NZ Transport Agency

SH3 Awakino Tunnel Bypass Project

Landscape and Visual Assessment
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1 Introduction

1.1 Overview

The NZ Transport Agency (the Transport Agency) proposes to construct a bypass of the Awakino Tunnel and realignment of Hammond’s Corner (the Project) as part of a number of safety improvements for State Highway 3 (SH3). This Landscape and Visual Assessment (LVA) is one of a number of specialist assessments that will assess the likely environmental effects arising from the Project. This particular assessment examines the Project in relation to landscape effects (land cover, landform, land use), visual effects related to visual amenity and natural character. The LVA will also consider urban design and Crime Prevention through Environmental Design (CPTED).

The local environment is rural and is at the northern end of the Awakino Gorge (the Gorge). It entails river terraces, surrounding bush and pine covered hills and dramatic limestone cliffs. Vegetation cover is a mix of native bush, pine plantations and rural farmland. The Awakino River is also a feature of the Project area and wider landscape. The Project includes the Awakino Tunnel which was constructed in 1924 (refer to Figure 3 in the accompanying Graphics Supplement, illustrating historic photographs).

The 58 km section from Mt Messenger north to the Gorge is part of the main highway route between New Plymouth and Hamilton and connects the west and the north and west of the North Island. The highway traverses rough terrain and as a result it is winding and narrow in places and prone to rockfalls and slips. A number of SH3 improvement options are being proposed by the Transport Agency to provide a more efficient and safer transport route and the Project is one of the highway improvements identified.

1.2 Project Description

The Project is located 50 km south of Te Kuiti, approximately half way between New Plymouth and Hamilton and is in the Waikato Region (refer Figure 1). The Project is expected to reduce fatal and serious crashes and highway closures, as well as improve the performance of the network. Parts of the Project route are highly constrained by poor access, steep terrain and the narrow existing highway, as well as the meandering Awakino River.

The Project involves:

- About 2.3 km of new two lane road typically 10 m wide (plus batter slopes), which bypasses the existing single lane Awakino Tunnel;
- about 675 m of northbound passing lane and two truck pull off areas (one in each direction);
- two new bridges across the Awakino River, one 76 m long and the other 63 m long;
- approximately 190,000 m³ of earthworks with cut batters up to about 30 m high, covering about 400 m length of the new highway;
- about 600 m of fill embankment up to about 6 m high, including a section of fill supported on timber piles due to underlying soft ground;
- approximately 600 m of new retaining wall up to about 8 m high at various locations along the realigned highway;
- changes to existing farm entrances and access tracks, including provision of a new farm underpass;
- A rest area with a footpath to the tunnel and access to the river; and
• Landscape treatment and ecological enhancement planting.

1.2.1 Design Philosophy

One of the key objectives of the Project will be to retain the visual accessibility to the existing landscape, protect views to these features and incorporate the new highway design within the landscape typology and elements.

Minimising earthworks and avoiding environmental effects on the river environment will have the least visual effects on natural character. Taking this into account, there is the opportunity for landscape design decisions made for this Project to respond to the rural landscape character, the dramatic limestone and sandstone outcrops and enhance the river environment to ensure a well-integrated Project is created.

The following design aspirations will ensure a well-considered approach and high quality design is achieved:

• Ensuring the design is context sensitive, acknowledging local iwi, existing habitation, the Awakino River and floodplain, local geological features, heritage values of the Awakino Tunnel and the rural landscape character overall;
• Enhancing views to the geological features;
• Ensuring the design utilises creative and innovative solutions to multi-disciplinary measures such as structures (bridges and retaining walls), hydrology, geotechnical, earthworks, drainage and ecological enhancement;
• Ensuring integration with the existing landscape through appropriate landscape treatment;
• Ensuring planting locations are based on the following criteria: establishing or reinforcing physical and visual links to adjacent planting and land uses, no requirements for mowing, and planting treatments that follow natural drainage patterns;
• Improving the ecological environment of the Awakino River and surrounding environment;
• All native plants shall be eco-sourced from within the Herangi Ecological District, Tainui Ecological Region and North Taranaki District, Taranaki Region. Ngati Maniapoto to provide feedback on final eco-sourced map area and recommended plant species;
• Providing a well-considered rest area that includes a picnic area, parking, a heritage information structure, a footpath with access to Awakino Tunnel and river access for fishing. The rest area is to be designed in collaboration with Waitomo District Council (WDC), the Transport Agency, Ngati Maniapoto and Heritage New Zealand;
• Rehabilitating cut and fill batters in order to tie the Project into the existing landform and in particular, adjacent to the Awakino River and at Hammonds Corner;
• Avoiding any effect on the Otiao pa site, which occupies the centrally located hill within the Project length;
• Limiting the effect on neighbouring property owners and ensuring sufficient mitigation strategies are implemented if required;
• Considering opportunities to lease or divest surplus land, particularly land which can be put back into productive use at the completion of the Project;
• Ensuring maintenance needs are coordinated within the design, e.g. batter slopes are planted to deliver whole of life value or are returned to pasture; and
• Ensuring landscape treatments meet the relevant safety in design standards.
1.3 Assessment of Alternative Route Options

During the Detailed Business Case process, Landscape and Property Access Plans for three options (two offline and one online) were developed. These plans outlined and identified project risks, costs and consenting requirements, including likely landscape and visual effects and mitigation measures associated with earthworks, structures and stormwater design for each option. The following provides a brief overview of the three options in relation to likely landscape and visual effects.

Option 2H involved daylighting the existing Awakino Tunnel, a realignment of the eastern curve, and slope stabilisation. This option included a 70 m (approximately) vertical cut located above the existing tunnel. Landscape and visual effects from the construction and removal of vegetation would be moderate due to the benching required for stabilising the cut and the limited opportunities to mitigate the cut with suitable revegetation planting. In relation to landscape effects the existing local highway environment contains a number of other cuts and associated earthworks that have either been left as bare rock/earth or have naturally revegetated. While the proposed cut would not be completely out of context it would have been a visibly engineered solution. As with all the options, the main visual effects identified were restricted to travellers and fishers.

The design option for 3C included the realignment of the highway with two bridges over the river. The landscape and visual effects identified were associated with earthworks, the Awakino River and the construction of bridges and retaining wall structures. The associated landscape mitigation planting and integrated earthworks would allow this design to be integrated more effectively into the existing highway and the river environments than options 2H and 3F (see more below).

Option 3F included a greater length of highway realignment than option 3C, including a large cut through an existing pine plantation to the south east of the tunnel. The cut (up to 30 m) would have required benching for stabilising. Due to the limited ability to revegetate the cut batter the landscape and visual effects from the construction and removal of vegetation would be difficult to mitigate. It was assessed that option 3F had similar landscape and visual effects as option 2H.

