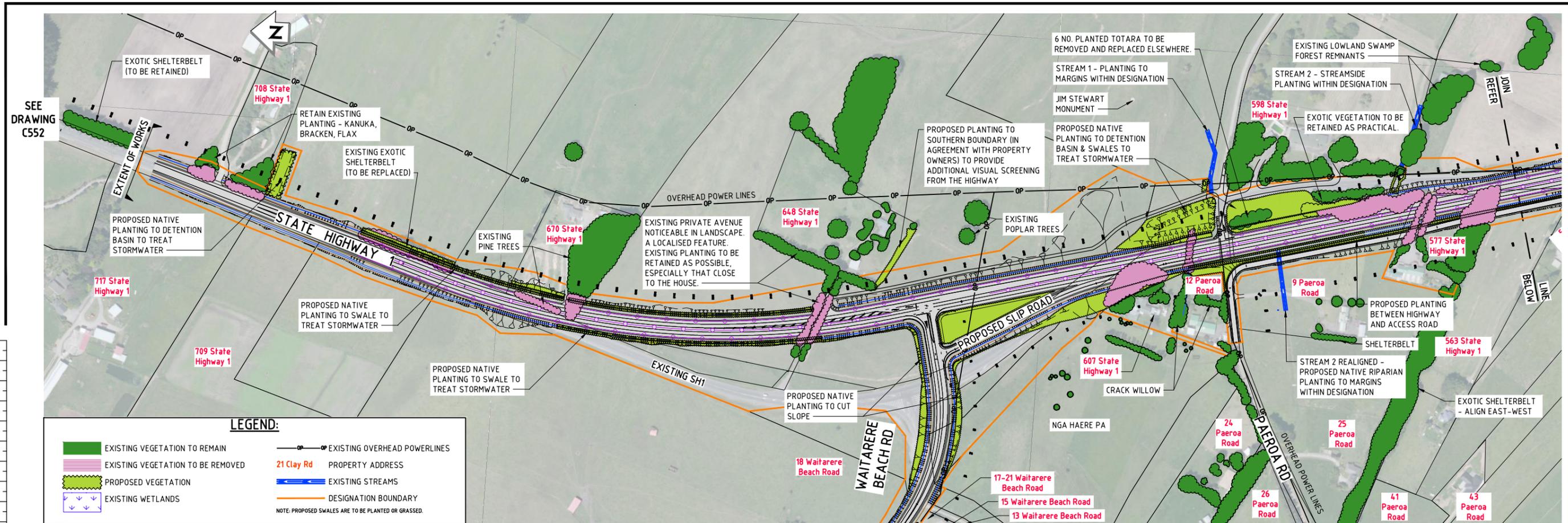
Parker, D. (2015). *An archeological survey and assessment of effects for the Waitarere Beach Road Curves Project, State Highway 1, North of Levin*. Insite Archaeology Ltd.

NZILA. (2010). *Best practice note, Landscape assessment and sustainable management 10.1*. NZILA

*Natural Character Assessment of the Horowhenua Coastal Environment*. Boffa Miskell Ltd for Horowhenua District Council. September 2012.

