

VOLUME 4

# Airport to Botany Landscape Effects Assessment

December 2022

Version 1

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## Glossary of Defined Terms and Acronyms

Acronym/Term	Description
<b>AEE</b>	Assessment of Effects on the Environment report
<b>AUP:OP</b>	Auckland Unitary Plan: Operative in Part
<b>BRT</b>	Bus Rapid Transit
<b>CVA</b>	Cultural Values Assessments
<b>HANA</b>	High Aircraft Noise Area
<b>MANA</b>	Moderate Aircraft Noise Area
<b>N/A</b>	Not Applicable
<b>NIMT</b>	North Island Main Trunk railway
<b>NoR</b>	Notice of Requirement
<b>NoR 1</b>	Notice of Requirement 1: Airport to Botany Bus Rapid Transit (Botany Town Centre to Rongomai Park)
<b>NoR 2</b>	Notice of Requirement 2: Airport to Botany Bus Rapid Transit (Rongomai Park to Puhinui Station, in the vicinity of Plunket Avenue)
<b>NoR 3</b>	Notice of Requirement 3: Airport to Botany Bus Rapid Transit (Puhinui Station, in the vicinity of Plunket Avenue to SH20/20B Interchange)
<b>NoR 4a</b>	Notice of Requirement 4a: Airport to Botany Bus Rapid Transit (SH20/20B Interchange to Orrs Road)
<b>NoR 4b</b>	Notice of Requirement 4b: Alteration to NZ Transport Agency Designation 6717 – State Highway 20B
<b>NPS:UD</b>	National Policy Statement on Urban Development
<b>NZCPS</b>	New Zealand Coastal Policy Statement
<b>Programme partners</b>	Te Ākitai Waiohū, Auckland Airport, Auckland Transport and Waka Kotahi
<b>RCA</b>	Road Controlling Authority
<b>RMA</b>	Resource Management Act 1991
<b>RP</b>	Regional Plan
<b>RPS</b>	Regional Policy Statement
<b>SEA</b>	Significant Ecological Area
<b>SH1</b>	State Highway 1
<b>SH20</b>	State Highway 20
<b>SH20B</b>	State Highway 20B
<b>SWGPP</b>	Southwest Gateway Programme

<b>Te Tupu Ngātahi</b>	Te Tupu Ngātahi Supporting Growth
<b>ULDMP</b>	Urban and Landscape Design Management Plan
<b>Waka Kotahi</b>	Waka Kotahi NZ Transport Agency

## Executive summary

The Project is proposed to be an 18 km fast, high capacity, reliable, and frequent Bus Rapid Transit (**BRT**) connection with twelve stations, connecting Auckland Airport and its employment areas with major urban centres including Manukau and Botany and will be part of Auckland's wider Rapid Transit Network (**RTN**). The Project has been divided into five Notice of Requirements (NoR 1, NoR 2, NoR 3, NoR 4a and 4b).

This assessment considers the natural character, landscape and visual effects in relation to the Airport to Botany Project (the Project). The assessment has been undertaken in line with the Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines. Prior to undertaking the assessment, a desktop analysis was undertaken followed by multiple site visits along the route of the Project.

The assessment of effects for each NoR analyses the context and determines the landscape characteristics and values of each area and then assesses the construction and operational effects of the Project.

A summary table of effects is provided in each NoR section and overall project conclusions (Section 12). Section 10 include measures to avoid, remedy or mitigate construction effects and in Section 11 measures to avoid, remedy or mitigate operational effects are identified. Recommended mitigation measures for construction and operation are considered in a Project wide context, i.e. across all NoRs. The primary means of mitigating the effects is through design responses to be illustrated in an Urban Landscape and Design Management Plan (**ULDMP**).

The mitigation of operational effects includes (in addition to Project wide recommendations) specific recommendations relating to works associated with the Puhinui Road BRT Bridge and the SH20B to SH20 Ramp Structure.

In addition to the above construction and operational effects, the Project provides the following positive effects:

- The provision of a BRT corridor;
- The provision of high quality walking and cycling facilities to provide improved connectivity to points along the corridor in addition to areas of open space such as Rongomai Park;
- Opportunities to enhance the character and identity of neighbourhoods through partnership with Manawhenua in all future phases of the Project, including (but not limited to) the future naming of BRT stations and introduction of mahi toi elements to reinforce local identity; and
- A net increase in canopy cover adjacent to the Project corridor associated with planting in berms, green stormwater infrastructure such as vegetated swales and planted stormwater wetlands.

# 1 Introduction

## 1.1 Purpose and scope of this Report

This Assessment of Landscape, Visual and Natural Character Effects report (**this Report**) has been prepared to inform the Assessment of Effects on the Environment (**AEE**) for five Notices of Requirement (**NoRs**) being sought by Waka Kotahi NZ Transport Agency (**Waka Kotahi**) and Auckland Transport for the Airport to Botany Bus Rapid Transit Project (**the Project**) under the Resource Management Act 1991 (**RMA**). Specifically, this Report considers the actual and potential effects associated with the construction and operation of the Project on the existing and likely future environment as it relates to, landscape, visual and natural character effects and recommends measures that may be implemented to avoid, remedy and/or mitigate these effects.

This Report should be read alongside the AEE, which contains further details on the history and context of the Project. The AEE also contains a detailed description of works to be authorised within each NoR, and the typical construction methodologies that will be used to implement this work. These have been reviewed by the author of this Report and have been considered as part of this assessment of landscape, visual and natural character effects. As such, they are not repeated here. Where a description of an activity is necessary to understand the potential effects, it has been included in this Report for clarity.

## 1.2 Report structure

In order to provide a clear assessment of each NoR, this Report follows the structure set out in the AEE. That is, each notice has been separated out into its own section, and each section contains an assessment of the actual and potential effects for the specific NoR. Where appropriate, measures to avoid, remedy or mitigate effects are recommended.

Each section is arranged in geographical order, starting from the westernmost point of the proposed NoR, to the easternmost point. Table 1 below describes the extent of each section, and where the description of effects can be found in this Report.

**Table 1 Report structure**

Sections	Section number
Description of the Project	2
Overview of the methodology used to undertake the assessment and identification of the assessment criteria and any relevant standards or guidelines	3
Identification and description of the landscape character of the existing and likely receiving environment	5.2, 6.2, 7.2, 8.2
Assessment of general landscape, visual and natural character matters for all Airport to Botany Bus Rapid Transit NoRs	5.2.2, 6.2.2, 7.2.2, 8.2.2
Assessment of specific landscape, visual and natural character matters for Airport to Botany Bus Rapid Transit NoR 1	5.3, 5.4
Assessment of specific landscape, visual and natural character matters for Airport to Botany Bus Rapid Transit NoR 2	6.3, 6.4

Assessment of specific landscape, visual and natural character matters for Airport to Botany Bus Rapid Transit NoR 3	7.3, 7.4
Assessment of specific landscape, visual and natural character matters for Airport to Botany Bus Rapid Transit NoRs 4a and 4b	8.3, 8.4
Overall conclusion of the level of potential adverse landscape, visual and natural character effects of the Project	11

## 2 Project description

The overall Project is proposed to be an 18 km fast, high capacity, reliable, and frequent Bus Rapid Transit (**BRT**) connection with twelve stations. It is part of Auckland's wider Rapid Transit Network (**RTN**) connecting Auckland Airport and its employment areas with major urban centres including Manukau and Botany.

As set out in the AEE, this Report specifically relates to a portion of the overall Project (approximately 14.9 km) which extends from Botany Town Centre in the vicinity of Leixlep Lane to Orrs Road in the Puhinui peninsula, off SH20B. The Project primarily involves the upgrade and widening of existing transport corridors to provide for a dedicated BRT corridor and high-quality walking and cycling facilities.

Nine BRT stations are proposed as part of the Project. These stations are generally located at signalised intersections and will be staggered on either side of the intersection.

These stations are situated in the following locations:

- Smales Road;
- Accent Drive;
- Ormiston Road – Botany Junction Shopping Centre;
- Dawson Road;
- Diorella Drive;
- Ronwood Avenue (Manukau Central);
- Manukau Station;
- Puhinui Road/Lambie Drive; and
- Puhinui Station.

As part of the Project, two new structures are proposed:

- A BRT bridge crossing the North Island Main Trunk (**NIMT**) and connecting to the concourse level of the Puhinui Station; and
- A southbound ramp from SH20B to SH20.

Upgrades to existing structures are proposed at the:

- Bridge over Ōtara Creek (NoR 1);
- Bridge over SH1 (NoR 2);
- Bridge over NIMT (NoR 3); and
- Bridge over Waokauri Creek (NoR 4a).



Figure 1: Overview of the Project and NoR extents

Table 2: Overview of NoRs

Notice	Description	Requiring Authority
<b>NoR 1</b>	Bus Rapid Transit corridor and high quality walking and cycling facilities from Botany Town Centre to Rongomai Park	Auckland Transport
<b>NoR 2</b>	Bus Rapid Transit corridor and high quality walking and cycling facilities from Rongomai Park to Puhinui Interchange, in the vicinity of Plunket Avenue	Auckland Transport
<b>NoR 3</b>	Bus Rapid Transit corridor and high quality walking and cycling facilities from Puhinui Interchange, in the vicinity of Plunket Avenue to SH20/SH20B Interchange	Auckland Transport
<b>NoR 4a</b>	Bus Rapid Transit corridor and high quality walking and cycling facilities from SH20B/20 Interchange to Orrs Road	Auckland Transport
<b>NoR 4b</b>	Alteration to designation 6717 to provide for the widening of SH20B, including a southbound on-ramp onto SH20, high quality walking and cycling facilities and enable a Bus Rapid Transit corridor	NZ Transport Agency

## 3 Assessment methodology

The sections to follow provide an overview of the assessment methodology that has been used to consider the landscape, character and visual effects for the NoRs that make up the Project.

### 3.1 Preparation for this Report

Work undertaken for this report commenced in January 2022. In summary, the preparation for this work has included:

- Review of the Airport to Botany specialist briefing package, the Single Stage Business Case (**SSBC**) and the Te Tupu Ngātahi GIS viewer;
- A review of the statutory setting of the Project and surrounding context;
- A review of the base map data such as contours and aerial photography;
- A preliminary site visit on 17 February 2022 with the Project Team;
- A specialists' workshop held on 8 March 2022 to discuss initial findings following the first site visit; and
- A more detailed site visit including taking representative photographs along the route was undertaken on 23 March 2022 by Chris Bentley and Tom Lines to understand the nature of the receiving environment and its physical and visual relationship to the surrounding environment, as well as the context, character and visual catchment and viewing audiences from the wider area.

### 3.2 Assumptions and limitations

In undertaking this assessment, the following limitations have been encountered and therefore the following assumptions have been made:

- This assessment is based on site visits to publicly accessible locations only. These areas include road corridors (including footpaths) and public parks / reserves. Large portions of the Project pass through properties currently held in private ownership. Therefore, the assessment of the impacts within or adjoining these private properties rely upon our site visits to publicly accessible locations, and information from our own desktop reviews (such as aerial photography). Only potential viewing audiences outside of the proposed designation boundary have been considered within this report. It is assumed that all private properties within the proposed designation boundary will be acquired;
- This assessment does not provide an assessment of the impacts on Mana Whenua cultural concepts or values. However, Mana Whenua knowledge and associative values of the Project landscape has been shared through the separate and parallel engagement between the Project team and Mana Whenua; and
- This Report relies on the collective inputs and expertise of a range of disciplines which have informed the considerations and conclusions of this assessment. This includes urban design, arboricultural and ecological expertise.

The proposed NoRs are located within a predominantly urban landscape which will evolve over time and are likely to experience change before the implementation of the Project. The National Policy Statement on Urban Development (**NPS:UD**) enables higher density dwellings within a walkable catchment of rapid transit stops. In the context of this Project, it is anticipated that:

- Zoning within a walkable catchment of proposed BRT stations along the Project corridor will enable, at minimum, apartment buildings of six storeys; and
- Beyond walkable catchments, residential zoning will provide for three dwellings up to three storeys in height (subject to meeting the relevant development standards).

### 3.3 Assessment framework

The same assessment methodology applies to the construction and operational stages of the works for all NoRs.

This assessment has been undertaken and peer reviewed by NZILA registered landscape architects with reference to the *Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines (2021)* and *Quality Planning Landscape Guidance Note*<sup>1</sup> and its signposts to examples of best practice.

These guidelines have been developed to relate to the Aotearoa New Zealand environmental planning context and align with te ao Māori and te ao Pākehā concepts of landscape.

Landscape impacts result from natural or induced change in the components, character or quality of the landscape. Usually these are the result of landform or vegetation modification or the introduction of new structures, facilities or activities into the landscape.

Natural character impacts are in relation to natural or induced change to any streams, wetlands and their margins as outlined in the New Zealand Coastal Policy Statement (NZCPS).<sup>2</sup> These are usually the result of landform, vegetation or hydrological modification or the introduction of structures into the landscape.

Effects arise from change in the values associated with the landscape, not as simply as a result of the change itself. Visual impacts are the result of change to the landscape and are a consequence of that change.