Costing for each landscape design option was undertaken. Option 3C minimise expenditure by not requiring any major cuts, which are difficult and expensive to mitigate. Option 3C also provided the most appropriate landscape treatment opportunities and adverse environmental impact on the river.

The subsequent specimen design process has included the addition of Hammonds Corner and extension of northbound passing lane. A number of design options for both have been assessed and the most practicable design has been selected and developed to specimen design as a variation of option 3C.

The landscape concept illustrates planting around the edges of the cut face to help soften and reduce the landscape and visual effects. Additional landscape treatment includes grassing of smaller embankments to tie into adjacent rural land and native revegetation along northern highway edges adjacent to the Awakino River is also proposed.
2 Statutory and Non-Statutory Documents

The Project is located within the jurisdiction of WDC and Waikato Regional Council (WRC). The following documents are relevant to the LVA and the Project.

2.1 Resource Management Act 1991

The purpose of the Resource Management Act 1991 (RMA) is to promote the sustainable management of natural and physical resources which includes providing for the use, development and protection of natural and physical resources while, amongst other things, avoiding, remedying or mitigating any adverse effects on the environment.

In this instance the landscape and visual assessment will assist the Transport Agency in identifying the affected parties and assess the level of effect against those provisions of the RMA that are most relevant to landscape matters (being visual amenity), namely Part 2.

2.2 Policy Documents

Other policy documents that are relevant to the context of the Project and its site and which have been considered are:

- Operative Waitomo District Plan (WDP);
- Waikato Region Landscape Assessment (WRLA);
- Waikato Regional Policy Statement (WRPS).

2.2.1 Operative Waitomo District Plan

The Project is located within the Rural Zone of the WDP and is identified on Planning Map 25. The existing SH3 is designated and the proposed new highway alignment requires a new designation.

There are no significant natural features or landscape policy areas within the Project area.

2.2.2 Waikato Regional Landscape Assessment

The WRLA undertaken by WRC classifies the region into landscape types and identifies outstanding and highly valued landscapes within this classification. While no significant landscapes are located within the Project area, it is important to observe that the local landscape features noted in the Project require management to retain the overall landscape character. The study area is identified within the WRLA as being located in the Western Hill Country Zone. The zone features are summarised as follows:

- Hill country that includes both volcanic and sedimentary rocks often overlaid by a thick layer of volcanic ash. Land cover includes areas of pasture, exotic forestry and large areas of indigenous forest.

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1 Operative Waitomo District Plan, March 2009
2.2.3 Waikato Regional Policy Statement

The WRPS also identifies the nearby Northern Herangi Range as an Outstanding Natural Feature and Landscape (ONFL). However, the Project Area is not within the boundaries of the ONFL. The Awakino River is not listed in the WRPS as an outstanding freshwater body and is not included as a priority catchment.

2.3 Other Documents

Relevant Transport Agency documents that guide the urban and landscape design input to the Project are outlined and assessed below.

2.3.1 ‘Bridging the Gap’ – NZTA Urban Design Guidelines

‘Bridging the Gap’ provides guidance to project managers and consultants responsible for the planning, design and implementation of Transport Agency projects. This document provides policy and guidance for the integration of land use and transport, with the aim of seeking to improve what good urban design means in a transport project.

‘Bridging the Gap’ sets out ten fundamental urban design principles. These principles reflect the Transport Agency’s expectation of the integration of urban design in all phases of transport projects and the desired inter-disciplinary approach to addressing urban design issues. The document also incorporates the New Zealand Urban Design Protocol (2005) and the CPTED requirements.

The intent of these urban design guidelines has been carried through into this LVA and provides the underlying guidance to the proposed landscape design and mitigation measures at Section 4.3 of the LVA. As noted in the Project’s Principal’s Requirements³ at A10 Urban Design, Landscape and Environmental, the implementation of the Project will include the preparation of an Urban and Landscape Design Master Plan (ULDMP) that will follow the requirements set out in Appendix 3: Generic Urban Design Conditions for RMA Process. The ULDMP shall illustrate the urban design and landscape elements of the Project and reflect any post-consent engagement with stakeholders; the ULDMP essentially summarises what the Transport Agency proposes to address adverse effects.

2.3.2 Transport Agency Landscape Guidelines

The Transport Agency’s ‘Landscape Guidelines’⁴ recognise the important contribution landscape thinking, landscape planting, and landscape design, implementation and management provide in the delivery of quality projects. These guidelines will be used throughout the Project design and construction process to ensure that the expectations of the Transport Agency are achieved.

As noted at Section 3 Methodology of this report, the Transport Agency’s Landscape guidelines have been used as a base in preparing this LVA.

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³ State Highway 3 Awakino Tunnel Bypass NZTA Contract No. 14-013/601 – Appendices to Principal’s Requirements, June 2017
⁴ NZ Transport Agency Landscape Guidelines, NZ Transport Agency, Final Draft, September 2014
2.3.3 Transport Agency P39 Standard Specification for Highway Landscape Treatments

The ‘P39 Standard Specification for Highway Landscape Treatments’\(^5\) sets out the minimum performance, quality and workmanship standards for highway-related landscape projects. Alongside this specification, there will be landscape plans and planting schedules produced, which will be specific to the Project. These will form part of the construction contract and pricing package.

2.3.4 Transport Agency’s State Highway Control Manual

As part of the development of the Awakino Tunnel picnic area and carpark, the Transport Agency’s Highway Control Manual (particularly the Stopping Places Strategy\(^6\)) along with other relevant documents will be utilised in the design and construction phases.

The Stopping Places Strategy, in combination with ‘Bridging the Gap’ (Section 4.21 Stopping places), will provide guidelines for further design development to ensure a well-designed and utilised stopping place is implemented.

2.3.5 Ecological Assessment

The Ecological Assessment\(^7\) for the Project has been carried out as a technical report in support of the designation and consenting process. The following provides a brief summary of that assessment.

The WDP identifies the Awakino River as a “Category A” river (highest priority) and the whole catchment is considered a high priority.

The Ecological Assessment describes option 3C as the preferred offline option from an ecological perspective, as the Project bisects relatively cleanly a very small stand of trees, there is no significant vegetation severance proposed and no major river diversion works are required. It further identifies that bridges typically offer optimal outcomes ecologically as long-term ecological impacts are very low compared to other alternatives.

There will be willow removal and control as part of the Project. Willow removal is a Regional Council expectation and as the extent of willow removal is minimal (relative to the Gorge context), the project is identified as resulting in minimal habitat loss.