## **Appendix A**

### **Drawings 80500902-04-0853-C551 and C552 Landscape Context Plans**



<p>SEE DRAWING C552</p> <p>DO NOT SCALE - IF IN DOUBT, ASK</p> <p>200 mm</p> <p>150</p> <p>100</p> <p>90</p> <p>80</p> <p>70</p> <p>60</p> <p>50</p> <p>40</p> <p>30</p> <p>20</p> <p>10</p> <p>0</p> <p>ORIGINAL SIZE A1</p>		<p>LEGEND:</p> <p>EXISTING VEGETATION TO REMAIN</p> <p>EXISTING VEGETATION TO BE REMOVED</p> <p>PROPOSED VEGETATION</p> <p>EXISTING WETLANDS</p> <p>EXISTING OVERHEAD POWERLINES</p> <p>21 Clay Rd PROPERTY ADDRESS</p> <p>EXISTING STREAMS</p> <p>DESIGNATION BOUNDARY</p> <p>NOTE: PROPOSED SWALES ARE TO BE PLANTED OR GRASSED.</p>		<p>SCALE 1:2000</p> <p>50 0 50 100m</p>		<p>SUBJECT TO DETAILED DESIGN NOT FOR CONSTRUCTION</p>																			
<p>REVISIONS</p> <table border="1"> <tr> <th>REV</th> <th>DESCRIPTION</th> <th>DATE</th> <th>APP</th> <th>CHK</th> <th>DRN</th> </tr> <tr> <td>B</td> <td>ISSUED FOR CONSENT</td> <td>11/15</td> <td>PP</td> <td>JP</td> <td>PJC</td> </tr> <tr> <td>A</td> <td>FOR CONSULTATION</td> <td>09/15</td> <td>JP</td> <td>JP</td> <td>PJC</td> </tr> </table>		REV	DESCRIPTION	DATE	APP	CHK	DRN	B	ISSUED FOR CONSENT	11/15	PP	JP	PJC	A	FOR CONSULTATION	09/15	JP	JP	PJC	<p>SURVEYED</p> <p>DESIGNED Kirstie Thorpe 06/15</p> <p>DRAWN Phillip Cook/Kirstie Thorpe 06/15</p> <p>CAD REVIEW</p> <p>DESIGN CHECK</p> <p>DESIGN REVIEW</p> <p>APPROVED</p> <p>PROF REGISTRATION</p>		<p>Client:</p> <p>WAITAREBE BEACH ROAD CURVES PROJECT</p> <p>LANDSCAPE CONTEXT PLAN SHEET 1 OF 2</p>		<p>Status Stamp</p> <p>FOR CONSENT</p> <p>Date Stamp 12/11/2015</p> <p>Scales 1: 2000</p> <p>Drawing No. 80500902-04-0853-C551</p> <p>Rev B</p>	
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B	ISSUED FOR CONSENT	11/15	PP	JP	PJC																				
A	FOR CONSULTATION	09/15	JP	JP	PJC																				

DO NOT SCALE - IF IN DOUBT, ASK

200 mm  
150  
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20  
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ORIGINAL SIZE A1



**LEGEND:**

- EXISTING VEGETATION TO REMAIN
  - EXISTING VEGETATION TO BE REMOVED
  - PROPOSED VEGETATION
  - EXISTING WETLANDS
  - EXISTING OVERHEAD POWERLINES
  - 21 Clay Rd PROPERTY ADDRESS
  - EXISTING STREAMS
  - DESIGNATION BOUNDARY
- NOTE: PROPOSED SWALES ARE TO BE PLANTED OR GRASSED.