The process of change itself, that is the construction process and/or activities associated with the development, also carry with them their own visual impacts however, these are distinct from those generated by a completed development.

The landscape and visual effects generated by any particular project can, therefore, be perceived as:

- Positive (beneficial), contributing to the visual character and quality of the environment;
- Negative (adverse), detracting from existing character and quality of environment; or
- Neutral (benign), with essentially no effect on existing character or quality of environment.

The degree to which landscape and visual effects are generated by the Project depends on a number of factors, these include:

- The degree to which the Project contrasts, or is consistent, with the qualities of the surrounding landscape;

<sup>1</sup> <https://www.qualityplanning.org.nz/node/802>

<sup>2</sup> 'New Zealand Coastal Policy Statement' [issued 4 November 2010]. Accessed online 24.11.2021 (<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/coastal-management/nz-coastal-policy-statement-2010.pdf>)

- The proportion of the Project that is visible, determined by the observer’s position relative to the objects viewed;
- The distance and foreground context within which the Project is viewed;
- The area or extent of visual catchment from which the Project is visible;
- The number of viewers, their location and situation (static or moving) in relation to the view;
- The backdrop and context within which the Project is viewed;
- The predictable and likely known future character of the locality; and
- The quality of the resultant landscape, its aesthetic values and contribution to the wider landscape character to the area.

Change in a landscape and ‘visibility’ of the Project does not of itself, constitute an adverse landscape or visual effect. It is the effect on the values of the landscape, positive, adverse or benign that need to be understood and evaluated. The aim is to provide a high amenity environment through appropriate design outcomes that can provide an adequate substitution for the currently experienced amenity.

### 3.3.1 Scale of effects

In determining the magnitude of potential and actual landscape and visual effects of the Project, a consistent 7-point rating scale has been used that is based on the recommendations in the *Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines*. The effects ratings referred to in this assessment are based upon a seven-point scale which ranges from ‘very low’ to ‘very high’ and are described in the table below.

**Table 3: 7-point rating scale**

Effect Rating	Use and Definition
<b>Very High</b>	Total loss of key elements / features / characteristics, i.e. amounts to a complete change of landscape character and in views.
<b>High</b>	Major modification or loss of most key elements / features / characteristics, i.e. little of the pre-development landscape character remains and a major change in views. <u>Concise Oxford English Dictionary Definition</u> High: adjective- Great in amount, value, size, or intensity.
<b>Moderate-High</b>	Modifications of several key elements / features / characteristics of the baseline, i.e. the pre-development landscape character remains evident but materially changed and prominent in views.
<b>Moderate</b>	Partial loss of or modification to key elements / features / characteristics of the baseline, i.e. new elements may be prominent in views but not necessarily uncharacteristic within the receiving landscape. <u>Concise Oxford English Dictionary Definition</u> Moderate: adjective- average in amount, intensity, quality or degree
<b>Low-Moderate</b>	Minor loss of or modification to one or more key elements / features / characteristics, i.e. new elements are not prominent within views or uncharacteristic within the receiving landscape.
<b>Low</b>	Little material loss of or modification to key elements / features / characteristics. i.e. modification or change is not uncharacteristic or prominent in views and absorbed within the receiving landscape. <u>Concise Oxford English Dictionary Definition</u> Low: adjective- 1. Below average in amount, extent, or intensity.

<b>Very Low</b>	Negligible loss of or modification to key elements / features / characteristics of the baseline, i.e. approximating a 'no change' situation and a negligible change in views.
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### 3.3.1.1 Mitigation

For effects that are very low or low, mitigation is generally not required. Mitigation may be required for landscape effects of a low-moderate to moderate rating and area likely to be required for effects of a moderate-high to high rating to reduce effects to a lower degree. For effects that are very high, mitigation is unlikely to reduce the level of effect to any discernible degree.

### 3.3.2 Landscape effects

Landscape effects are derived from changes in the physical landscape, which may give rise to changes in its character and how this is experienced over time. This may in turn affect the values ascribed to the landscape.

Potential landscape effects in this assessment relate to the following landscape attributes:

- Landform and Hydrology;
- Vegetation Patterns and Open Space;
- Urban Development and Land Use; and
- Aesthetic Qualities including Views and Visual Coherence.

### 3.3.3 Visual effects

Visual effects are effects on landscape values as experienced in views. They are a technique to help understand landscape effects and are a subset of landscape effects. Visual effects are considered for both temporary (construction effects) and permanent (operational effects) of the Project.

Potential effects considered in this assessment relate to the following visual amenity attributes:

- Visual quality and composition (legibility, coherence, setting, scenic quality);
- Visibility (extent of visibility to the Project area); and
- Views (viewing audience and views afforded to, from and within the Project area).

Based on the above, the visual assessment for the Project focuses on the potential visual effects arising (through the construction and operation of the Project) within the proposed NoR extents and localised landscape. The focus of the assessment is on the nature and level of effects within the NoR extents and how this translates to effects for immediately adjacent land uses (existing and future but acknowledging that the existing land uses will change in the future).

### 3.3.4 Natural character effects

Section 6(a) of the RMA identifies as a matter of national importance to recognise / provide for the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers<sup>3</sup> and their margins, and the protection of them from inappropriate subdivision, use and development.

<sup>3</sup> A 'river' is defined in the RMA as a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse.

Assessing existing natural character is primarily concerned with the degree to which natural processes, natural patterns and natural elements have undergone human modification. Hydrological and ecological survey and assessment for the Project area generally underpin the landscape evaluation of existing natural character values.

The natural character assessment for this Project applies to the existing water bodies and wetlands associated with the tributaries of Pakuranga Creek, Ōtara Creek, Waokauri Creek, Otaimako Creek, Pūkaki Creek and Puhinui Stream

### 3.3.5 Consideration of effects

Effects are assessed in two parts as outlined below; firstly, through the construction period of the Project where the natural character and landscape values within the Project area are required to be modified to implement the Project. Landscape and visual effects during the construction phase are generally considered to be temporary and variable in nature and may temporarily be heightened by the intervention of heavy machinery and activities. In the second part (the operational phase of the Project), the overall significance and value of landscape and visual change is explored and ultimately the Project's impact on landscape character, natural character and visual amenity is assessed.

The two categories of effects are outlined as follows:

- **Temporary Effects** (Construction Effects): Describes the anticipated effects on the natural character and landscape characteristics and values resulting from the construction of the Project. It also includes visual amenity effects for both public and private viewing audiences from construction works.
- **Permanent Effects** (Operational Effects): Describes the effects on the landscape of completed works (including integrated landscape mitigation measures), the significance of physical landscape change and ultimately the resulting effects of the Project on landscape character, natural character and visual amenity for both public and private viewing audiences.

Finishing works are expected to include lighting, signage, road, footpath / cycleway details and line markings, streetscape elements and landscaping (including trees, mitigation planting and riparian / stormwater device / wetland planting). These are to be determined at the future detailed design stage of the Project.

### 3.3.6 Positive effects

This section identifies the positive effects resulting from the Project. These include:

- The provision of a BRT corridor;
- The provision of high quality walking and cycling facilities to provide improved connectivity to points along the corridor in addition to areas of open space such as Rongomai Park;
- Opportunities to enhance the character and identity of neighbourhoods through partnership with Manawhenua in all future phases of the Project, including (but not limited to) the future naming of BRT stations and introduction of mahi toi elements to reinforce local identity; and
- A net increase in canopy cover adjacent to the Project corridor associated with planting in berms, green stormwater infrastructure such as vegetated swales, planted stormwater wetlands and residual land.

## 4 Consideration of cultural landscape values

### 4.1 Overview

It is recognised in Section 4.43 of the *Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines* that *cultural landscapes important to tangata whenua warrant recognition both for landscape assessment in general and specifically as a matter of national importance under s6(e) of the RMA:*

*“the relationship of Māori and their culture and traditions with their ancestral landscape, water, sites, waahi tapu, and other taonga.”*

Through regular hui, site visits and Cultural Values Assessments (**CVA**) prepared for the previous phases of the Project, Manawhenua have shared that the Project traverses a significant cultural landscape.

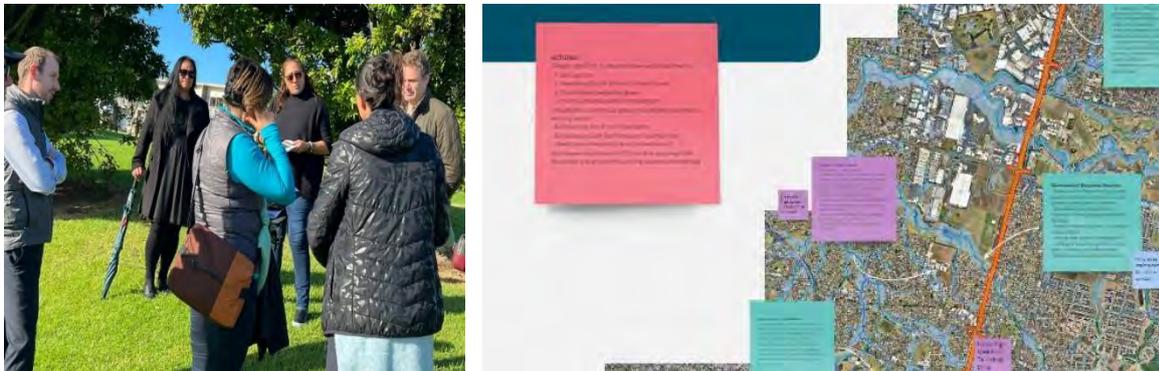


Figure 2: Example record of site visit and online hui

### 4.2 Cultural landscape

Manawhenua identified that maunga, moana, awa, marae and papakāinga are key features of their identity and form part of the wider cultural context, beyond the Project area. The figure below acknowledges the key features that Manawhenua have shared. These constitute part of the wider cultural context with respect to the Project.



**Figure 3: Cultural landscape features, identified with Manawhenua**

The Cultural Landscape Values section under each of the NoR specific sections set out some opportunities to recognise the cultural landscape through the future design of the Project.

## 5 Airport to Botany Bus Rapid Transit NoR 1

This section assesses landscape and visual matters relating to NoR 1 – the Project corridor between Botany Town Centre and Rongomai Park.

### 5.1 Overview and description of works

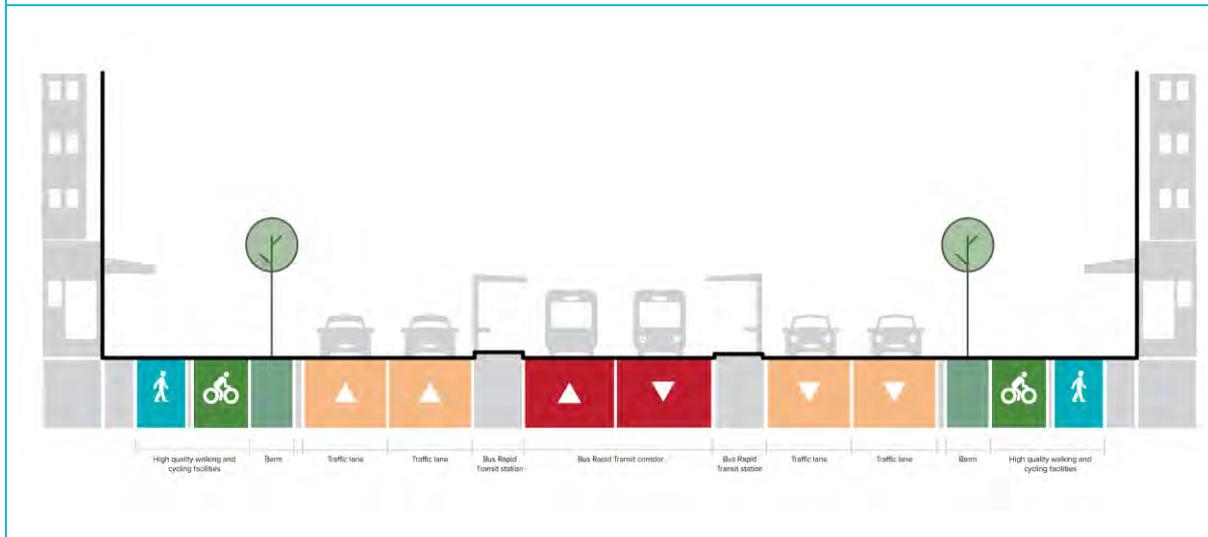
As set out in Table 4 below, the proposed works in NoR 1 include the widening of existing Te Irirangi Drive to accommodate a centre-running BRT corridor, two vehicle lanes in each direction and high quality walking and cycling facilities.

Table 4: Overview of NoR 1

NoR 1 – Botany Town Centre to Rongomai Park	
<b>Key features</b>	
BRT Corridor	Centre-running along Te Irirangi Drive
BRT Stations	<ul style="list-style-type: none"> <li>• Smales Road Station;</li> <li>• Accent Drive Station; and</li> <li>• Ormiston Road Station.</li> </ul>
Walking and cycling facilities	Walking and cycling facilities on both sides of the corridor
General traffic	Two lanes in each direction (existing)

Access	There is an existing central median along the majority of Te Irirangi Drive which restricts right-turn access
Speed environment	50km/h
Signalised intersections	<ul style="list-style-type: none"> <li>• Te Irirangi Drive and Smales Road;</li> <li>• Te Irirangi Drive and Accent Drive;</li> <li>• Te Irirangi Drive and Bishop Dunn Avenue; and</li> <li>• Te Irirangi Drive and Ormiston Road.</li> </ul>
Stormwater infrastructure	<ul style="list-style-type: none"> <li>• Swales; and</li> <li>• Wetlands.</li> </ul>

**NoR 1 typical cross section**



## 5.2 Existing environment

Refer to **Appendix B** for the suite of Figures.