The Ecological Assessment concludes that in the context of the wider locality, which has substantial tracts of native forest, the vegetation within the Project corridor is of low intrinsic ecological value.

3 Methodology

In preparing this LVA, site visits to the site were completed on 22 November 2016 and 12 January 2017. The Project area was viewed from existing SH3 and adjacent accessible rural land.

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\(^6\) The NZ Transport Agency’s State Highway Control Manual, Amendment effective from 16 December 2013. 3.0 Technical Requirements. Appendix 3H New Zealand Transport Agency’s Highway Stopping Places Strategy

\(^7\) SH3 Awakino Tunnel Bypass Project Ecological Assessment, prepared by Dr Liz Deakin, Opus.
Preparation for this LVA has also included the collection of baseline information through desktop studies and coordination with other disciplines. The methodology for this Assessment is modelled on the Transport Agency’s Landscape and Visual Assessment Guidelines, which is supplied in Appendix 1 of this report.

4 Landscape Context

4.1 Landform, Landcover, Land Use and Landscape Character

The Project is located within rural land at the northern end of the Awakino Gorge (refer to Figure 2 in the Graphic Supplement). The existing SH3 has a strong visual connection to the landscape and river environment. One of the key objectives of the Project is to retain views to the existing landscape.

The broader landscape context of the Project is the Gorge. The northern end of the Project includes Hammond’s Corner (refer to Viewpoint 10) where the landscape transitions from the narrow Awakino Gorge river landscape to flat pastoral river terraces with surrounding rolling hills with vegetation including shelterbelts, large mature trees scattered across the landscape and exotic tree cover along the river. As SH3 traverses from the Gorge and into the Project area, the landscape changes to a narrow valley system that meanders through steep sided hills that contain a mix of exotic pine plantation, intermittent areas of pastoral land and regenerating native bush.

It is proposed that Hammond’s Corner will be realigned as part of the Project. The corner is a tight bend where the highway turns south away from the river. The current alignment of the corner is constructed within a cut, created from a previous highway realignment. The proposed design increases the radius of the corner to improve safety.

The tunnel (refer to Viewpoints 5 and 7) is single lane and is a key feature along SH3 with the dramatic vertical limestone faces with some fragments having vegetation clinging to the sides. The tunnel is bounded by the Awakino River on the northeast, which has carved its way through the landscape. Here the river environment has become modified by weed species, in particular willows and adjacent pine plantations, with some native regenerating plants scattered along the river’s edge and as understory for the plantations.

On the northern side of the tunnel towards Hammond’s Corner (refer to Viewpoint 14) the landscape is characterised by flat pasture and rolling hills, with the river meandering through, defined by exotic trees along the river edge. Located within the flat pasture is a visually dominant elevated hill on the Office of the Treaty Settlement (OTS) land (refer Viewpoint 13) which has been identified as Otiao pā site; an archaeological site. Exiting the tunnel (refer to Viewpoint 1) to the south, the landscape again becomes dominated by the Gorge and the narrow valley. East of the pa site along the highway’s southern edge there is a line of mature, exotic, deciduous trees. To the south of the Gorge, SH3 heads west towards the Awakino township and the coast.

On the north side of the tunnel there are the only two dwellings (refer to Viewpoints 14 and 16) located within the Project area. The two dwellings are on the east side of the highway approximately 60 m and 40 m from and adjacent to the flat straight section of SH3 and south of the northbound passing lane that provides one of few safe passing areas along the Gorge section of SH3.

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8 The Landscape Visual Assessment Guidelines are at Appendix 1 of the Transport Agency Landscape Guidelines, refer to paragraph 2.3.2 above.
The dwellings are on OTS land and form part of privately leased farmland. The dwellings are typical rural houses with associated buildings, farm tracks and have driveway access directly onto SH3. The farm stock yards (refer Viewpoint 9) are located on the opposite side of the highway approximately 100 m to the west of the driveway access to the two dwellings. There are a number of exotic and native plantings around the dwellings that provide some screening and shelter from the highway.

4.1.1 Landform

The Project area consists of a mixture of flat pasture and rolling hills, the Awakino River, associated streams, and steep surrounding cliffs with limestone outcrops. The Project is located along the low-lying area adjacent to the Awakino River and flat floodplains. On either side of the Project, cliffs of the valley enclose the visual catchment and wider environment (refer to Viewpoint 10). The geological features create a dynamic landform that provides contrast between the floodplains and vertical limestone outcrops. These geological features provide a number of constraints for the road realignment.

4.1.2 Landcover

The Project area has both a strong rural theme of pastoral grazing (defined by agriculture), and exotic forestry and native bush.

The rural landscape is heavily modified with grassed paddocks comprising the major landcover. A large proportion of the pasture lies within the floodplain of the Awakino River and includes wetter areas, where rush-infested pasture is present. These paddocks also feature exotic shelterbelts and individual exotic tree species, streams, vegetated riparian margins, planted escarpments along with man-made elements of overhead power lines, buildings and the highway (refer to Viewpoints 11 and 12).

The vegetation associated with the Awakino River is dominated by exotic plant species. The native vegetation that does occur is characterised by scrub and tree fern communities that have regenerated following clearance. These plant communities occur along the river edge on the rock slopes around the Gorge and as a sub-canopy layer beneath the pine plantation. Exotic trees including willow and poplar as well as other exotic plant species also form a significant component of the riparian vegetation along the Awakino River. Poplar have also been planted to stabilise the slopes to the south-east of the tunnel. The line of exotic trees on the highway edge east of the pa site are well established Norway maple and similar large, exotic trees that have been underplanted with rhododendron bushes; all of mixed height and spacing.

In addition, the Ecological Assessment concludes that in the context of the wider locality, which has substantial tracts of native forest, the vegetation within the Project is of low intrinsic ecological value (refer to typical Awakino River environment photo in the Graphic Supplement). The Project will enable the proposed ecological enhancement to link the site to the wider ecological context.
4.1.3 Land use

Land use in the Project area is predominantly pastoral farming but also includes:

- SH3 corridor
- Awakino River environment
- Plantation forestry
- Infrastructure including overhead power lines
- Farm houses and associated outbuildings, structures and hard surfaces

The field patterns are defined by pine plantations, farm fencing, individual mature trees, the river, associated streams, steep escarpments and the highway edge. The landowners within the Project area are limited to OTS and Greenplan (pine plantation on northern side of the river) and Craig Barker (who has an unconditional sale and purchase agreement for the Hammond’s block).

4.2 Landscape Character

The existing landscape character is assessed as a reflection of people’s experiences of the landscape. The RMA Quality Planning Guide\(^9\) describes landscape character as being “derived from a combination of landscape components (i.e. landform, landcover and land use) that distinguishes one area from another”.