**SUBJECT TO DETAILED DESIGN  
NOT FOR CONSTRUCTION**

REV	DESCRIPTION	DRN	CHK	APP	DATE
B	ISSUED FOR CONSENT	PJC	JP	PP	11/15
A	FOR CONSULTATION	PJC	JP	JP	09/15

SURVEYED	DESIGNED	DRAWN	CAD REVIEW	DESIGN CHECK	DESIGN REVIEW	APPROVED	PROF REGISTRATION
	Kirstie Thorpe	Phillip Cook					



Client:  
**WAITARERE BEACH ROAD  
CURVES PROJECT**

**LANDSCAPE CONTEXT PLAN  
SHEET 2 OF 2**

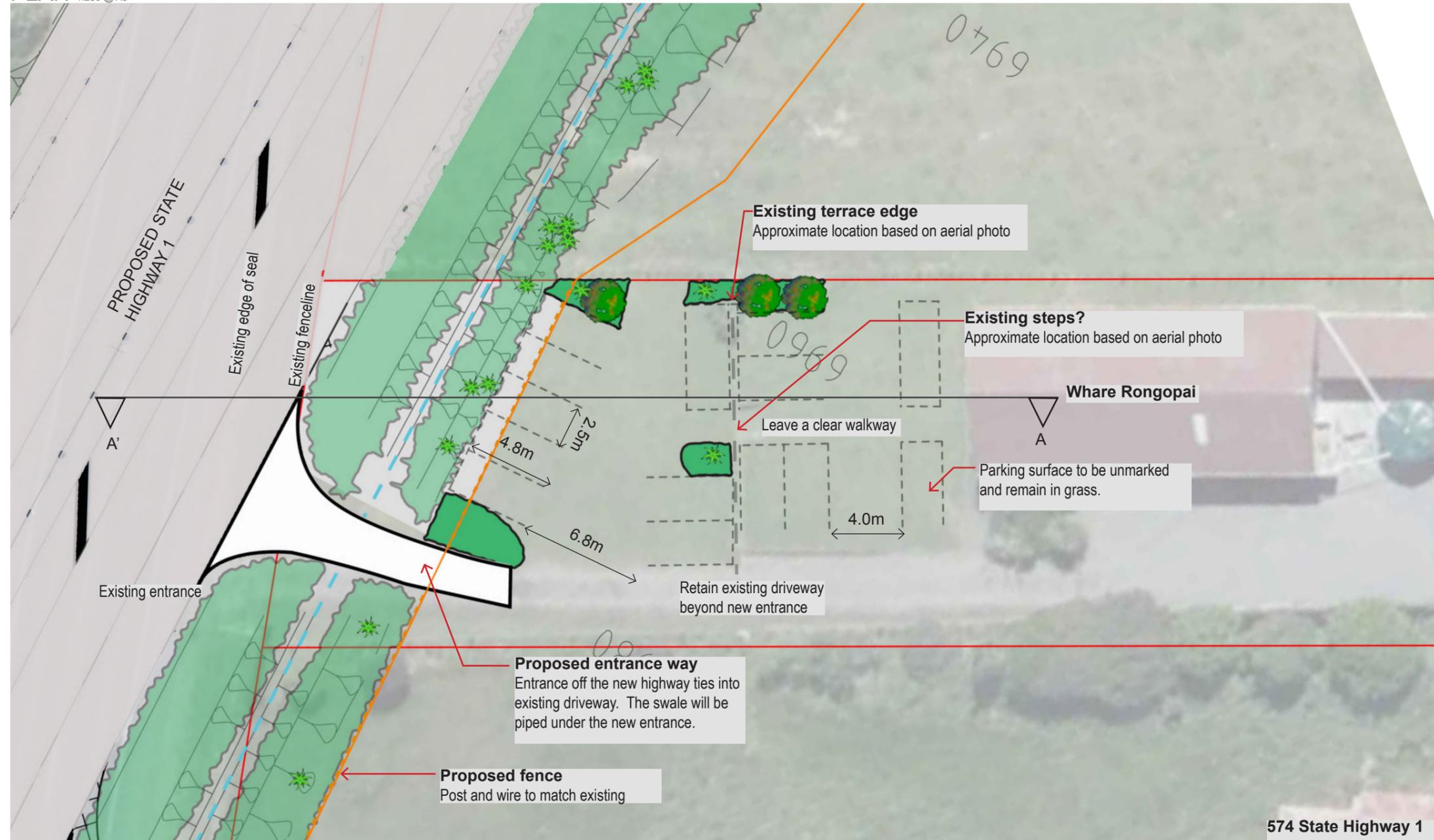
Status Stamp	<b>FOR CONSENT</b>
Date Stamp	12/11/2015
Scales	1 : 1000
Drawing No.	80500902-04-0853-C552
Rev.	<b>B</b>

## **Appendix B**

### **Drawings 80500902 LA - 02 Whare Rongopai - Indicative Layout**

# WHARE RONGOPAI - INDICATIVE SITE ARRANGEMENT

PLAN 1:250 @ A3



## Notes:

- The indicative car parking delineation is shown to demonstrate how the car parking space could be used. There is no intention to formally lay out the car park or mark spaces as part of landscape works.
- The designation extent allows for construction and will be redefined once construction is complete.

## Parking Design Assumptions:

- There are 11 spaces shown. Parking spaces will remain informal, unmarked and unsealed.
- 90° parking is assumed, and a degree of informality remains in the design.
- Planting shown around the car park is indicative and to be agreed.

**INDICATIVE ONLY AND SUBJECT TO DETAILED DESIGN**

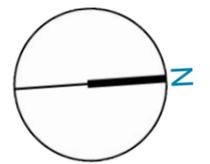
## KEY

### base information

- Proposed Designation
- Existing boundary lines
- Proposed road
- Proposed earthworks
- Proposed base of swale