### 5.2.1 Location description

NoR 1 follows the alignment of Te Irirangi Drive, extending from Botany Town Centre, being the northern most point of the wider Project and the termination of the Airport to Botany corridor, before passing Botany Junction to Rongomai Park. The environment is characterised by open space, residential housing, schools and commercial land.

### 5.2.2 Landscape characteristics and values

The following sections provide a further description of the receiving environment in addition to a selection of site appraisal photographs.

#### 5.2.2.1 Landform and hydrology

The landform characteristics of NoR 1 generally sit at around the 20 mRL contour along the existing road corridor. The topography does however dip in localised areas where it negotiates across an overland flow path that connects into a tributary of Pakuranga Creek near Kellaway Drive Reserve and across tributaries of Ōtara Creek to the immediate north and south of Sancta Maria School. In an approximate mid-point of NoR 1 the topography steadily climbs in elevation to around 30 mRL in the context of commercial businesses near Accent Drive to the immediate west.

The topographical characteristics in the context of the site broadly reflect that observed along the existing road corridor. Surrounding development and historic earthworks means that the landform features easy grades. The minor incisions which define the tributaries of the Ōtara and Pakuranga creek bisect the Te Irirangi Drive road corridor in a broadly east to west orientation and break up the largely topographical characteristics of the developed local area.

To the west of NoR 1, two elevated landforms rise above the surrounding commercial and industrial industries, these are Hampton Park (located off East Tāmaki Road), and the now closed Greenmount Landfill, hinged off Harris Road and Smales Road. It should be noted that Hampton Park and the imaged area that surrounds it includes an Outstanding Natural feature (ID 39, Hampton Park scoria cone). This is a small but complete volcanic centre and includes a small scoria cone and tuff ring within the outer flank of the Ōtara Hill tuff ring. East of NoR 1 are the sequence of ridges including Redoubt Road and Point View Drive.

In relation to hydrology, the developed nature of the receiving environment has dictated a broadly modified and managed catchment, observed through the use of culverts and other such engineered stormwater infrastructure. Despite this, the tributaries of Ōtara and Pakuranga Creek remain as legible watercourses with often naturalised through daylighted streams with planted margins. The catchment of NoR 1 collects runoff in these key tributaries which flow west, eventually discharging into the Tāmaki River.

#### 5.2.2.2 Vegetation patterns and open space

In relation to vegetation, an established theme of Washingtonia Palms in the central median and Pōhutukawa along the road berms features for much of the length of the existing Te Irirangi Drive corridor. The Washingtonia Palms and their locations form a clearly recognisable and deliberate

planting regime. Slip lanes lining Te Irirangi Drive also provide for a more intensified focus of vegetation which assists in providing a visual buffer between the arterial road corridor and neighbouring residential land uses. Occasional shrub and tree planting also occurs along the interfaces of the residential developments including hedges to supplement the fence conditions along the road corridor.

Kellaway Drive Reserve is located to the west of Te Irirangi Drive and occupies an area of land positioned between residential properties and Kelvin Hart Drive. A watercourse occupies much of the reserve and feeds into the Greenmount Drainage Reserve to the north. This watercourse is a tributary of Pakuranga Creek and is characterized by mown edges and riparian planting. Te Irirangi Drive borders a section of the reserves eastern boundary although open space continues on the eastern side of Te Irirangi Drive and is accessed by the existing underpass.

Within the open space areas of Rongomai Park, at the southern end of NoR1, landscaping has been provided including a native planting palette of flaxes, Nikau and Pōhutukawa to name a few. Stream corridors that bisect Te Irirangi Drive provide a mix of native riparian planting and occasional weed species. An approximately 35 m wide band of indigenous vegetation occurs along the eastern side of Te Irirangi Drive to the north of Ormiston Road and extends northwards towards Sancta Maria School for an approximate 325 m forming a notable green feature along the largely developed context of the road corridor, this area is zoned open space in the Auckland Unitary Plan (Operative in Part) **(AUP:OP)**.

### 5.2.2.3 Urban development and land use

Urban development along NoR 1 features a broad mix of land uses including open space, special purpose (school), residential, local centre, neighborhood centre, mixed use and light industry zones. This results in diverse urban characteristics and interface conditions.

The northern portion of NoR 1 includes, commercial business which form the defining land use characteristic along the western side of the existing road corridor. This includes car yards, big box retail and various warehouses. This characteristic broadly terminates at the intersection with East Tāmaki Road where residential development populates the interface leading to the Botany Town Centre where greater intensity retirement living is present (Dannemora Gardens, Metlifecare). The Sancta Maria College School and the surrounding open grounds features along the western portion of the road corridor opposite the node of big box retail. Residential development then occupies the eastern side of the road corridor where slip lanes and minor road intersections meet Te Irirangi Drive.

South of this area at the intersection of Preston Road and Te Irirangi Drive is a local centre node providing restaurants, convenience stores, commercial businesses and a petrol station. A currently undeveloped piece of land<sup>4</sup> at the south western corner of the intersection is proposed to provide mixed use development with an increased height limit of up to 28m, indicating a proposed future higher density development outcome than typically anticipated in this zone.

The southern portion of NoR 1 features the locally distinguishable Rongomai Park on the western side of the road. This open space characteristic, together with the adjoining Preston Road Reserve, creates a sequence of public reserves that provide an open and spacious characteristic along this portion. The eastern side of the road corridor contains a mix of primarily single storey residential

<sup>4</sup> Florence Carter Avenue Precinct of the Auckland Unitary Plan

development established in the late 1990's and early 2000's as part of the coordinated evolution of this area. Occasional slip roads and more often cul de sacs provide access to these residents.

As set out in detail in the AEE, it is anticipated that additional intensification is likely to occur at all residential zoned land<sup>5</sup>, existing centres and around the proposed BRT stations as envisioned by the NPS:UD.

#### 5.2.2.4 Aesthetic qualities including views and visual coherence

The aesthetic qualities of NoR 1 are also considered to be closely related to vegetation and open space in addition to the visibility of distant landforms. The boulevard characteristic of the road corridor is considered to have aesthetic qualities through the established visual coherence of the tree planting along its length. Vegetated sections in relation to the tributaries of Pakuranga Creek, together with the indigenous planting north of Ormiston Road forms a notable area of visual relief along the road corridor. The open space land use of Rongomai Park, Sancta Maria School and to a lesser extent Kellaway Drive reserve are also considered to have aesthetic value.

Beyond the extents of the existing road corridor, visual connections to distant landscape features are considered to hold aesthetic qualities and landmark qualities to the area. These include the Greenmount Drive landfill (earmarked to become public open space)<sup>6</sup> and Hampton Park (which is an ONF (ID39) and includes a Historic Heritage Overlay Extent of Place<sup>7</sup>), in addition to the distant ridges of Redoubt Road and Point View Drive to the east of the road corridor. Glimpse views of these features are attainable where there are visual breaks along the road corridor. A brief vista along Ormiston Road, capturing the Ormiston Bridge is also considered an important view. The architecturally designed Ormiston Bridge is a local landmark and signalizes the gateway to the Flat Bush Development to the east of the NoR.

#### 5.2.2.5 Natural character

Natural character is the result of the combined levels of indigenous nature (i.e. biophysical values) and perceived nature (i.e. sensory values), which are typically defined by the extent to which natural elements, patterns and processes occur and are legible; and the nature and extent of existing human modifications. As such the highest degrees of natural character occur where there is the least modification within an area and its context.

The key abiotic attributes of NoR 1 include the geology, water catchments and landform, formed predominantly by geological and coastal processes. The geology of NoR 1, specifically the margins of the identified streams are influenced by the volcanic history of the area, including Green Mount/ Matanginui and Ōtara Hill / Te Puke o Taramainuku. Both of these manuga and the surrounding area are both affected by human influence including urban development. Scoriaceous deposits and tuff deposits form the geology of the northern portion of NoR 1<sup>8</sup>, however as acknowledged, human influence has significantly limited these underlying geological attributes.

In relation the hydrological processes, the Project sits in a water catchment which is within a well-established developed suburb of southeast Auckland. This means that aspects of the catchment within the coastal environment are modified through roads, stormwater piping and culverts. Despite

<sup>5</sup> Except where qualifying matters apply as per clause 3.32 of the NPS:UD and subject to meeting the relevant development standards

<sup>6</sup> <https://www.aucklandcouncil.govt.nz/about-auckland-council/how-auckland-council-works/local-boards/all-local-boards/howick-local-board/Documents/greenmount-landfill-park.pdf>

<sup>7</sup> 1343 St John Church and Hampton Park

<sup>8</sup> [https://www.researchgate.net/figure/Geology-of-the-Auckland-Isthmus-after-Hayward-et-al-2011-The-whole-area-shown-in\\_fig1\\_257876143](https://www.researchgate.net/figure/Geology-of-the-Auckland-Isthmus-after-Hayward-et-al-2011-The-whole-area-shown-in_fig1_257876143)

this, the tributaries of Ōtara and Pakuranga Creek remain as legible watercourses with often naturalised through daylighted streams with planted margins. Overall, it is considered the abiotic attributes of the coastal environment are low-moderate.

The biotic attributes of the receiving environment are the living organisms which shape an ecosystem. This aspect in part relies on the surveys undertaken by the Project Ecologist and Arboriculturist, with their findings outlined in their respective assessments. The margins of the streams within the NoR environment feature a mix of native and exotic vegetation species. In relation to fauna, whilst the riparian areas have little natural vegetation remaining, the habitat is suitable for the “at risk – Declining” copper skink. Indigenous fauna such as short fin eels and long fin eels are understood to reside or pass through the various streams/ tributaries. Overall, despite the presence of exotic species, including weed species being present, the biotic attributes include a range of indigenous flora and fauna, some considered at risk. Taking the above into account, it is considered that the abiotic attributes are moderate-high.

Experiential attributes comprise the interpretation of human experience of the waterbodies that occur within the NoR 1 area. Whilst the natural watercourses pass through the urban environment, bisecting the NoR 1 project, the presence of the urban environment on these areas does impact the experiential attributes. The presence of weed species, often mown grass margins also reduces the sense of naturalness in these areas. Overall, it is considered the experiential natural character attributes are considered low-moderate.

#### 5.2.2.6 Viewing audiences

In terms of the viewing audiences for NoR 1, the designation boundary remains broadly aligned to the existing road corridor. Due to the historic provision for rapid transit along Te Irirangi Drive<sup>9</sup>, a good portion of NoR 1 falls within the existing road corridor. The Project will however impact a number of property frontages that meet Te Irirangi Drive including residential properties, commercial premises, school and recreational facilities. Due to the low elevational nature of the Project, the current viewing audiences of the Te Irirangi Drive road corridor are likely to be consistent to that requiring assessment, apart from where entire properties are removed, revealing a new ‘leading edge’ to the road. For example, in the instance that a residential property adjoining Te Irirangi Drive is to be removed, the property behind will then obtain clearer views toward the Project. A furthermore detailed description of specific viewing audiences will be discussed in the assessment section of the report however in essence a wide range of viewing audiences will have the potential to be affected. This includes those residential properties that line the road corridor, park users, visitors to the Sancta Maria School, visitors to local commercial premises and those residing at the Dannemora Gardens in the northern portion of the NoR. Road users along Te Irirangi Drive in addition to those approaching the intersections with the road, are also going to be affected by the Project.

<sup>9</sup> Manukau District Plan, Chapter 8 – Pg.17, 6.1.6/Pg.86, A1.3.2.10



Figure 4: Metlifecare Dannemora, Retirement Village on the western side of Te Irirangi Drive



Figure 5: Close up view of buffer vegetation between residential properties and Te Irirangi Drive



Figure 6: Shingleton Lane, slip lane separated by a grass berm and Pohutukawa Trees. Residential - Single House zone



Figure 7: Aaronville Way slip lane separating residential properties from Te Irirangi Drive



Figure 8: Te Irirangi Drive with commercial development to the west



Figure 9: Vegetated stream corridor beside Mitre 10 store



Figure 10: View of Te Irirangi Drive with Santa Maria school fence bounding the road reserve



Figure 11: Botany Junction Shopping Centre



Figure 12: View from the Botany Junction carpark across Te Irirangi Drive towards the intersection with Ormiston Road



Figure 13: Parking area within Rongomai Park, facing Te Irirangi Drive (looking North)

## 5.3 Assessment of construction effects

The following sections provide an assessment of construction effects on landscape characteristics and values for NoR 1.