In the Project area, the elements of landscape that influence this experience include:

- The enclosed nature of the Gorge and contrasting rolling landforms
- The rural open pastoral land use
- The presence of heavily modified pasture with mature and establishing exotic and native vegetation patterns associated with the Awakino River, steep slopes, pine plantations, highway edge and farm shelter planting
- The Awakino River and associated drainage patterns
- The man-made elements of:
  - Existing tunnel
  - Overhead power lines
  - SH3 (including cut, fill batters and vegetation removal associated with constructing the highway)
  - Traffic volumes of greater than 2,000 vehicles per day along SH3

4.3 Landscape Design and Mitigation

Landscape mitigation will primarily minimise changes to the existing local landscape and include shaping of new cut and fill batters to integrate and be similar to the adjacent landform. At this stage, the following summary of mitigation measures outlines what will be developed more fully in the Project’s ULDMP:

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\(^9\) The RMA Quality Planning Resource, Landscape, 2013
- Native planting associated with the Awakino River environment, including riparian enhancement planting and kahikatea forest planting.
- Native planting where land cannot be returned to pasture due to the proposed highway alignment, earthworks, bridge structures, and swale locations.
- Planting of swales instead of grassing minimising mowing requirements. Planting adjacent to swales is also included in the design so as to reduce weed inundation of the swales.
- Limiting vegetation removal. Measures to minimise clearing work to preserve soil, indigenous vegetation and significant exotic trees including any rare specimen trees.
- Willows within the designation area are proposed to be controlled by poisoning and left to decay and break down so as not to disturb the river embankments and to provide shelter as native plantings establish.
- All planting being eco-sourced from within the local Ecological District to maintain the genetic viability of the Project area. It is proposed that Ngati Maniapoto is provided with the ability to give feedback on the final eco-sourced map area and recommended plant species.
- Slopes of 4:1 (or flatter) that are grazeable are proposed to be returned to pasture grass, with stock proof fencing on the highway side of the grassed slope.
- Managing any borrow or soil disposal areas that may be required so that these areas can be returned to productive use (or planted to align with the Project’s planting framework);
- Steeper slopes and areas where it is not practicable to apply topsoil (due to the slopes being near-vertical and/or access being precarious) are proposed to be hydro-seeded. This will encourage stabilisation and ‘greening’ of the face to help it visually blend in with the surrounding landscape. Additionally, revegetation planting at the top of these slopes are proposed in order to encourage natural seeding of slopes.
- Small steep cut slopes along existing alignment are proposed to be hydro-seeded and left to naturally revegetate. This is shown to be already successful along SH3 (refer to typical cut embankment photo, Viewpoint 1 photo set).
- In terms of erosion protection, the areas disturbed by construction where planting becomes impractical (due to the near-vertical of the slopes) are proposed to be hydro seeded as the landscape treatment which will, over time, allow natural revegetation to occur. Also, manuka plug planting should be investigated as part of the detail design process as an alternative option to hydro seeding and natural revegetation.
- Limiting the extent of earthworks and the integration of cut and fill batters with existing topographical features.
- Where practicable, forming gentle grades and well-rounded profiles for batters, and shaping tops of cut batters to integrate with local landforms.
- Taking the opportunity to rehabilitate and integrate affected waterways into the surrounding landscape. The rehabilitation should include native riparian planting in areas affected by construction work and to mitigate against loss of terrestrial habitat.
- Preparation of a low maintenance planting scheme. The proposed landscape mitigation treatment should be designed and implemented to ensure no specific long term maintenance is required.
- It is proposed that maintenance and establishment requirements following planting and reinstatement of highway verges should be imposed for a three-year period.
- Integrated landscape outcomes should also include the ecological, stormwater and river edge erosion protection design and mitigation measures, and be implemented in a co-ordinated manner.
• Treatment to defunct sections of SH3 to return areas of old pavement and highway formation to amenity grass or fenced pasture or maintain as an access track. Old pavement surfaces should be removed, subgrades should be ripped up and topsoiled to ensure an adequate medium for grassing and/or planting.
• Provide planting pockets to rip rap rock located at bridge piers to help soften river edge and engineering treatment.
• It is proposed that new planting:
  » Replace vegetation lost in the construction of the realigned highway;
  » Provide ecological benefits in creation of new habitats and establishing links to existing habitats; and
  » Provide for enhanced amenity and visual interest and provide for integration with existing landscape patterns.

The above proposed measures have been developed and adopted to ensure that the potential landscape and visual effects of the Project are appropriately addressed. Refer to the Landscape Graphic Supplement F igures 4 to 7 in the Landscape Treatment and Property Access Plan. The landscape design has been undertaken in consultation with the Project’s ecologist to ensure significant ecological enhancement can be achieved through the Project construction.

5 Assessment of Effects

5.1 Landscape Effects

Landscape effects are dependent on the degree of change to the landform, landcover, land use and landscape character. These physical changes to the landscape will mainly result as a consequence of:

• Cut and fill earthworks in the formation of the highway realignment and bypass;
• Removal of vegetation, including existing highway edge trees;
• Construction of two bridges across the Awakino River;
• Introduction of structures such as bridges, retaining walls, rest area shelter, farm underpass, signage and safety barriers;
• Implementation of stormwater measures including planted swales and stream diversions;
• Construction of a stopping place, including an associated car park allowing for 20 m long trucks, heritage information structure, a footpath leading to the defunct Awakino Tunnel and the proposed river access; and
• Potential physical change that may affect the ability to continue using land for agricultural purposes. This is particularly relevant to farm paddock sizes adjacent to the proposed bypass.

5.1.1 Landform

Earthworks will be required to construct the new highway bypass and realignment. The extent of change to the existing landform will result from:

• About 600 m of new retaining wall up to about 8 m high at various locations along the realigned highway;
• A farm underpass;
• A 7 m high shotcrete retaining wall of approximately 20 m in length
About 600 m length of embankment up to about 6 m high, including a section of fill supported on timber piles due to underlying soft ground, between the two proposed bridges and

Approximately 190,000 m³ of earthworks with cut of up to about 30 m high, for about 400 m of the new highway (as part of Hammond’s Corner realignment).

The two main changes to landform will be the formation of fill embankments and cut faces. Fill embankments of 600 m length (varying in height with a maximum height of approximately 6 m) are proposed to be located between the proposed two bridges (refer to Figures 4 and 5). Between Bridge #2 and the hill pa site on the OTS land, there will be another section of fill that will be approximately 250 m long. From adjacent to the south end of the hill pa site, the proposed highway alignment sweeps slightly to the south and across relatively flat land with minor earthworks to the Hammond’s Corner realignment, where a 30 m high cut of approximately 400 m length is proposed.