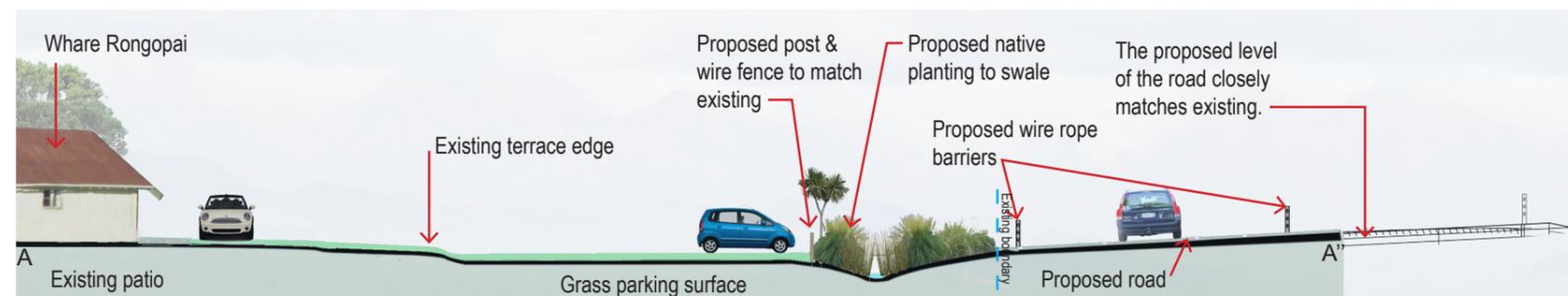
### proposed design

- Parking indicative arrangement
- Proposed planting
- Proposed surfaces reinstated to soft e.g. grass



## SECTION A-A' 1:250 @ A3

This is based on the section at chainage 6970 with modifications to reflect a section through the middle of the site.



NZTA

Job no. 80507007  
 Drawing No. 80500902/LA02 - C  
 Scale as scale bar  
 Drawn Kirstie Thorpe  
 Reviewer Jamie Povall  
 Date 29th July 2015  
 Status DRAFT

**WAITARERE BEACH ROAD CURVES SAFETY IMPROVEMENTS**  
**WHARE RONGOPAI**



## Appendix C

# Otaki to North of Levin Baseline Assessment Urban and Landscape Design Objectives

[The following principles and guidelines were devised as an attachment to the Baseline Urban Design and Landscape Assessment of the Otaki to North-of-Levin RONS. While they provide background, not all of the matters will be relevant to the landscape design for the Waitarere Beach Road Curves Improvements Project]

### Overall Principles:

The following over-arching urban and landscape design principles should be followed in the route selection and alignment phases:

1. The **first priority** should be to **avoid** adverse effects and seek opportunities for **positive** effects. Such goals are best achieved during route selection and alignment phases. Remediation and mitigation should be a second order priority carried out later in the design process. The urban designer and landscape architect should play an integral role in the iterative route selection and alignment phases, and subsequent development of the highway design.
2. Urban and landscape design measures should be **integrated with the other disciplines** (including civil and structural engineering, stormwater and ecology) to achieve a cohesive integrated design.
3. An urban and landscape design **philosophy and concept** should be developed for the whole project. It should form the foundation for the 'Urban and Landscape Design Framework' to be developed at subsequent SAR and NoR phases.
4. Urban and landscape design measures should ideally be carried out in **collaboration with the communities** along the route.
5. The urban and landscape design measures should be **consistent with the other RoNS projects on the coastal plain** (i.e. MacKays to Peka, Peka to Otaki). In general the adopted approach comprises split carriageways with a 9m median and a wire rope barrier. The medians are to be used for stormwater treatment where appropriate.
6. Design for the Otaki to North of Levin RoNS should likewise be consistent with the following **NZTA documents**:

NZTA Documents	Description
Urban Design Policy	High level policy which includes the following: <ul style="list-style-type: none"> <li>• Urban design is more than aesthetics: It concerns the structure and form of urban and rural landscapes including circulation, activities and form;</li> <li>• Urban design is to be a central component of NZTA projects; and</li> <li>• Urban design is to be integral to the design process from project conception through to detail design.</li> </ul>
Urban and Landscape Design Frameworks	Describes the following in more detail: <ul style="list-style-type: none"> <li>• The requirement to prepare Urban and Landscape Design Framework (ULDF) for NZTA projects;</li> <li>• Content of an ULDF; and</li> <li>• The role of ULDF at different stages of the design process.</li> </ul>
Urban Design Principles, Guidance Notes	Design principles relating to specific elements: <ul style="list-style-type: none"> <li>• Highway Bridges;</li> <li>• Underpasses;</li> </ul>

- Noise Walls; and
- Landscape Design

Guidelines for Highway Landscaping	Design principles and standards relating to landscape design.
Urban Design Professional Services Guide	Describes requirements, deliverables and design processes relating to urban design professional services. It includes a requirement for design to be integrated with the overall project design, and integral to the design process from start to finish.