### 5.3.1 Summary of construction activities within existing environment

#### Construction Areas

Construction compounds, laydowns, construction machinery, earthworks and material storage will be present across the NoR, typically in existing road corridor areas such as Brinlack Drive, or within private properties (currently with residential dwellings), that adjoin the corridor such as 16 Tonu'U Court. Night works, where required, will in places introduce artificial light into an existing urban environment. Landscape effects related to construction activities across the NoR will be associated with the widening of Te Irirangi Drive for the construction of the BRT corridor, high quality walking and cycling facilities and associated; bridge construction e.g. over Kellaway Drive, stormwater infrastructure construction, and removal of existing buildings and urban elements.

#### Vegetation Clearance

Broad areas of vegetation are proposed to be removed to accommodate the widening of the Te Irirangi Drive road corridor. This consists of trees and shrubs (including some indigenous trees) both within the Te Irirangi Drive road corridor and within private properties. Grass berms and lawn areas along the corridor will also be removed.

### 5.3.2 Effects on landscape characteristics and values

The potential construction effects on the landscape arise from the physical changes to the receiving environment which may change its characteristics and values. When considering the physical change during construction of NoR 1, changes to the landform, hydrology, vegetation, open space, urban development, land use in addition to aesthetic qualities and natural character values are understood. The presence of elements and activities associated with construction (i.e. construction machinery, lay down areas, stockpiles etc.) can also temporarily change the values and characteristics of an area.

#### 5.3.2.1 Landform and hydrology

The Project will occur within a modified environment that has been altered through the creation of residential and commercial development in addition to supporting infrastructure. The modified nature of the topography on balance means that there are limited areas of value. As described, a number of streams and tributaries flow beneath Te Irirangi Drive. These streams are piped/ culverted apart from one tributary to the south of Sancta Maria College that connects to Ōtara creek. Whilst the stream remains daylighted as it passes under Te Irirangi Drive, the stream embankments have been influenced by the bridge abutments where Te Irirangi Drive passes above the stream.

Changes to the landform will principally result from grading to accommodate changes to the proposed road levels and surfaces. It is not considered that there would be a loss of any landform features within the site or wider context, the landform values would remain broadly as they are at present. Given the proposed earthworks will occur within or alongside the existing road corridor, in a highly modified environment, effects with mitigation are considered to be very low. Earthworks in the vicinity of existing stream networks are anticipated to have slightly elevated effects although keeping in mind

that the works involving stream crossings will occur adjacent to and alongside modified stream extents and therefore effects during construction are anticipated to be **low** adverse.

### 5.3.2.2 Vegetation patterns and open space

NoR 1 includes a variety of vegetation types which are typical of an established urban environment. The most predominant vegetation that will be impacted by the works are the Washingtonia Palms and Pōhutukawa which occupy the central median and berms. An area of native vegetation (of predominantly manuka and kanuka) within 303 Te Irirangi Drive will also be impacted by the works and the footprint of the widened corridor. A mix of other species within private properties that line Te Irirangi Drive will also undoubtedly be affected by the works due to the removal of the dwellings. Additionally, riparian vegetation along the various streams and creeks in proximity to the works (i.e. within the designation), will be impacted. Retaining at stream crossings are proposed instead of earthwork embankments which will reduce the extent of vegetation removal. A total of 692 single trees and 33 groups of trees have been identified across NoR 1.

Exotic species make up a good portion of the trees to be removed however, it is noted that a number of Pōhutukawa and areas of native bush vegetation considered to have a higher landscape value, will be removed. During construction and prior to mitigation / replacement tree planting it is considered there will be **moderate-high** temporary adverse effects.

In relation to open space, some level of earthworks are anticipated in relation to where Te Irirangi Drive crosses Kellaway Drive Reserve however earthworks are anticipated to be limited and tightly aligned to the corridor footprint. It is not anticipated that there will be any earthworks within Rongomai Park as the designation effectively abuts the parks eastern boundary. With the above in mind, it is considered that **very low** adverse effects to open space during construction will be anticipated.

### 5.3.2.3 Urban development and landuse

The Project will be along established road corridors and supports a variety of land uses, including residential, commercial and recreational open space. Construction activities would impact on some of these established zones however it is considered that works within these areas can be readily absorbed and remain associated with the existing transport infrastructure upgrades.

This change would be limited to the existing edges of these land uses, and the removal of residential properties would reveal a new 'edge' of development during construction. These revealed properties are similar in their character, visual composition, bulk, scale and land use, as those that would be removed. With the above in mind, it is considered that the level of effect during construction would be **low** adverse.

### 5.3.2.4 Aesthetic qualities including views and visual coherence

In relation to the boulevard characteristic of the road corridor, during construction this characteristic will effectively be lost as a result of tree removal notably the Washingtonia Palms and a number of Pōhutukawa. The removal of this characteristic landscaped throughfare is a result of the BRT corridor proposed in the centre of the existing road corridor.

The mix of indigenous planting at 303 Te Irirangi Drive will also be impacted during construction as the road corridor will be widened to the east to accommodate the additional infrastructure. Notwithstanding this, it is anticipated that a remnant green backdrop will remain in this area given the extent of the designation will not include all of the planting within this property. Views of neighbouring

open space in addition to vegetated sections of the neighbouring tributaries of Pakuranga Creek will be temporarily interrupted however it is considered that these views tend to be short lived and incidental to the overall urban characteristics of the corridor.

Vistas to distant landscape features such as Greenmount Drive Landfill and Hampton Park in addition to distant ridges to the east are likely to be partially interrupted however it is anticipated that this will be limited to particular construction phases of the Project where machinery might be located in the sightlines towards these features.

With the above in mind, it is considered that for the most part, the effects on the aesthetic qualities and visual coherence values will be temporary, i.e. limited to the construction period, apart from the removal of vegetation. The removal of the boulevard characteristic will result in temporary adverse effects however it is anticipated that future tree planting along road berms in addition to appropriate landscaping of residual land will reduce these levels of effect once the Project is completed and in operation. Overall, it is considered that adverse effects during construction will be **low**.

### 5.3.2.5 Natural character

In considering the abiotic effects on the natural character values during construction, the catchment is part of a modified and managed catchment system due to the urbanisation of the area. Construction effects on the abiotic natural character values will predominantly be in relation to the proposed rain gardens in 310 Te Irirangi Drive, to the north and south of the commercial complex of Bishop Dunn Place, this will involve construction near the stream margins. These changes will occur where localised modification has already taken place (i.e. the natural character values of these areas has already been reduced and/or impacted through the development of the area). It is considered this localised change during construction will result in **low** adverse effects on the abiotic natural character values.

In terms of effects to biotic attributes, the northern most rain garden, adjoining Mitre-10, has greater values than the one to the south due to the presence of indigenous vegetation. The vegetation in this area whilst featuring indigenous species are of common stock and not of a particularly great age i.e. they have been planted in the last 10 to 15 years. Prior to replacement planting, in relation with the rain gardens, it is considered the effects to the biotic attributes will be **low**.

In relation to experiential attributes, it is considered that as the experiential values are slightly reduced due to the presence of additional infrastructure and due to the compromised nature of these areas being within a developed, commercial environment, any effects on the experiential attributes during construction will be **low**.

### 5.3.2.6 Visual amenity effects

The temporary visual amenity effects associated with NoR1, would arise from the presence of construction activities, elements and structures during the course of the Project. These temporary effects would affect a range of viewing audiences which are located within, adjacent to, and in the wider vicinity of the site.

#### **Residential Viewing Audiences (including Dannemora Gardens Aged Care Facility)**

Residential viewing audiences are considered to have a higher sensitivity to change as these residents are at home, using rooms normally occupied in waking or daylight hours, and are likely to experience views for longer than those briefly passing through an area. These viewing audiences

form a primary viewing audience along NoR 1 however due to the relatively low elevational characteristics of the Project, most visual effects will not extend much further beyond the properties that remain along the edge of the proposed designation boundary.

Works would typically be visible from one direction within the properties (e.g. from the west for those along the eastern side of Te Irirangi Drive). Proposed tree removal, particularly along the side berms will in places provide greater visibility toward the road and associated planned works. Future intensification of the corridor, realised through the application of the NPS:UD may provide greater numbers of viewing audiences and additionally the potential to view the Project at a more elevated position (i.e. 6 storeys).

Notwithstanding this, whilst the Project will require substantial works, these will remain within the road corridor and clearly related to road infrastructure activities. Therefore, regardless of the potential increased visibility, it is considered that construction works will remain broadly in keeping with major upgrade works occurring within an established major arterial road corridor. With the above in mind, it is considered the adverse effects on residential viewing audiences (existing and potential future), will be up to **low-moderate** during construction.

### **Travelling Viewing Audiences**

These viewing audiences are located along the road corridors and footpaths of the receiving environment, and include those which are travelling in vehicles, on foot, or on alternative modes of transport such as bicycles. It is considered that due to the activities these viewing audiences are engaged within, their sensitivity to change would be lower.

Whilst construction activities will result in a degree of visual change, works will broadly remain within or in the immediate context of the existing road corridor environment. The presence of construction machinery within the established road corridor will also be a familiar site to that observed across Auckland where roading infrastructure upgrades are a common sight. Granted that the extent of works along the corridor may be of a greater scale or size to that typically observed, the works will be clearly associated with upgrading of a significant arterial road. Combined with the relatively short duration of the views experienced, it is determined that the adverse effects during construction would be no more than **low**.

### **Occupational Viewing Audiences and Visitors to Business Premises and Sancta Maria School**

These viewing audiences are focussed within the areas where commercial activities are established within the receiving environment. For example, these include Dannemora Pharmacy and associated medical centre,<sup>10</sup> Gull Te Irirangi, Oracle Autos,<sup>11</sup> Storage King, Reward Hospitality, Botany Toyota, East Auckland BMW, Mitre 10 Mega Botany, Botany Junction Shops, Sancta Maria School and future development within the Florence Carter Avenue Precinct.

Visual change during the construction of NoR 1 for these viewing audiences would be varied, due to the differing locations, outlooks and activities which would occur within their views. However, for the majority of businesses and the school, the temporary construction effects brought about by the Project would be seen as a transport infrastructure project, largely taking place in the road corridor. In considering the lower sensitivity to visual change that these viewing audiences are considered to

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<sup>10</sup> 1 Redcastle Drive

<sup>11</sup> 455E East Tamaki Road

hold, any construction activity relating to the Project is likely to result in adverse effects no more than **low**.

### Recreational Viewing Audiences

These viewing audiences are located across a wide area and are considered to be those viewing audiences engaged within recreational activities in defined areas. It should be noted that effects for people walking or cycling within transport corridors are not considered under recreational viewing audiences and are instead considered in the travelling viewing audiences section. For this assessment, the recreational viewing audiences are considered to be those located in the areas zoned as “Open Space” under the AUP:OP. These include those viewing audiences which are engaged in informal and formal outdoor recreation.

These areas specifically include Kellaway Drive Reserve and Rongomai Park. The sensitivity to visual change differs across these recreational viewing audiences due to the activities they are engaged within. However, it is important to note that the sensitivity of the viewing audiences can be determined by a number of factors, including the context of the environment they are within and the level of awareness that the viewing audience is likely to hold. As such, it is considered that the following sensitivities to visual change apply to the recreational viewing audiences:

- Informal outdoor recreational viewing audiences are considered to have a higher sensitivity to change.
- Formal outdoor recreational viewing audiences are considered to have a lower sensitivity to change.

### Kellaway Drive Reserve

Viewing audiences in Kellaway Drive Place Reserve would view some visual change in the eastern portion of the reserve where the Te Irirangi Drive road corridor abuts the edge of the reserve. This would include machinery relating to building over the localised landform depression in addition to associated earthworks and activities required to construct the widened road corridor. Whilst works would bring about adverse visual effects, these would be temporary due to the nature of the reserve servicing a network of walkways rather than rest stops or informal areas of open grass spaces. Moreover, the works will remain in proximity and related to the existing Te Irirangi Drive road corridor, where the level of amenity will already have been partially compromised, therefore it is considered viewing audiences would be partly ‘desensitised’ to change. Overall, it is considered these works will result in localised effects considered **low-moderate**, however noting that within the balance of the wider park, remaining accessible and part of the overall amenity experience, any effects are considered **low** adverse.

### Rongomai Park

Viewing audiences within Rongomai Park would be engaged within formal recreational activities. Spectators would also be focused on such activities occurring within the park. It is considered that these viewing audiences would have a lower sensitivity to change.

Change to the receiving environment during construction would occur in the eastern boundary of the park and will not impact the playing spaces of the park or the supporting facilities. Works will remain clearly associated with the road environment and such change will be secondary to the activities within the park. Views of the works will also be limited to when people are visiting the park, often for sport activities are restricted to defined periods which are often seasonal. With the above considered

it is determined that any effects on users of Rongomai Park as a result of the construction of the Project will be **low** adverse.

### 5.3.3 Summary of construction effects on landscape character and values

The table below provides a summary of the construction effects on landscape character and values for NoR 1.