The bridges will be located along slight curves in the highway realignment as it crosses the Awakino River. The bridges will not dominate the landscape as the highway realignment traverses from the enclosed Gorge environment to floodplain. The proposed fill embankments associated with the bridges will be constructed at a maximum grade of 2.5:1 for planting and 4:1 for grazing in order to tie the Project into the local landform. Where possible, land will be fenced and returned back to productive use (refer to Landscape Treatment and Property Access Plan for details).

The design includes a 7 m high shotcrete retaining wall located directly east of Bridge #1. It is proposed to be approximately 20 m in length and would enable a farm access track to be reinstated at the top of the wall. The retaining wall will be a sub-vertical constructed feature located within the Project area at the transition between the Gorge river environment and the open rural landscape. The retaining wall would be located on the northern side of the river opposite the tunnel. The retaining wall will be visible from the highway with possible glimpses of it from the river and from the footpath to the tunnel. The design and finish of the shotcrete wall will need to be carefully considered to ensure the visual appearance ties in and is in-keeping with the natural weathered limestone of the surrounding landscape, particularly in respect of colour, form and texture. Tying the edges of the retaining wall to the existing landform and allowing planting to feather the edges would provide additional mitigation measures. While there would be reductions in landscape and visual effect through avoiding the use of shotcrete and providing a natural rock cut solution, the results of the borehole investigations have shown that the area is mostly in soil, meaning that a "natural" rock cut solution is not possible.

There are five sections of concrete retaining walls as part of the Project required,

<table>
<thead>
<tr>
<th>Section</th>
<th>Location</th>
<th>Approximate length and height of retaining wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Between the river and the existing highway, approaching Bridge #1</td>
<td>205 m x 6 m</td>
</tr>
<tr>
<td>2</td>
<td>Bridge #1 eastern abutment</td>
<td>27 m x 8 m</td>
</tr>
<tr>
<td>3</td>
<td>Between the bridges</td>
<td>45 m x 8 m</td>
</tr>
<tr>
<td>4</td>
<td>Abutment walls for Bridge #2</td>
<td>90 m x 4 m</td>
</tr>
<tr>
<td>5</td>
<td>Northern tie-in walls below the highway</td>
<td>220 m x 4 m</td>
</tr>
</tbody>
</table>
The retaining walls will be a new element within the Project area and river environment. While there are a number of existing man-made elements within the highway corridor, the scale and structural material of the retaining walls proposed to be located along the river corridor implies that they will have a moderate effect. The proposed planting along the tunnel end retaining wall will assist with integrating this wall into the river environment.

The Hammond’s Corner realignment is proposed to include the excavation of a substantial cut of about 30 m in height and approximately 190,000 m³ of earth removal. The proposed cut and associated earthworks is partly located within an area of the existing and much smaller cut formed during the construction of the existing highway. The mudstone cut face is to be hydro-seeded and left to naturally revegetate. While the cut will be benched creating an engineered look, over time, the cut will naturally revegetate (similar to the existing Hammond’s corner cut face).

Although the two bridge structures and the retaining walls would be new elements within the Project area, there are a number of bridges and retaining structures located along the rest of SH3. Careful consideration of the finished contours area will be required as part of preparing the detailed design.

As outlined above, the proposed new bypass and highway realignment would include considerable changes to the existing landform. Where practicable, the proposed design integrates with the existing landform or is to be mitigated with planting that will assist natural revegetation over time. Bearing this in mind, the overall effects on landform are considered moderate.

### 5.1.2 Landcover

The proposed removal of pasture and individual trees would result in a change in landcover. The majority of the tree and vegetation removal will be related to the proposed construction of the identified retaining walls, two bridges over the Awakino River and highway formation itself. The Project’s landscape mitigation includes planting that would provide ecological enhancement to the existing river environment, including riparian improvement planting and kahikatea forest planting, as well as native planting following completion of the proposed earthworks.

The section of the existing SH3 that would no longer be required on the southern side of the tunnel is proposed to be retained but closed off with no vehicle access, with low planting to retain visibility to the tunnel. The defunct highway on the northern side of the tunnel and around Hammond’s corner would also be ripped up and re-grassed for pasture.

The Specimen Design includes construction of concrete retaining walls which will require removal of some vegetation along the river banks (both native and exotic weed species). This would be limited to the extent practically required for construction purposes. Minimising native vegetation clearance during construction would assist in reducing effects to landcover. All areas disturbed for construction are to be restored with native planting using species that are robust enough to tolerate local growing conditions. In noting this, some areas along the river edge are impractical to plant due to the near-vertical nature of the slopes being unsafe and inaccessible to plant and are to be hydro-seeded instead.

Ideally on the northern side of the tunnel bypass, the embankment slopes are proposed to be grassed, fenced and returned to productive pasture. However, due to the requirement of planted swales and extended planting adjacent to swales (to prevent weed inundation), this approach will not be possible. Instead, it is proposed that low-growing native vegetation be planted that will allow views to the farmland to be retained.
The section of the highway realignment east of the Otiao pā site to Hammond’s Corner will result in the majority of the large, exotic trees and associated shrubs being removed.

As noted in section 4.1.2, the existing landcover contains a level of diversity associated with pastoral farming, exotic planting patterns and regenerating native vegetation. The changes to landcover has the potential to potentially enhance the existing Gorge and floodplain environment by providing positive ecological planting outcomes. Such riparian planting could act to reduce the re-infestation of exotic weed species and also control willows within the Project area. Bearing this in mind, the effects on landcover are considered to be low to moderate and once the Projects planting is established, the effect on landcover will be positive, especially on the river margins.

### 5.1.3 Land Use

As noted in section 4.1.3, the Project is located within land uses that comprise pastoral farming, forestry, recreation, and infrastructure. While some land will be lost to the proposed bypass, the overall mitigation measures proposed as part of the Project will provide for more efficient and safer farming practices due to the provision of a stock underpass.

The proposed transfer of an area of floodplain from farming to riparian planting would have a number of positive effects, such as protecting both the river margins and increasing the biodiversity.

The area of land that is proposed to change from grazed paddock to highway and batters is considered small in relation to the wider rural context and the extent of adjacent land that will continue to be used for pastoral farming. As a result, the Project is considered to have a low effect on land use.

### 5.1.4 Landscape Character

The existing landscape character is a highly modified rural landscape which has been assessed to have low intrinsic ecological value in the Ecology Assessment.