## Specific Principles and Guidelines:

### Integration with Rural Landscape

Most of the Ōtaki to north of Levin RoNS will traverse a rural landscape. It also the most rural in character of the Wellington RoNS. The design should therefore **integrate the road into the rural landscape** by adopting the following principles:

- Minimise impacts on **productive rural activities**. For instance fine tune the alignment to follow property boundaries, or boundaries between different land use types. (For instance the alignment might skirt the toe of hills between cropping land and grazing land). Maintain sensible sizes and geometry for parcels of productive land. (For example cropping fields require sensible proportions for machine working).
- Minimise disruption to the existing **rural road network**. Avoid severance of roads and creation of cul-de-sacs where possible. In particular maintain the connectedness of the existing SH1 as an arterial route connecting Manakau, Ohau and Levin and the sequence of marae settlements.
- Avoid severance of **community facilities** from their community. For instance avoid severing local halls, marae, churches or schools from the immediate area served by such facilities. Such features are mapped in the Baseline Assessment.
- Avoid particular natural **landscape features**, such as areas of significant vegetation and distinctive local landforms. For instance there are distinctive totara/kahikatea stands south of Levin and distinctive dune landforms north of Levin. The more significant features have been mapped in the Baseline Assessment and taken into account in the identification of route options. These should continue to be avoided during selection and refinement of a preferred route and alignment.
- Design the landscape measures so that they are in **scale** with the broad landscape. While detail measures will be needed to address specific effects (such as views from a dwelling), they should be part of a larger canvas. Carry out planting in bold patterns with a small number of visually dominant species to reflect natural patterns. (Avoid the 'fruit salad' appearance that can arise when there is not a dominant species).
- Reinforce the existing **patterns** of the underlying landscape. For instance reinforce natural patterns such as stream courses and escarpments, and reinforce human patterns such as the road network and pattern of fields and shelter belts.
- Use **plant associations characteristic of the area**. For instance the totara and kahikatea association characteristic of terraces near Ohau and the flax, cabbage tree, kahikatea association characteristic of wetlands.
- Extend **adjacent land use and vegetation** as close to the highway shoulder as possible consistent with road safety and practical land management of the highway margins.
- **Contour earthworks** to tie in with adjacent topography. Adopt mono-slope batters in preference to benching (the Ōtaki to north of Levin RoNS is through relatively subdued topography so that it should be possible to avoid the need for benched batters).
- Incorporate **low impact storm-water devices** such as swales and wetlands. Such devices are in keeping with the natural history of the area and are likely to have ecological and visual benefits as well as storm-water functions.
- Use **eco-sourced** stock of species naturally occurring in the area.
- Follow **safety standards**, such as use of frangible species and clear zones. It may be preferable in some instances to trade off the introduction of crash barrier so that planting can be safely carried out closer to the carriageway.

- Refer to the 'Landscape Design' Guidance Notes in the NZTA Urban Design Principles, and the 'Guidelines for Highway Landscaping'.

## Natural Character of Rivers, Streams and their Margins

Natural Character includes both biophysical and visual design considerations. The Ōtaki to north of Levin RoNS alternative corridors have already been selected in part to avoid Lakes Horowhenua and Papaitonga, and the Hokio and Waiwiri Streams connecting those lakes with the coast. However the project must unavoidably cross the Ohau River, Waikawa Stream, Manakau Stream and a number of smaller streams and watercourses. The corridor options also pass close to several wetlands. The design should seek to **minimise effects on both the biophysical and visual aspects of natural character** at streams and wetlands. General principles include:

- Cross rivers and streams at **right angles**.
- **Bridge** significant streams in preference to culverts. Where culverts are used they should be designed to be 'fish friendly', for instance by allowing a naturalistic stream bed to form within the culverts.
- Adopt **twin bridges** for the dual carriageways, to allow light between spans to the stream.
- Design bridges so that informal **pedestrian access** is maintained along rivers and streams.
- Re-instate or restore **riparian vegetation** upstream and downstream of crossings. Such vegetation can off-set any biophysical effects of the bridge or culvert on the stream, visually reinforce the natural landscape patterns, and soften the appearance of embankments and culverts.
- Avoid any **wetlands**.

## Connections with Levin and other Settlements

Connectedness includes both **configuration** and **legibility**. The Ōtaki to north of Levin RoNS should promote connections between the highway and adjacent settlements, make the connections legible, and maintain the integrity of the existing road and settlement network.