**Table 5: Summary of construction effects on landscape character and values for NoR 1**

Effect		Assessment
<b>Natural Character Effects</b>		
Abiotic		Low
Biotic		Low
Experiential		Low
<b>Landscape Effects</b>		
Landform		Low
Hydrology		Low
Vegetation		Moderate-High
Open Space		Very Low
Urban Development and Landuse		Low
Aesthetic Qualities		Low
<b>Visual Amenity Effects</b>		
Residential		Low-Moderate
Travelling		Low
Occupational		Low
Recreational	Kellaway Drive Reserve	Low
	Rongomai Park	Low

## 5.4 Assessment of operational effects

### 5.4.1 Summary of operational activities within receiving environment

As set out in Section 6.1, the following points summarise the key changes to the receiving environment as a result of the Project:

- Realignment and widening of Te Irirangi Drive;
- Centre-running BRT corridor;
- High quality walking and cycling facilities;
- Two lane vehicular carriageway in each direction;
- Berms that can accommodate tree and shrub planting between the vehicular carriageway and walking and cycling facilities;
- A series of stormwater management devices alongside Te Irirangi Drive with appropriate planting (not in designation);

- Three BRT stations (near intersections of Smales Road, Accent Drive and Ormiston Road); and
- Other landscaping – to be confirmed – i.e. along road berms etc.

The following assessment also considers mitigation measures (as recommended in Section 11), as having been fully implemented. This includes careful consideration and design of structures such as BRT stations, outfalls, storm water ponds and the like, in addition to the appropriate level of planting to mitigate the removal of vegetation (including trees) and provision of a high-quality amenity environment. The following assessment considers the residual effects once vegetation has become fully established (i.e. 5 years growth), following planting and any plant and tree replacement (in the event of plant failure).

## 5.4.2 Effects on landscape characteristics and values

The potential effects on the landscape arise from the permanent physical changes to the receiving environment which may change its characteristics and values. When considering the permanent physical change, changes to the landform, hydrology, vegetation, open space, urban development, land uses in addition to aesthetic qualities and natural character are understood. The change in these attributes, in addition to the presence of permanent elements and structures will also alter the character of an area.

### 5.4.2.1 Landform and hydrology

Permanent changes to the landform will arise from the result of grading and other such earthworks to accommodate the new road levels and surfaces. It is considered that these effects are sufficiently covered in the construction effects section of this assessment (Section 6.3). It is considered that there would not be further change to the landform during operation of the Project. In determining the effect rating, it is considered that the effects would remain consistent with those anticipated under the construction phases. It is therefore determined that the effects on the landform during operation would be **low** adverse.

Permanent effects to the hydrological values will also have been undertaken in the construction phases of the Project and as established, works near streams (which remain limited) will have taken place alongside modified stream extents. Stormwater management devices located along the corridor will occur outside of the established stream corridors and will assist in managing stormwater run off before discharging into the waterways. Overall, it is considered that **very low** effects will occur on the hydrological values of the receiving environment.

### 5.4.2.2 Vegetation patterns and open space

Once NoR 1 is in operation, it is anticipated that a substantial number of trees would be established as part of the Project corridor. Although initially these trees would not be of a size and scale comparable to some of the trees removed as part of the Project. In time, the proposed indigenous trees would grow to become established specimens. It is considered that initially, following construction, the adverse effects on the vegetation values would be low adverse, as the trees would not be of a height and stature which was removed. Once established, these trees will provide a greater contribution to the area and provide greater presence through the establishment of placemaking identity. Therefore, it is considered that once fully mature these trees would contribute to the vegetated cover of NoR 1 resulting in **low** beneficial effects.

In considering effects on open space, due to the limited effects during construction and now completed works with remediated interfaces with these areas, any residual effects would be **very low** adverse, noting that the same landscape values that these currently provide will be retained following completion of the Project.

#### 5.4.2.3 Urban development and landuse

The Project is along developed road corridors and supports a variety of land uses, including residential, commercial and recreational open space. These established land uses will remain along the interface of the Project and continue to represent the urban patterns of the area.

The proposed upgrade of Te Irirangi Drive as a result of the Project will signalise the importance of the arterial route and the deliberate move to invest into improving the connectivity of the area to the wider area. Future development realised through the NPS:UD notably occurring around the proposed BRT stations along Te Irirangi Drive will reinforce these objectives and contribute to urban intensification. With the above considered, it is determined that any residential effects will be **very low** adverse.

#### 5.4.2.4 Aesthetic qualities including views and visual coherence

The removal of the recognisable pattern of Washingtonia Palms will remain an adverse effect during the operation of the Project. Notwithstanding this, provision has been made within the proposed designation boundary to provide for replanting within and adjacent to the corridor. With a coordinated planting palette, a boulevard like characteristic will be reinstated. The provision of a native tree palette will move to better relate the characteristics of the road corridor to the unique identity of Tāmaki Makaurau.

With the above considered, it is determined that any residual effects on the aesthetic qualities and visual coherence will be **very low** adverse.

#### 5.4.2.5 Visual amenity effects

The potential effects on the identified viewing audiences arise from the permanent physical changes to the receiving environment which may change the viewers visual appreciation of the area.

##### **Residential Viewing Audiences (including Dannemora Gardens Aged Care Facility)**

Residential viewing audiences adjacent to NoR 1 will experience the greatest degree of change due to their proximity to the Project, whereas those residents that are set back from the Project will discern little to no perceivable change. For those residents immediately adjacent to the Project, their view will continue to be of a major arterial road corridor, with vehicular traffic located a similar distance from the property boundaries as currently observed. The proposed pedestrian footpath and cycleway will form the immediate feature of their view towards Te Irirangi Drive. A substantial number of trees and supporting landscaping are provided for in the BRT corridor which, when established, will provide a similar level of amenity to that currently experienced. For this reason, it is considered the residential visual effects on existing and indeed future residential viewing audiences, will be **very low** adverse.

##### **Travelling Viewing Audiences**

Permanent change for these travelling viewing audiences will arise from the slight realignment and change in road width of Te Irirangi Drive, in addition to the presence of new BRT stations in the road corridor. These changes will however take place within the road corridor, and such change will be in

keeping with that expected within a major arterial route as it evolves with the growth of the area it services. These viewing audiences will remain transient in nature, and therefore move along the road corridor, for a short period of time. When considered alongside an improved amenity experience as a result of streetscape enhancement works, it is determined that the permanent visual effects for these viewing audiences would be **very low** beneficial.

**Occupational Viewing Audiences and Visitors to Business Premises and Sancta Maria School**

Following completion of the Project, these viewing audiences will interact with the road corridor in much the same way as they do at present. The road corridor will continue to provide passive advertising to their businesses and feature as a prominent element in their view. For those working within or visiting these premises, it is considered the lower sensitivity these viewing audiences will have to change, combined with clear similarities the Project has with the receiving environment, any effects will be **very low** adverse.

**Recreational Viewing Audiences**

Due to the limited physical impact the Project will have on the open space and activities undertaken within them; it is considered that any residual effects will be particularly limited. The completed Project will interact with the areas of open space in much the same way as they do at present, and in doing so, effects on the users of these spaces will experience **very low** adverse visual effects.

**5.4.2.6 Natural character**

Once the Project has been completed, it is considered any residual abiotic, biotic and experiential effects will be **very low** adverse. There will be some level of change in the form of the rain gardens in the vicinity however such change will remain alongside a developed context. Cleared vegetation around the footprints will be established in appropriate vegetation.

**5.4.3 Summary of operational effects on landscape character and values**

The table below provides a summary of the operational effects on landscape character and values for NoR 1.

**Table 6: Summary of operational effects on landscape character and values for NoR 1**

Effect	Assessment
<b>Natural Character Effects</b>	
Abiotic	Very Low
Biotic	Very Low
Experiential	Very Low
<b>Landscape Effects</b>	
Landform	Low
Hydrology	Very Low
Vegetation	Low +
Open Space	Very Low
Urban Development and Landuse	Very Low

Aesthetic Qualities		Very Low
<b>Visual Amenity Effects</b>		
Residential		Very Low
Travelling		Very Low +
Occupational		Very Low
Recreational	Kellaway Drive Reserve	Very Low
	Rongomai Park	Very Low

## 5.5 Cultural landscape values

It is acknowledged that the Project traverses areas of cultural significance. As set out in the AEE, Manawhenua have been involved as partners through the NoR phase of the Project. To appropriately recognise the cultural landscape in the future phases of the Project, it is recommended that:

- Manawhenua are involved as partners in the future design of the Project;
- Appropriate wayfinding and signage along the NoR 1 is provided to improve awareness to local Maunga such as, Mātanginui, Te Puke ō Taramainuku and Te Puke Ariki;
- Opportunities are identified to enhance water quality and restore streams within the Project area;
- Provision is made for tree planting within and adjacent to the Project corridor to represent an urban ngahere; and
- Opportunities are identified to acknowledge cultural narratives in the design of Project elements.

## 6 Airport to Botany Bus Rapid Transit – NoR 2

This section assesses landscape and visual matters relating to NoR 2 – the Project corridor between Rongomai Park and Puhinui Station, in the vicinity of Plunket Avenue.

### 6.1 Overview and description of works

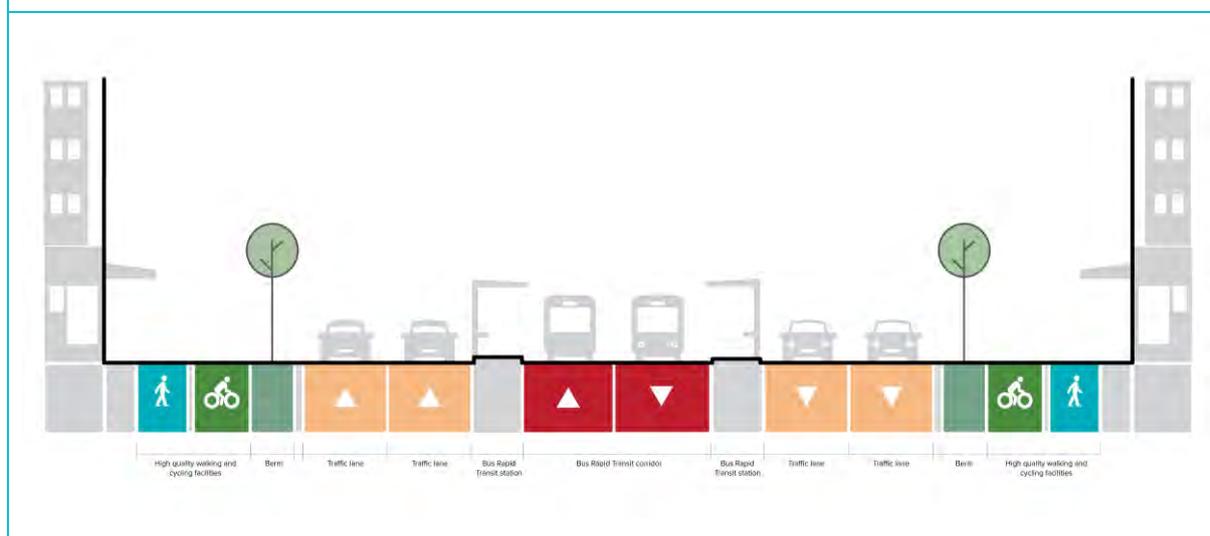
As set out in Table 7 below, the proposed works in NoR 2 include the widening of several existing roads to accommodate a centre-running BRT corridor, vehicle lanes and high quality walking and cycling facilities.

Table 7: Overview of NoR 2

NoR 2 – Rongomai Park to Puhinui Station, in the vicinity of Plunket Avenue	
<b>Key features</b>	
BRT Corridor	<p>Centre-running for the majority of the corridor along Te Irirangi Drive, Great South Road, Ronwood Avenue, Manukau Station Road, Lambie Drive, and Puhinui Road</p> <p>West-running on Davies Avenue along the edge of Hayman Park</p>
BRT stations	<ul style="list-style-type: none"> <li>• Dawson Road Station;</li> <li>• Diorella Drive Station;</li> <li>• Ronwood Avenue Station;</li> <li>• Manukau Station; and</li> <li>• Corner of Lambie Drive and Puhinui Road Station.</li> </ul>

Walking and cycling facilities	Walking and cycling facilities on both sides of the corridor
General traffic	<ul style="list-style-type: none"> <li>• Two lanes in each direction along Te Irirangi Drive, Great South Road, Ronwood Avenue, Manukau Station Road, and Lambie Drive;</li> <li>• One-way single lane along Davies Avenue; and</li> <li>• One lane in each direction along Puhinui Road.</li> </ul>
Access	<p>Existing central medians limit right turn access on Te Irirangi Drive, Great South Road, Ronwood Avenue, and Lambie Drive.</p> <p>New signalised intersection at Mitre 10 and Bunnings Warehouse on Lambie Drive.</p> <p>Priority access for fire engine movements across the BRT corridor at Papatoetoe Fire Station.</p>
Speed environment	<ul style="list-style-type: none"> <li>• 30 km/h on Ronwood Avenue and Davies Avenue; and</li> <li>• 50 km/h on Te Irirangi Drive, Great South Road, Manukau Station Road, Lambie Drive and Puhinui Road.</li> </ul>
Signalised intersections <b>(new intersections in bold)</b>	<ul style="list-style-type: none"> <li>• Te Irirangi Drive and Dawson Road;</li> <li>• Te Irirangi Drive, Boundary Road and Hollyford Drive;</li> <li>• Te Irirangi Drive and Diorella Drive;</li> <li>• Te Irirangi Drive, Great South Road and Cavendish Drive;</li> <li>• Great South Road and Ronwood Avenue;</li> <li>• Ronwood Avenue and Davies Avenue;</li> <li>• Davies Avenue, Wiri Station Road and Manukau Station Road;</li> <li>• Manukau Station Road and Lambie Drive;</li> <li>• <b>Mitre 10 and Bunnings Warehouse;</b></li> <li>• <b>Lambie Drive and Ronwood Avenue;</b></li> <li>• Lambie Drive and Cavendish Drive;</li> <li>• Lambie Drive and Puhinui Road; and</li> <li>• <b>Puhinui Road and Plunket Avenue.</b></li> </ul>
Stormwater infrastructure	<ul style="list-style-type: none"> <li>• Swales; and</li> <li>• Wetlands.</li> </ul>