The introduction of a highway bypass into this landscape replicates an element that is already present. Changes to character can be anticipated in terms of the scale of change and the extent of farmland that will be replaced by the Project. The scale of change to character will be dependent on landscape mitigation treatment with integrated earthworks and the proposed planting reducing the extent of change to character.

A negative change to the existing landscape character will come from the engineering design constraints for the construction of retaining walls and Hammond’s Corner. Positive effects of the Project include extensive ecological enhancement of the local Awakino River margins by way of the proposed riparian planting and weed removal.

Overall, changes to landscape character are anticipated but provided the proposed landscape mitigation is implemented, the adverse effects can be mitigated. The landscape has the ability to absorb change due to the compatibility of the proposed realignment with similar elements in the existing landscape. The Project will therefore have a low to moderate effect on landscape character.
5.2 Urban Design Considerations

This section identifies the key urban design and CPTED considerations of the Project so as to ensure an appropriate design response.

5.2.1 Considerations

The urban design effects, like the landscape and visual effects, result from construction of the Project.

Key urban design aspects for the Project include:
- Circulation patterns (connectedness and severance);
- Structures (bridges, retaining walls, lighting and signage);
- Recreation opportunities;
- Scale (coverage, footprint);
- Safety and efficiency; and
- Visual quality.

As noted in section 1.2 above, the Project will improve safety and efficiency issues for this section of the network and provide good urban design outcomes.

The Project is proposing a similar but smoother alignment to that of the existing SH3. No communities will be affected or properties unduly severed by the Project. A proposed stock underpass will provide direct access between the farmland segregated by the existing and proposed alignment. There is a small area of farmland on the river edge (located in between the proposed new bridges) that will be severed by the Project. This pocket of land will be planted in a kahikatea dominant forest mix with riparian planting along the river’s edge that will provide noticeable improvements to the river environment and the overall visual quality within the area.

It is proposed that safety in design be incorporated into the design of the corridor so that all highway elements – bridge barriers, signs, fencing and road barriers – are uncluttered and provide no visual obstructions or hiding places, along with appropriate fall protection.

5.2.2 Future Development

There is no identified future development for the Project area, although it is anticipated that the existing mature pine plantations located on either side of the Awakino River will be harvested within the next 5 to 10 years.

5.2.1 Structures

5.2.1.1 Bridges and retaining walls

It is proposed that the design of the two bridges takes a rational aesthetic approach to urban design and reflects the rural environment. The bridges specimen design achieves a coherent whole, with slender forms that maintain the visual dominance and steep geological environments and minimises effects on the Awakino River rural environment. Further development through detail design should ensure that elements of structures visible from the highway, the river, rest area, footpath and river access are considered. The elements to be considered include retaining walls, rip rap scour protection, bridge deck, barrier faces, wing-walls and abutments. All these should include urban design treatment in the form of texture or relief on open surfaces through careful and appropriate choice of materials, colour, finish and detail.
5.2.1.2 Rest Area

The proposed rest area located on the northern side of the highway immediately after Bridge 2 (going in a northern direction), will provide a safe resting area for travellers, information on the historic Awakino Tunnel and fishing access to the Awakino River. The rest area has been proposed in this location because it allows for safe access from the highway prior to the northbound passing lane (refer to Figure 8/9: Awakino Tunnel Rest Area Concept).

The Transport Agency’s “Bridging the Gap” guidelines discuss rest areas as follows:

“Stopping places are suitable areas of highway reserve that form an attractive and safe off-highway parking place with safe exit and entry points readily negotiable by cars and trucks and in some circumstances cyclists. Heavy vehicle drivers need to check loads and observe breaks to conform to statutory regulations for driving hours and rest breaks”.

The conceptual design for the Awakino Tunnel rest area is based on the following considerations:

- A separate pull off area for 9-10 cars;
- A 20 m truck and trailer unit adjacent to the highway, with footpath connection between the car park / rest area and the Awakino Tunnel.
- Design and materials that complement the Awakino River and character of the setting. The information structure is of high quality and reflects the unique character of the Awakino Gorge, with strong architectural features.
- The information structure provides contemporary interpretive information on the heritage of the area, including the geological formations, local Maori, the Awakino River and the Awakino Tunnel construction.
- The area is planted and includes picnic tables with views of the river and a connection via the footpath to the tunnel.
- A 3 m wide, meandering footpath is provided which follows the river and leads to the defunct tunnel, allowing for views to the river, the tunnel and certain geological features.
- The footpath is constructed from material that can withstand flood inundation, requires minimal maintenance and incorporates storm water requirements.
- The design provides fly fishing and ‘bank fishing’ access including safe access into the Awakino River and areas along the river banks for fishing.
- The defunct tunnel will be grated off from public access and interpretation signage provided.

The proposed rest area creates a desirable stopping place for those travelling between New Plymouth and Hamilton and vice versa. It should be of appropriate scale and robust from vandalism.

The rest area is to be developed in collaboration with WDC, the Transport Agency, Ngati Maniapoto, Heritage New Zealand and Fish & Game.

In conclusion, the proposed rest area and carpark provides a number of positive outcomes for the Project.

5.2.1.3 Under Bridge Environment

It is proposed that the under bridge environment provides good amenity and high quality detailing and finishes for pedestrians who will experience the underside of Bridge 2 (including piers, underside and abutment), both at low speed and at close range.
5.2.1.4 Highway Furniture, Signage and Barriers

Highway furniture along the Project will be minimal. Where utilised it should ensure safety, be visually consistent with and integrated into the landscape. Key considerations for the following components should be had when preparing the detailed design:

- No lighting is proposed for the Project. Lighting for the proposed Awakino Tunnel rest area was investigated but not recommended due to the remote location and ongoing maintenance costs.
- Visually consistent and coordinated barrier treatments. W-section guard rail along both sides of the highway, apart from at bridges where barrier treatment will be standard TL5 concrete barrier and allowance for access ways from the highway.
- Signage will follow the Transport Agency standard. The number and size of signs will be minimised. Information should be presented in the clearest and simplest form. The signage will utilise a consistent palette of materials as well as ensure that the signage structure and composition is of a high quality design and finish. Signs mounted on the proposed bridges should be limited to the name of the Awakino River and integrated with the design of the bridge barrier. Signage for stopping place and heritage tunnel should also be included.

5.2.2 CPTED issues

The key CPTED design issues for the Project (in particular the proposed rest area and footpath) are related to concealment and isolation due to the nature of the broader area.

During the detail design process, safety aspects should be further developed in consultation with WDC and the Transport Agency to ensure CPTED principles are met to an acceptable safety standard. Key safety issues will include retaining visibility of the rest area from the highway and providing a well thought out and safe access for pedestrians under Bridge 2. A quality and interesting design of the rest area will also reduce CPTED issues.