- Design access points to the existing SH1 north and south of Levin to enable travelers to pass through the town without the need to backtrack to re-join the highway. As discussed above, maintain the connectedness of existing SH1 as the main arterial route linking Levin and other settlements within its hinterland.
- Design the principal access point to Levin so that it connects logically to existing arterial street network: For instance an ideal location would be on the Queen Street East axis.
- Create a visually distinct identity for each interchange. This may be achieved by borrowing from the surrounding landscape, ensuring that the landscape character continues unbroken to the interchange. Alternatively it may be created through art or design within the interchange (for example patterning of bridge barriers, retaining walls, or bold landscape design). The latter approach is most likely to be appropriate at the principal Levin Interchange.
- Any artwork should be commissioned in collaboration with the community.

## Bridges and Underpasses

- As a first preference, configure the design so that proposed Ōtaki to north of Levin RoNS highway passes over existing roads so that they are maintained on existing alignments and grade
- Integrate pedestrian and cycle paths with existing roads (preferably at grade).
- Adopt twin bridges for highway overpasses to maintain light to the underpass.
- Use splayed and sloping bridge abutments to maximise the openness of underpasses.
- Use a consistent design theme for bridges in the Ōtaki to north of Levin RoNS. Maintain simple, clean lines given the rural setting for most of the area traversed.
- Introduce shadow lines to bridge parapets to reinforce horizontal lines. Otherwise avoid fussy designs.

- Maintain views from bridges over roads and streams by adopting concrete and pipe barriers. Use different barriers at bridges compared to the rest of the route, to highlight the different conditions created by bridges.
- If separate pedestrian and cycle underpasses are necessary to maintain good connectivity, configure such underpasses so that they are straight, have straight approaches with good sightlines, have good surveillance, are inviting (sufficient width and height) are bright and well lit, and well drained.
- Refer to the 'Road Bridges' and 'Underpasses' Guidance Notes in the NZTA Urban Design Principles.

## Highway Furniture

Reduce the visual clutter from the highway furniture (e.g. barriers, lights, signs and gantries). Such furniture should be:

- Designed as a suite with a common design language: Use consistent materials, colours, jointing types and sections etc;
- Simplify the variety within each type of element: For instance limit the types of safety barrier, types of sign poles, types of noise wall etc;
- Use recessive colours (unless consciously used to enhance legibility);
- Use detailing that is visually refined and 'clean'. Avoid unnecessary ornamentation;
- Use earth contouring and run-off zones where practical to reduce the extent of edge barriers. Use planting to reduce the visual prominence of wire-rope barriers.
- Avoid short lengths of barriers (i.e. avoid stop-start barriers). Techniques to avoid barriers include locating structures further from the carriageway.
- Pay particular attention to the aesthetics of transition between barrier types.
- Create a sharp edge between the shoulder and adjacent vegetation, avoiding the 'in-between' strip and reducing the need for herbicide maintenance.

## Views

Minimise effects on views from private properties (particularly from dwellings) and public viewpoints.

- Refine the alignment to **maximise separation** from dwellings, or to **pass 'behind'** the main outlook from nearby dwellings.
- **Soften views** and integrate the highway into the landscape by planting. As discussed above, such planting should be rural in character and scale. It is not necessary to screen the road to mitigate effects. Groups of trees in the intervening landscape can soften the view and increase the perspective depth (i.e. inserting middle-ground vegetation can increase perception that the road is part of the background).

## Noise Walls

Align the highway to **avoid the need for noise walls** as a first preference (maximise separation from dwellings, see above).

Where noise walls are unavoidable, refer to the '**Noise Wall**' Guidance Notes in the NZTA Urban Design Principles. The following points are made in summary:

- Use **consistent materials and design** for any noise walls required, to reduce visual clutter.
- Use **appropriate materials for the context**. For instance timber panel walls with a recessive treatment may be most appropriate in the rural sections of the Ōtaki to north of Levin RoNS, while more industrial materials and bolder design may be appropriate in the vicinity of Levin.
- Align the top of the wall to **follow the road's vertical alignment**.
- Where possible use **contoured earth mounds** to replace noise walls, or to reduce their height.



- **Plant both sides** of any walls to visual soften their appearance and avoid graffiti.  
An exception may be appropriate where a decision is made to incorporate artwork into the wall.