**NoR 2 typical cross section**



For assessment purposes, NoR 2 has been split into three sections as shown in the figure below:

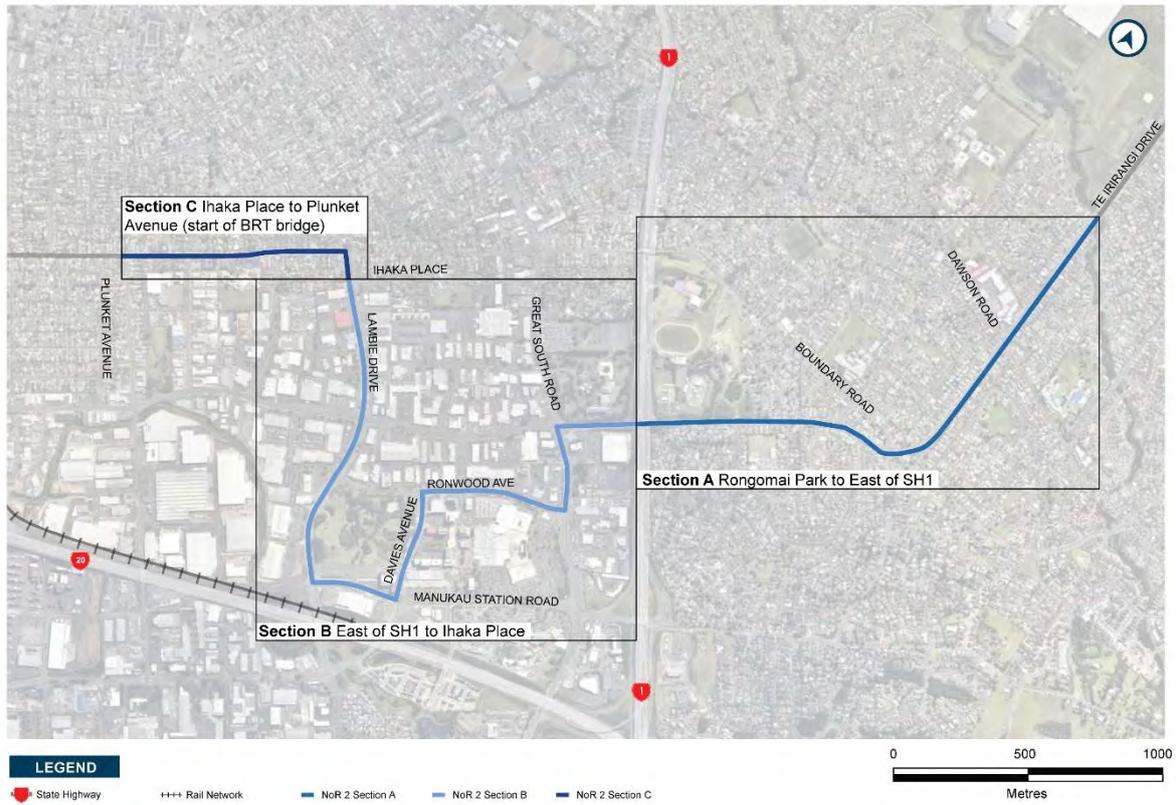


Figure 14: Sections of Airport to Botany Bus Rapid Transit NoR 2

## 6.2 Existing environment

Refer to **Appendix C** for the suite of Figures.

### 6.2.1 Location description

Section A of NoR 2 extends from Rongomai Park which adjoins the western end of Te Irirangi Drive to State Highway 1 (**SH1**). Key features of this section include a tributary of the Ōtara Creek, the open space nature of Rongomai Park, a tributary of the Ōtara Creek and the Manukau Sports Bowl which has a heavily vegetated / tree lined frontage. Section A contains a range of residential zones from Single House zone to Mixed Housing Urban and Terrace Housing and Apartment Buildings zones.

Section B of NoR 2 extends from the east of the SH1 to Ihaka Place on Lambie Drive, through the Manukau Central. The existing environment consists of a mix of commercial, high density residential and retail land uses.

Section C of NoR 2 is between Lambie Drive / Ihaka Place and Puhinui Station and consists of a variety of residential properties including single dwellings to more intensive mixed housing. Ihaka Place is the interface between residential and business zoning.

As set out in detail in Section 7.5 of the AEE, it is anticipated that additional intensification is likely to occur at all residential zoned land<sup>12</sup>, existing centres and around the proposed BRT stations as envisioned by the NPS:UD.

## 6.2.2 Landscape characteristics and values

The following sections provide a further description of the receiving environment in addition to a selection of site appraisal photographs.

### 6.2.2.1 Landform and hydrology

#### Section A

The portion of Te Irirangi Drive within Section A includes a gentle gradient from around 25 mRL which decreases in elevation towards Whetstone Road and Belinda Avenue in response to a permanent stream south of Rongomai Park within Preston Road Reserve. The topography then steadily rises to approximately 39 mRL at the Te Irirangi Drive / Boundary Road intersection.

The urbanised receiving environment has resulted in the hydrology being informed by the various road corridors and subsequent overland flow paths. In principle, the catchment flows to the north toward Ōtara Creek eventually discharging into the Tāmaki River. A permanent stream intersects with Te Irirangi Drive in a low point near Belinda Avenue, south of Rongomai Park, which forms part of a sequence of linear esplanade reserves. The stream alignment appears broadly naturalised where it is daylighted however, it passes via a pipe beneath Te Irirangi Drive, discharging into Preston Road Reserve.

#### Section B

This section of NoR 2 follows an at grade gradient along the existing road corridors. Topographically there are no particular features of note along the route or in the local area. The most noticeable change to the landform characteristics is within Hayman Park where a shallow gully leading to centralised storm water ponds exists. This piece of land was purchased by Manukau City Council in 1966<sup>13</sup>, ensuring the preservation of a large open space close to the newly formed city centre. When the park was established, the original landform was altered by the excavation of ponds along the course of a minor tributary of the Puhinui Stream and the creation of a small, elevated landform in the south western portion of the park.<sup>14</sup>

As a developed area, the hydrological features have been highly modified and often align to the existing roading infrastructure. West of Lambie Drive and positioned between commercial business is the Puhinui Stream which captures much of the stormwater runoff and flows west toward the Manukau Harbour.

#### Section C

The portion of Puhinui Road within Section C includes a gentle grade of around 20m RL and features a slight low point between York Road and Plunket Avenue before rising to 20m RL. The surrounding

<sup>12</sup> Except where qualifying matters apply as per clause 3.32 of the NPS:UD and subject to meeting the relevant development standards

<sup>13</sup> <https://kura.aucklandlibraries.govt.nz/digital/collection/localhistory/id/4304/>

<sup>14</sup> <http://heritageetal.blogspot.com/2017/10/take-walk-along-puhinui-stream.html>

context of the Puhinui Road corridor reflects these topographical conditions, sitting at around the 20 m RL to 22 m RL, with no notable or distinguishing features.

The urbanised environment has resulted in the hydrology being managed through stormwater infrastructure such as curb and channels. A tributary of the Puhinui Stream occurs just south of Puhinui Road within Grayson Avenue Reserve. Large portions of the stream remain day lighted with modified embankments. The stream flows into Puhinui Domain to the south of Brett Avenue and via a culvert into the Puhinui Creek on the southern side of Cavendish Drive.

### 6.2.2.2 Vegetation patterns and open space

#### Section A

In relation to vegetation, a large, vegetated buffer exists along the interface of the Manukau Sports Bowl and Te Irirangi Drive towards the southern end of this section of NoR 2. This vegetation contains a mix of native and exotic trees which form a dense green edge to this portion of the corridor. Street trees exist along the grassed roadside berms in addition to a planted central median which begins opposite Sandrine Avenue. Whilst the planting regime is sporadic in some places, in relation to tree placement and species, the Washingtonia Palms in the central median begin to form a vegetated vertical characteristic. In terms of street trees in the berms, these areas are primarily characterised by young Titoki and Pohutukawa species. The intersection of Boundary Road however supports some grouping of trees including a mix of native and exotic species up to approximately 6m in height. The open space at the termination of the Boundary Road cul-de-sac (Orlando Reserve), also supports some further tree and shrub planting including a Norfolk Pine, Nikau and Muehlenbeckia in the form of dense clumps off-set in the wide road berm to the east.

The rhythm of Washingtonia Palms in the central berm and Pohutukawa in the side berms becomes more legible, north of Boundary Road, with many of the Palms being over 10m in height. This sequence of vegetation more or less continues along the remaining parts of NoR 2, with the occasional London Plane tree planted in the road berm instead of Pohutukawa. Whilst tree cover is sometimes patchy, the visibility of trees along the road corridor remains clearly apparent and results in a boulevard like characteristic.

Where this section of NoR 2 crosses the tributary of the Ōtara Creek (including land on Rongomai Park and Medvale Avenue Reserve), a mix of riparian planting exists forming a vegetated marker between the more recently established suburbs to the north of Clover Park. This linear belt of planting remains closely connected to the meandering stream, with open space pasture covered fields in areas beyond.

#### Section B

A vegetated buffer continues along Te Irirangi Drive to the west of SH1. This buffer contains a mix of native and exotic species with the most mature specimens along the northern side of the road corridor forming the interface between the road corridor and the AUT south Campus. Buffer planting continues to exist on the immediate eastern side of SH1 which are the planted embankments and abutments of the Te Irirangi Drive Bridge and offramp.

Ornamental planting exists at the front of numerous businesses along the western portion of Great South Road. Three Phoenix Palms also form part of the western berm in addition to Five Washingtonia Palms. A number of Pohutukawa have been established opposite the BNZ building forming the south eastern portion of 639 Great South Road. The eastern portion features a section of

supporting amenity planting apart from a broadly mature vegetated buffer between Great South Road and the neighbouring electrical infrastructure at 656 Great South Road.

Ronwood Avenue which meets Great South Road at its eastern end, continues in a western direction toward Davies Avenue, and Hayman Park before terminating at Lambie Drive. A central planted median exists along the length of Ronwood Avenue which divides the bi-directional traffic. The central median primarily contains Puriri and Norfolk Island Pines, which transitions to Gum trees in the context of the Westfield Shopping Centre. These central medians are also supported by planted grassed berms containing Magnolia trees.

Hayman Park is the primary piece of open space along this section of NoR 2 and anchors the city centre to the landscape. The park has evolved from farmland and now features a variety of large trees which are both native and exotic. Many of these are Gum trees however, a number Pines exist along the interface with Lambie Drive signal the south western corner of the park. The park supports a playground, skate park, toilet facilities and large areas of open green space.

Recent streetscape upgrades through Davies Avenue has included a native tree and shrub planting palette. Nikau trees are a key theme in this area along with Pohutukawa. The maturity of the Pohutukawa increases where they sit opposite Hayman Park. This large scale vegetation, together with a wide planted median draws the park environment across the street and in to Manukau Central.

Manukau Station Road features recently established Pohutukawa which occupy the grassed medians on the approach to Davies Avenue. Supplementary ground cover and shrub planting also becomes more apparent on the approach to this intersection.

The central medians of Lambie Drive contain large tree planting which results in an avenue street characteristic. Puriri trees feature in the central median to the west of Hayman Park. A single row of Norfolk Island Pines often intermixed with Gum trees, also characterises the street. Grass berms form the street interface, with occasional tree planting often associated with the neighbouring commercial buildings.

## Section C

In terms of vegetation, as described in earlier sections, Lambie Drive features a central median which supports a number of large Norfolk Pine trees. Grass berms with occasional street trees feature along the Puhinui Road portion of the NoR. The placement and location of these trees is sporadic although a number of semi mature Pohutukawa exist along the road corridor in addition to various exotics. Residential gardens about the Puhinui Road corridor are often characterized by lawn, with occasional trees.

In relation to open space, there are no defined reserves along this portion of the road corridor apart from a very small (approximately 2.8m wide) piece of land connected to Grayson Avenue Reserve however this strip of land is partly occupied by the neighbouring property at 153 Puhinui Road and forms the width of the drainage reserve forming the tributary of the Puhinui Stream which leads into the Puhinui Doman, south of the road corridor. An informal portion of open space with park like qualities exists on the northern side of Puhinui Road within the Tavistock Street road corridor. This area of land sits opposite the frontage of the tennis courts of Puhinui School.