5.3 Visual Effects

The visual effects of the Project will result from changes to the local landscape character and the visibility of the proposed realignment relative to highway users and local residents.

5.3.1 Viewing Audience

The potential viewing audience has been identified as:

- Travelling public on SH3;
- Occupiers and workers of rural properties;
- Workers in adjacent pine plantations; and
- Anglers in the Awakino River.

5.3.2 Visibility

Visual effects will result from the degree of visibility of the changes to the landscape primarily from:

- The landscape changes that have already been described;
- The temporary effects of construction activities; and
- Traffic movement on the completed SH3 realignment.
The Project is located within a landscape that is highly modified and contains a number of visual elements that contribute towards a medium level of visual diversity. The presence of several different elements in the landscape is also a guide to the capability of the landscape to absorb change.

The nature of the surrounding Gorge and associated hills that contain the Project will also play a part in restricting both the extent of views into the Project and the subsequent visual effects.

Views to the proposed realigned highway are limited to the public travelling along SH3, the two dwellings located on the OTS property and, to a lesser extent, farm and forestry workers and anglers in the Awakino River. Due to the short length of the proposed realignment (less than 2.5 km) and the very short period of affected travel time (less than 2 minutes), the Project will only form a small segment of the overall journey for travellers through the total 58 km section of SH3.

The Project should be seen in the context of the wider surrounding landscape which is highly modified by agricultural land use, the existing SH3 and all associated infrastructure, including existing cuts and slips. The Hammond’s Corner realignment involves realigning an existing cut embankment further into an existing spur formation and includes the construction of a 600 m long, 30 m high cut to reduce the bend in the highway alignment.

While the design of the two bridges will not allow views of the Awakino River for road users, riparian planting will highlight the river edge. The proposed rest area will also provide an opportunity that does not currently exist to access the Awakino River. Views to the bridges for highway users will only be noticeable from a short distance or when actually driving on the bridges. Though Bridge 2 will be visible from the rest area and the footpath to the tunnel, the slender spans and continuity of the barrier (HT top rail) and down-stand along the full length of the bridge will assist in concealing the bridge deck.

The bridges are proposed to be designed to have slim, low profile deck structure, with visual emphasis on horizontal lines. The bridge piers will be located outside the bottom of the river bed and the landform behind the abutments will be graded back into the natural bank contour. Due to the lack of visibility of the two bridges from a single viewpoint, coupled with the speed of which road users will traverse both bridges, any visual effects or views from the bridges to the river will be somewhat restricted by the standard TL5 barrier treatment.

The shotcrete retaining wall proposed at the southern end of the alignment (just after Bridge 1 going in a northern direction) will be visible from the highway and there is potential for the shotcrete wall to look out of context within the rural environment. It is therefore important that the detailed design process carefully considers colour, form and texture of the shotcrete wall, as well as integrate planting with the edges of the wall to ensure that the wall is well integrated within the rural landscape.

### 5.3.3 Temporary Effects of Construction Activities

The visual effects associated with construction of the Project will include the appearance of earthworks, plus the construction of the bridges, the retaining walls, barriers, signage, and general activity of construction vehicle movement. It is anticipated that these elements and activities will be seen from the two OTS dwellings.

The activities will be temporary and the local landform and vegetation will provide some screening. Heavy vehicle activities moving in and out of the site associated with the highway construction will create a visual effect, in particular for the two OTS dwellings and its occupants.
The cut-to-waste is proposed to be disposed of on the northern side of the Project (refer to Figure 6) using the cut material to contour the existing landform. While no detailed plans have been made yet for this material, it is anticipated that the contour will have an approximate slope of 1:10. Provided that the cut-to-waste material is used in this way and for this reason, the effect would be low during construction but once the land is reinstated to pasture, the effect would be negligible.

Due to the temporary nature of the Project’s construction phase, the visual effects of the construction activities will be moderate, reducing to ‘no effect’ once construction is complete. It is intended the construction programme will commence in March 2018 and take approximately 18–24 months to complete.

5.3.4 Local Residents

This assessment has been based on visual inspections carried out from the existing SH3 and from nearby properties which provided a guide to overall visibility and the visual effects relative to these adjoining properties. No site inspection from the two OTS dwellings was carried out.

The two OTS dwellings will gain views of the realigned section of SH3 to the east and west of the Otiao pā site. To the west, the highway realignment will be located further away from the dwellings than the existing highway. However, while the realigned highway formation will not affect these dwellings, its margin will occupy the northeast corner of the garden of the main farm house. This corner of the garden is at a lower elevation than the dwelling and screened by established, evergreen shrubs close to the dwelling. This existing garden shrubby will obscure the realigned highway to the east, but the removal of the line of large, exotic trees along the edge of the existing highway will be a noticeable change.

The proposed landscape treatment on the fill embankments between Bridge #2 and the pā site will help mitigate the visual effects from the earthworks. The existing vegetation associated with the dwellings will also limit the extent of view in this direction. While the landscape treatment plans do not include specific screen planting, the native planting associated with the proposed swales would provide sufficient screening for the dwellings, as would the existing mature vegetation associated with the dwellings. The visual effects would be low to moderate during construction reducing to a low effect once the Project is completed.

6 Conclusion

The Project’s landscape and visual effects will generally be associated with the physical change to the landscape through earthworks and cut and fill embankments, works associated with the river margin, construction of two bridges and the retaining wall structures.

The landscape has the ability to absorb change due to the compatibility of the proposed realignment with similar elements in the existing landscape. The engineered solutions and construction of a 7 m high shotcrete retaining wall and the 30 m high cut of Hammond’s Corner do not provide the most sympathetic landscape solutions. However, the proposed mitigation will enable adverse effects to be reduced to a low to moderate effect on landscape character. The proposed measures are dependent on the practicality of landscape treatment to mitigate, in particular around steep cut slopes where the process of natural revegetation will reduce effects overtime. In addition, the isolated location of the Project and its containment by the surrounding topography and vegetation helps minimise visual effects. These aspects, combined with the short length of the proposed bypass and the minimal travel duration, means that the overall visual effects will be low.
A considered approach to how the Project design is detailed and constructed should ensure that the works are integrated with the surrounding landscape, while incorporating landscape mitigation to further reduce potential adverse effects. Proposed mitigation measures comprise the inclusion of native planting associated with the river margin, highway planting and other areas identified on the Landscape Treatment and Property Access Plan (refer to Figures 4 to 7). The inclusion of a well-designed rest area, providing river access and historic information, will contribute to the overall success of the Project.

The Project provides appropriate design solutions in relation to landscape and visual effects and once the proposed landscape mitigation has established, the overall landscape and visual effects of the Project will be low and the environment along this section of SH3 will be significantly improved from its current state.

Further refinement of design through the tender design process, development of an ULDMP and the detail design process should ensure that the Project’s proposed landscape design and mitigation is implemented to ensure successful landscape and ecological outcomes.
Appendix 1: NZTA Landscape and Visual Assessment Guidelines

The Transport Agency's *Landscape and Visual Assessment Guidelines* promote best practice for landscape and visual assessments (LVA). The methodology responds to the Resource Management Act 1991 (RMA) as follows:

- Assessment of effects on the physical landscape, Section 7 (c) the maintenance and enhancement of amenity values and (f) maintenance and enhancement of the quality of the environment are referred to as ‘landscape effects’ within the report, which take into account:
  - Landform effects, e.g. earthworks including cut and fill;
  - Landcover effects, e.g. loss of vegetation; and
  - Land use effects, e.g. change from rural use to road.

- Assessment of effects on landscape amenity, Section 7 (c) the maintenance and enhancement of amenity values and (f) maintenance and enhancement of the quality of the environment are referred to as ‘visual effects’ within the report, which take into account:
  - The ‘fit’ within the existing landscape character and patterns;
  - The ability of the landscape to absorb change;
  - Visual amenity in relation to the appearance of structures such as bridges;
  - Effects on views from dwellings and private property; and
  - The ability to mitigate effects and actual effects after mitigation has been established.

The following six point scale suggested in the Transport Agency’s draft LVA Guidelines is utilised. It is symmetrical around a ‘moderate’ middle score and uses neutral (‘objective’) descriptors:

- **No effect** – Where the proposal will have no discernible change or have a neutral effect on the existing landscape character or viewer;

- **Low effect** – The proposal may be slightly discernible or the distance of the viewer from the proposal is such that it is difficult to discern the proposal and consequently has little overall effect;

- **Low to moderate effect** – The proposal may be discernible within the landscape, but will not have a marked effect on the overall quality of the landscape or affect the viewer. The proposal will have a small effect or change to the quality of the landscape;

- **Moderate effect** – The proposal will form a visible and recognisable new element within the landscape and would be discernible and have a noticeable effect on the overall quality of the landscape and/or affect to the viewer;

- **Moderate to high effect** – The proposal will form a significant and new element within the landscape and will affect the overall landscape character and/or affect to the viewer;
- **High effect** – The proposal will result in a visible and immediately apparent element within the landscape and will result in a permanent change to the overall landscape character and/or affect to the viewer;

- The effect of the specific change to the environment in relation to the Project will be quantified by predicting the magnitude of positive or negative change in relation to the existing character of the area. Effects may be potential and actual, positive or adverse, temporary, permanent or cumulative. The rating will be utilised to determine the need for and then the degree and extent of landscape mitigation measures. The Assessment does not attempt to predict the visual effects of seasonal changes throughout the year, but describes the ‘worst case’ position in terms of the character types or views of receptors.
LANDSCAPE & VISUAL EFFECTS ASSESSMENT

GRAPHICS SUPPLEMENT

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Figure 2: Landscape Character Plan

SH3 Awakino Tunnel Bypass

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LEGEND

River environment and associated vegetation
Flood plain/Pasture
Hill Slopes
Geological features
   Limestone
   Mudstone
Vegetation
   Pine plantation
   Native bush
Drainage patterns
Development
   Farm buildings and stock yards
   Historic Awakino tunnel
Archaeology features
   Possible “Native footpath”
   Recorded Archaeological site (Elevated Hill)
   Potential Archaeological site
Awakino Gorge

TYPICAL VIEWS OF LANDSCAPE AND GEOLOGICAL FEATURES WITHIN THE PROJECT AREA

A - Geological limestone feature and Awakino River environment
B - Elevated hill
C - Geological limestone feature
D - Geological limestone feature
E - Mudstone alluvial terrace
F - Geological limestone feature from Elevated hill

Figure 3: Landscape Character Plan Index and Viewpoint Photographs

SH3 Awakino Tunnel Bypass

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SCALE: NTS (A3) DATE: August 2017 REVIEWED BY: DM DRAWN BY: JS
1924 construction. Work at the side of the road and transporting shingle from the bed of the Awakino River with bullock teams.

1924 construction. A large mob of sheep passing the camp used by road-construction workers in the Awakino Valley.

1924 construction. Heavy steam roller employed on the finishing work.

1924 construction. Glimpse of the gorge through a short rock tunnel on the route.

1924 construction. Sourced from Mokau Museum.

1989 taken by Steve Cooke.
Figure 5: Landscape Treatment & Property Access Plan

SH3 Awakino Tunnel Bypass

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Figure 6: Landscape Treatment & Property Access Plan

Plan 2 of 4

SH3 Awakino Tunnel Bypass

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SH3 Awakino Tunnel Bypass

Figure 6: Landscape Treatment & Property Access Plan
Plan 2 of 4
Figure 9: Rest Area Concept

Ground treatment of hoggin

160mm x 50mm timber slats with 75mm gap fitted within a cantilevered steel frame

Timber slats wrapped over local stone structure to form 450mm high seating

Steel panels to form signage, interpretation and wayfinding structure. Refer Figure 9

Angler access

Timber slab picnic table with simple steel supportive structure

Webforge or similar steel steps

Refer Figure 9

SH3 Awakino Tunnel Bypass
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Figure 10: Rest Area Concept
Typical views of sections of Awakino Gorge to the immediate south of the extents of this aerial photo.
From SH3 south of Awakino Tunnel - Awakino Gorge typical landscape character.

Viewpoint 1: Existing barrier treatment common within the Awakino Gorge section of SH3 to prevent rock fall and slipping onto highway.

Typical cut embankment that was naturally revegetated.

Typical Awakino River environment.

Viewpoint 3: South of Awakino tunnel looking south, highway maintenance dump site located adjacent to SH3 and above Awakino River.

Viewpoint 4: Immediately south of Awakino Tunnel. Approximate location where proposed new bypass diverts from existing alignment and traverses over the river and to the north.

Viewpoint 5: Awakino Tunnel, looking east. Photo illustrates dramatic limestone formation. Tunnel to be grated preventing access once Project completed.
Viewpoint 6: From north side of Awakino Tunnel looking east. To the north the landscape opens up to rural farmland.

Viewpoint 7: North side of Awakino Tunnel looking west.

Viewpoint 8: From the north of Awakino Tunnel looking west.

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Viewpoint 18: Looking east towards Hammonds Corner.

Viewpoint 19: Looking west from above Hammonds Corner

Opus Landscape Architecture | SH3 Awakino Tunnel Bypass Landscape and Visual Assessment