### 6.2.2.3 Urban development and land use

## Section A

The current land use of this section is predominantly characterised by the low intensity residential typologies which define the broader area to the east of SH1. The Preston Road Reserve open space to the north, and Manukau Sports Bowl to the south broadly bookend the northern portion of residential development which lines Te Irirangi Drive. In addition to these residential land uses, a node of local centre zoning exists at the Dawson Road / Te Irirangi Drive intersection and features a petrol station and other convenience businesses.

A number of overhead structures also characterise part of the existing road corridor, these include the overhead transmission lines that pass over the northern portion of NoR 2 in the context of Belinda Avenue and Whetstone Road and a pedestrian footbridge. Three rows of transmission lines pass through this area which originate from a substation off Highbrook Drive to the north west. A concrete pedestrian over bridge also features in the context of Belinda Avenue and Whetstone Road near the point that the tributary of the Ōtara Creek crosses beneath Te Irirangi Drive. The over bridge provides an important pedestrian connection between residential development either side of the corridor and for those visiting Preston Road Reserve and Rongomai Park to the west.

### **Section B**

The short section of Te Irirangi Drive and Great South Road within this section of NoR 2 features general business zoning. Activities include various commercial business in addition to electricity infrastructure and an and AUT campus along the northern side of Te Irirangi Drive.

The metropolitan centre zoning of Manukau Central features within the NoR and is in the centre of this section. The Hayman Park open space zoning forms a sizable 10ha piece of land, mirroring the core of the centre. In line with the aspirations of the Manukau Framework Plan (2017). Eke Panuku is currently upgrading Hayman Park with the development of a regional playground on the corner of Ronwood Avenue and Davies Avenue as well as a major redevelopment including a stormwater wetland within the park. It is proposed that the stormwater requirements of the Project will be integrated with the proposed upgrade of the existing wetland by Heathy Waters and Eke Panuku.

North of the Manukau Central, general business zoning transitioning to light industrial zoning exists. Outdoor car parking and hardstands heavily feature across the developed areas and in some cases entirely surround commercial premises along Lambie Drive and the northern side of Ronwood Avenue.

### **Section C**

Low intensity residential land uses feature along this section of Lambie Drive and Puhinui Road in the form of predominantly one and two storey dwellings. Industrial buildings are located in this immediate context to the south of Puhinui Road (east of Lambie Drive), set back from the residential buildings that form the main interface. A node of local shops including a hair salon, butcher, food outlet and medical centre, occur opposite the Ranfurly Road / Puhinui Road intersection, forming a community focal point. Puhinui School fronts the southern side of Puhinui Road between Norman Spencer Drive and Grayson Avenue.

## **6.2.2.4 Aesthetic qualities including views and visual coherence**

### **Section A**

The aesthetic qualities of this section of NoR 2 are considered to be closely related to vegetation and open space. The boulevard characteristic of the road corridor is also considered to have aesthetic

qualities through the established visual coherence of the tree planting along its length. Additionally, the open space land use of Preston Road Reserve and Rongomai Park and the associated stream feeding Ōtara Creek hold aesthetic values which are to be considered. Lastly, the vegetated frontage of the Manukau Sports Bowl is considered to have aesthetic qualities in that it visually softens a portion of the road corridor and provides visual relief to the more sparsely vegetated urban environment which surrounds it.

## Section B

The key aesthetic qualities of this section include the vegetated central medians and berms along Te Irirangi Drive, Ronwood Avenue, Davies Avenue and Lambie Drive. Mature native vegetation along Great South Road (in front of the electricity infrastructure), and along the approaches to the Te Irirangi Bridge provide areas of visual relief along the developed road corridors. Ronwood Avenue supports an established street tree regime which provides verticality and contributes to reducing the perceived scale of the taller buildings such as the Renaissance Centre<sup>15</sup> on the corner of Sharkey Street and Ronwood Avenue. Davies Avenue also features various layers of vegetation along the road corridor forming a park like streetscape, particularly in the context of Hayman Park. The Lambie Drive corridor is partly characterised by the large Norfolk pines and Gum trees which provide a vertical element along much of the length of the street.

In addition to the planted street environment, Hayman Park also provides for a key aesthetic quality in this section of NoR 2. The connection of the park to the built components of Manukau Central is observed through the tree planting along Davies Avenue in addition to the visual presence of the mature trees that populate it. The park is a key visual element within views along the southern portion of Lambie Drive, the western end of Ronwood Avenue and along Davies Avenue. The park provides an important informal recreational focal point to the developing city centre of Manukau.

Recent work in relation to the Manukau Station, combined with the Manukau Institute of Technology building, hinged off Hayman Park, forms a legible arrival point signalling the revitalisation of this portion of Manukau Central.

## Section C

Similar to NoR 1, due to the low elevation of the road corridor in relation to the surrounding environment, views to distant landmarks are not attainable. Views beyond the road corridor are very limited and are restricted to vistas along Lambie Drive (toward the north and south), Puhinui Road and local streets at intersections with these roads. The characteristics of the road corridor of Lambie Drive and Puhinui Road are of an established residential community hinged off a key arterial route connecting to SH20B and the Manukau Central. Tree planting, notably the Norfolk Island Pines and loose rhythm of Pohutukawa trees along the road berms provide this section's key aesthetic qualities. Puhinui Domain is an old drainage reserve, located to the south of industrial buildings. It has poor connectivity to Puhinui Road and has degraded aesthetic qualities.

### 6.2.2.5 Natural character

## Section A

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<sup>15</sup> 18 Ronwood Drive

The area considered relevant to Policy 15 of the NZCPS is the tributary of Ōtara Creek, to the south of Rongomai Park. The natural character condition of this area is described below.

The key abiotic attributes of NoR 2, Section 1 include the geology, water catchments and landform, formed predominantly by geological and coastal processes. The geology of the Ōtara Stream is considered to be in the region mesozoic and tertiary non-volcanic rocks. Hydrologically, the catchment is part of a managed stormwater catchment heavily influenced by the surrounding urban development. The stream follows a broadly natural watercourse either side of Te Irirangi Road, although it passes through a pipe beneath the road. With the above in mind, it is considered the abiotic attributes in the vicinity of the project are low-moderate.

A mix of native species exists alongside the margins of the stream however weeds and pest plants also exist along the stream banks as well as within the watercourse such as the pest plant *Egeria* (*Egeria densa*), which was observed during the ecological survey. Shortfin eels were also observed. Poor habitat quality for the Kākahi (freshwater mussel) was considered. Longfin eel and īnanga have been recorded in the area although not observed during the survey. Taking the above into account, it is considered that the abiotic attributes are low-moderate.

In relation to experiential attributes, structures such as the Te Irirangi Drive bridge, associated piping, and other structures such as the pedestrian bridge and nearby residential properties reduce the feeling of wilderness. The stream experiential attributes of the stream, whilst demonstrating some natural qualities, remains clearly influenced by associated human habitation. With the above in mind, the experiential attributes of the stream are considered to be low-moderate.

## Section B

The area of NoR 2 Section B considered is restricted to the Puhinui Creek, engineered stormwater pond located within Hayman Park. The geology includes Mesozoic and tertiary non-volcanic rocks. Lava Rocks are located in the wider area, toward the Ash Hill and Wiri Mountain (south west). Hydrologically, the current condition of the stormwater pond is a result of human modification, with the pond originating from a culvert in the south eastern corner of Hayman Park. With the above considered, the biotic attributes are considered low.

Limited riparian cover exists in relation to the stormwater pond feature, furthermore the ecological survey considers that any fish species would be limited to common, non-threatened species in addition to the habitat not being suitable for long-fin eel. Taking the above into account, it is considered that the abiotic attributes are low.

In relation to experiential attributes the absence of indigenous species or natural hydrological process, in combination with the presence of mown grass areas and developed context results in low experiential natural character attributes.

## Section C

This section considers the stormwater infrastructure within Puhinui Domain, south of Puhinui Road. The geology of the area remains consistent with NoR 2 Section 3, being mesozoic and tertiary non-volcanic rocks. Hydrologically the tributary and stormwater pond are part of the urban network stormwater management. The stream has a naturally straight and uniform channel with areas being concrete lined. Riparian cover and vegetation are not present apart from mown grass. Although Shortfin eels were observed within the stream, the habitat of the stream is considered to be poor. In relation to experiential values, the presence of the stream and stormwater pond within an urbanised

environment reduces the experiential attributes. Furthermore, the absence of indigenous vegetation, and poor habitat quality also impact on the experiential attributes and with the above in mind, it is considered the natural characteristics of the stream, that is the biotic, abiotic and experiential attributes are considered low.

### 6.2.2.6 Viewing audiences

#### Section A

The proposed designation boundary remains clearly associated with the existing Te Irirangi Drive corridor. The widening of this corridor will however necessitate the removal of some properties within this extent of NoR 2 that primarily form the road interface. The removal of buildings will form a newly developed edge that fronts on to the upgraded road corridor. The resulting viewing audiences will be the road users of Te Irirangi Drive and those approaching the road from the local streets that intersect it. Viewing audiences will also include the residents, visitors to the local shops, in addition to visitors to the Manukau Sports Bowl, Rongomai Park and Orlando Reserve.



**Figure 15: View from Whetstone Road footbridge towards the east showing the typical single house residential environment that adjoins the eastern side of Te Irirangi Drive at this location**



Figure 16: View from Whetstone Road footbridge towards Rongomai Park



Figure 17: Te Irirangi Drive looking north towards Rongomai Park. The alignment will cut into the vegetation on the right that currently provides a buffer between the residents and Te Irirangi Drive



Figure 18: corner of Te Irirangi Drive and Hollyford Drive (Orlando Reserve)



**Figure 19: Te Irirangi Drive frontage to the Manukau Sports Bowl densely vegetated with a mixture of exotic and native trees**



**Figure 20: Manukau Sports Bowl**



**Figure 21: Te Irirangi Drive frontage to the Manukau Sports Bowl densely vegetated with a mixture of exotic and native trees**

## Section B

The viewing audiences of this section of NoR 2 vary along its length and are closely related to the associated land uses it passes through, e.g. visitors to commercial premises/ shops within Manukau Central. Road users include pedestrians and cyclists who form the transitory viewing audiences along the corridor.

Within Manukau Central, visitors to key social infrastructure including the Manukau Station and Hayman Park will have the opportunity to view sections of the Project. Commercial businesses along Ronwood Avenue would obtain direct views of the Project along the Ronwood Avenue section. Visitors to the commercial business along Lambie Drive will also obtain short term views as they enter and exit the buildings.



Figure 22: Ronwood Avenue adjacent to Westfield's Cinema carparking building



Figure 23: Western end of Ronwood Avenue with high rise apartments on the corner of Osterley Way and Hayman Park in the distance



Figure 24: Corner of Ronwood Avenue and Davies Avenue. Manukau City Centre on the left and Hayman Park on the right



**Figure 25: Davies Avenue with Manukau Institute of Technology (MIT) in the distance and Hayman Park on the right**



**Figure 26: Lambie Drive north bound, north of Cavendish Drive**

### **Section C**

The proposed designation boundary remains broadly associated to the existing Puhinui Road Corridor, although widening of this corridor will necessitate the removal of some properties that primarily form the interface. The removal of buildings will form a new developed edge that fronts on to the upgraded road corridor. The resulting viewing audiences will be the road users of Puhinui Road and those approaching the road from the local streets that intersect. Viewing audiences will also include the residents, visitors to the local shops and visitors to Puhinui School which line the road corridor.



Figure 27: Puhinui Road East of Ranfurly Road



Figure 28: Ranfurly Road- Puhinui Road intersection, local shops

### 6.3 Assessment of construction effects

The following sections provide an assessment of construction effects on landscape characteristics and values for NoR 2.

#### Construction Areas

The following construction activities apply to all sections of NoR 2 areas and include:

- Construction compounds, laydowns;
- Construction machinery; and
- Earthworks and material storage.

Construction of the BRT corridor and high quality walking and cycling facilities, stormwater treatment and removal of existing buildings and development.

Specific landscape effects related to activities in Section A involve the removal of the pedestrian footbridges across Te Iirangi Drive.

Specific landscape effects related to activities in Section B includes the construction of the stormwater pond / wetland in Hayman Park.

Specific landscape effects related to activities in Section C includes the construction of stormwater treatment devices within Puhinui Domain and east of Plunket Ave and the construction of a BRT bridge structure along Puhinui Road, directly connecting the BRT corridor to the Puhinui Train Station.

Night works, where required, will in places introduce artificial light into an existing urban environment. Landscape effects related to construction activities across the NoR will be associated with the widening of the following existing roads:

- Te Irirangi Drive;
- Great South Road;
- Ronwood Ave;
- Davies Ave;
- Manukau Station Road; and
- Lambie Drive.

### Vegetation Clearance

Vegetation clearance for the construction of the Project across all sections of NoR 2 include trees and shrubs (including some indigenous trees) within the road corridors, private properties (e.g. the road frontage of the Manukau Sports Bowl) and public open spaces. Grass berms and lawn areas along the corridor will also be removed.

## 6.3.1 Effects on landscape characteristics and values

The potential construction effects on the landscape arise from the physical changes to the receiving environment which may change its characteristics and values. When considering the physical change during construction of NoR 2, changes to the landform, hydrology, vegetation, open space, urban development, land use in addition to aesthetic qualities and natural character values are understood. The presence of elements and activities associated with construction (i.e. construction machinery, lay down areas, stockpiles etc.) can also temporarily change the values and characteristics of an area.

### 6.3.1.1 Landform and hydrology

#### Section A

As an urbanised landscape, the topographical and hydrological patterns are either modified or influenced by established human activity. The modified receiving environment does not feature any notable topographical features however it is acknowledged that a tributary of Ōtara Creek exists within the NoR, crossing beneath Te Irirangi Drive via a pipe.

Change to the landform will remain related to grading and associated earthworks which will assist in preparing the widened road corridor. This will undoubtedly result in localised earthworks in the vicinity of the tributary of Ōtara Creek, although works will be limited to discreet sections in the proximity of existing modified embankments relating to the historical formation of Te Irirangi Drive. With the above considered, it is determined that due to the relatively low level of the affected landscape values, the effects during construction are considered to be **low** adverse.

#### Section B

Topographically, there are no landform features of note. The most notable differentiation from the easy contour of the urban landform is Hayman Park, although noting that the original landform as altered when the park was established. The urban environment also does not include notable hydrological features although it is noted that the Puhinui Stream is located to the west of the designation boundary.

Change to the landform will largely be restricted to the road corridors and within interfaces with neighbouring, primarily commercial, properties and With the above considered, it is determined that the effects during construction across NoR 2 Section B are **very low** adverse.

### Section C

There are no landform features of note within this section of NoR 2 and it is acknowledged that the modified nature of the gentle 20mRL gradient along the length of the corridor and immediate vicinity will undergo grading to established levels for the widened road.

Hydrologically, the corridor is also considered to be of low value, it is noted however that works will be required within the tributary of the Puhinui Stream in addition to a stormwater pond within Puhinui Domain. It is considered these areas are modified environments such as the alignment of the stream and embankments in addition to the pond, considered to be constructed<sup>16</sup> With the above considered, it is determined that the effects during construction across NoR 2 Section C are **very low** adverse.

#### 6.3.1.2 Vegetation patterns and open space

### Section A

A total 160 protected trees have been identified across NoR 2 Section A. The removal of large areas of vegetation along the Te Irirangi Drive frontage of the Manukau Sports Bowl will result in adverse effects in relation to these specific landscape values. Whilst no scheduled trees are located within this area, collectively the grouping of trees is considered locally noteworthy and contribute to a distinctive vegetated green buffer which is uncharacteristic (and consequentially unique) in the context of the road corridor. With this in consideration, the removal of this vegetation, prior to appropriate mitigation planting (considered in the operation effects section), will result in **moderate** adverse effects.

The removal of the increasingly recognisable boulevard of Washingtonia Palms will result in effects considered **low-moderate**, noting that this vegetation collectively contributes to an established pattern of vegetation along the central median of the Te Irirangi Drive road corridor.

Some vegetation is likely to be removed in relation to the stream crossing of a tributary of Ōtara Creek (within Rongomai Park and Medvale Avenue Reserve). This vegetation includes typical native riparian vegetation (e.g. Kanuka and māhoe however, this is not identified as a Significant Ecological Area ('SEA') in the AUP:OP. Limited removal of vegetation within this area is considered to have **low-moderate** adverse effects. Although this includes native riparian planting, the extent of removal is well contained, includes vegetation less than 20 years old.

Vegetation is also proposed to be removed within Orlando reserve which includes a mix of native amenity planting. Effects in relation to this vegetation removal and effects on the Open Space is considered to be **low** adverse.

### Section B

The Project will require the removal of 209 protected trees across this section of NoR 2. Notably the Project will require the removal of a number of mature / semi-mature trees through the corridor route. Indigenous vegetation likely established as part of the Te Irirangi Drive bridge embankments will be removed along the eastern portion of the NoR section. Some Washingtonia Palms and Pohutukawa's will also be removed near the BNZ Building on Great South Road, noting that the Pohutukawa may be

<sup>16</sup> A study of aerial photography undertaken in 1939 and 1958 does not illustrate a pond in this location

able to be transplanted (pending agreement with the Project arborist). Street tree planting along Ronwood Ave will also be impacted and this includes some locally distinctive gum trees in addition to Puriri, Magnolia and Norfolk Island Pines and will result in the removal of the avenue characteristics of this road corridor. Some semi-mature vegetation along Davies Road will also be removed (and potentially relocated). Recently established Pohutukawa along Manukau Station Road will require relocation or removal. Street tree planting along Lambie Drive consisting of the established street tree species of the area being Norfolk Island Pines, Puriri and gums.

The removal of these trees, although not considered notable in the AUP:OP, will result in **moderate** adverse effects particularly when considering that at the time of removal, a number of these trees may be mature native specimens, (noting that by the time they are to be removed in the future they may be semi-mature).

### Section C

The Project will require the removal of 64 protected trees across NoR 2 Section C. Notably the Project will require the removal of a number of mature/ semi-mature trees through the corridor route including Pohutukawa which often feature along the berms of the road corridor. Norfolk Island Pines which feature along the northern portion of Lambie Drive (and beyond, in NoR 2 Section B), will also be impacted by the Project.

The removal of these trees during the construction stages of the Project, although not considered notable in the AUP:OP, will result in **moderate** adverse effects particularly when considering that at the time of removal, a number of these trees may be mature native specimens in addition to the indigenous nature of much of these trees.

In terms of open space, that is effects on Puhinui Domain, it is considered effects will be **very low** as the value of the space at present is considered limited due to access and amenity.

#### 6.3.1.3 Urban development and land use

##### Section A

The urban development and land use patterns for which the Project will be introduced is a developed, primarily residential environment. Construction activities would impact this established land use, albeit temporarily, however it is considered that works within these areas can be readily absorbed and remain associated with transport infrastructure upgrades, particularly given works remains primarily within the road corridor.

This change would be limited to the existing edges of these land uses, and the removal of residential properties would reveal a new 'edge' of development during construction. These revealed properties are similar in their character, visual composition, bulk, scale and land use, as those that would be removed. With the above in mind, it is considered that the level of effect during construction would be **low** adverse.

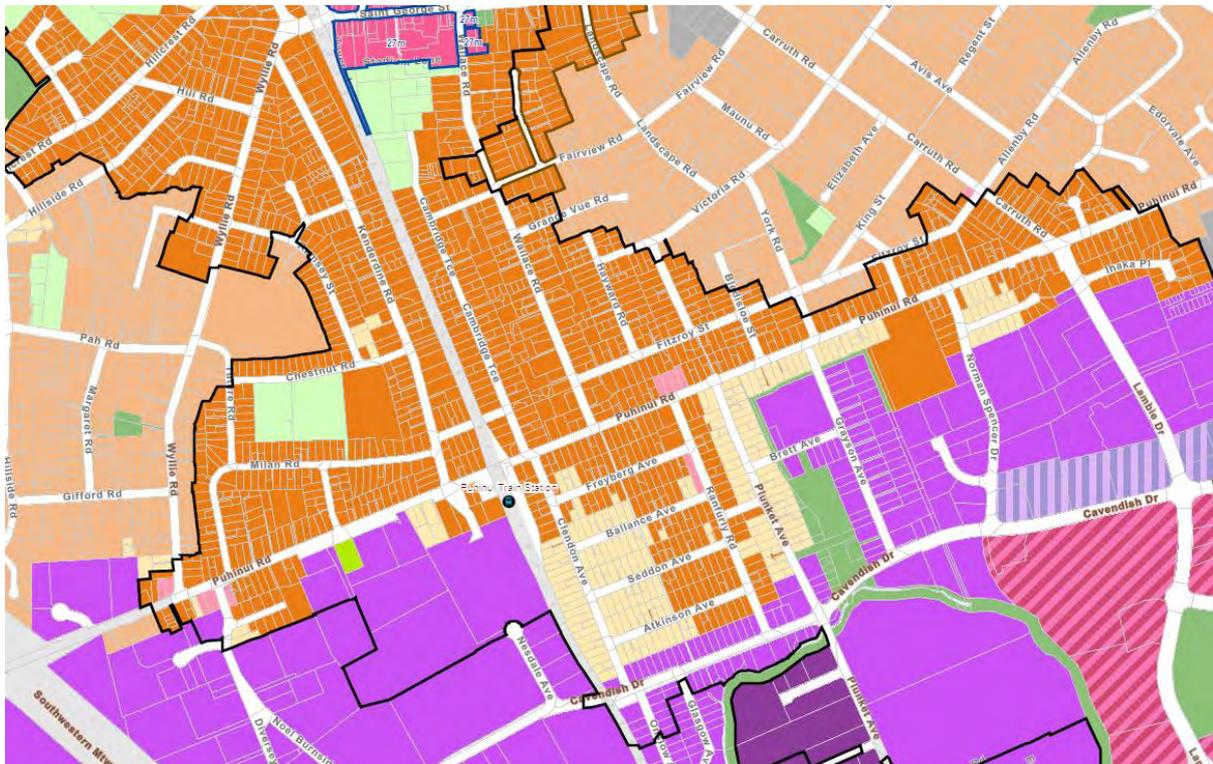
##### Section B

The urban development and land use patterns in which the Project will be developed are primarily a commercial urban environment, focused around the business district of Manukau Central. It is considered that works in the area remain associated with the transport infrastructure upgrades and signalise the modernisation and connectivity of the Manukau Central with the surrounding context. In

this respect, it is considered the urbanised land use will readily absorb the proposed upgrade works and as such any level of effect during construction would be **very low** adverse.

### Section C

The Project will be constructed within a predominantly residential environment, although it is noted local shops exist along the northern side of Puhinui Road near Ranfurly Road. As a road corridor, both Puhinui Road and Lambie drive are well recognised as important connector roads to the Airport, Manukau Central and east/ west connections across south Auckland. The importance of this route is somewhat ‘down tuned’ due to the low rise residential development along the road corridor, however recent upgrades to facilitate a priority lane for buses signalises the importance of this corridor. Moreover, Puhinui Road is positioned in the identified walkable catchment and NPS-UD zoning in Auckland Council’s Plan Change 78 map viewer, 18 August 2022 as illustrated below.



**Figure 29: Black line indicating identified Walkable Catchment. Light orange area represents medium density residential areas, dark orange represents terraced housing and apartment areas Source, Auckland Council, Plan Change 78 map viewer, 18 August 2022**

Aircraft noise overlays follow Puhinui Road with the Moderate Aircraft Noise Area (**MANA**) overlaying land on the northern side of Puhinui Road and the High Aircraft Noise Area (**HANA**) on the southern side of Puhinui Road. As set out in the AUP:OP, the HANA overlay prohibits new residential development.

With the above in mind, it is considered that the construction of the Project is an appropriate modification to land use and demonstrates the modernisation and connectivity of the urbanised areas with the surrounding context. In this respect, it is considered the urbanised land use will readily absorb the proposed upgrade works and as such any level of effect during construction would be **low** adverse.

### 6.3.1.4 Aesthetic qualities including views and visual coherence

#### Section A

The affected aesthetic qualities of this section during construction particularly relate to vegetation and open space. The removal of / impact of the vegetated block associated with the Manukau Sport Bowl, will result in an adverse effect considered to be moderate-high. It is considered that this grouping of vegetation contains aesthetic qualities that will be noteworthy to both residents and those passing through the area. This established vegetation provides a clear landmark attribute and therefore effects in relation to removal of this vegetation are considered to **moderate-high** adverse.

The removal of the Washingtonia Palms, representative of the boulevard characteristic of Te Irirangi Drive will also result in adverse effects considered **low-moderate**, although noting that these trees are positioned directly within the footprint of the proposed BRT corridor. Removal of vegetation within the tributary of the Ōtara Creek will result in adverse effects and further erode the visual coherence of this waterway. Notwithstanding this, the stream does not contain significant areas of vegetation. The removal of a limited area of vegetation during construction will result in adverse effects considered **low**, however such effects will be mitigated through revegetation planting which will establish to a comparable level of aesthetic qualities.

#### Section B

The affected aesthetic qualities of this section during construction particularly relate to vegetation patterns along the road corridor. The impact on vegetation along the road corridor will remove this aesthetic quality which will be particularly noticeable alongside the built up urban environment particularly alongside large buildings. With the above in mind, it is considered the effects on the aesthetic qualities will be **moderate** adverse during construction.

#### Section C

The affected aesthetic qualities of this section during construction are limited to the removal of vegetation along the road corridor. Whilst the tree planting appears at times sporadic and secondary to the built environment, during construction, semimature Pohutukawa for example will be larger in scale and further contribute to breaking down the built form of the area. With the above in mind, it is considered that the adverse effects on the aesthetic qualities during construction will be **moderate**.

### 6.3.1.5 Natural character

#### Section A

During construction, earthworks and vegetation removal will facilitate some adverse effects to the biotic, abiotic and experiential attributes. This change will however occur within a discreet area of the tributary and any effects will be broadly counted by the modified and managed nature of the environment. Overall, effects during construction are anticipated to be **low** adverse.

#### Section B

There will be no works within areas considered to relate to natural character within Section B.

#### Section C

Effects during construction will result in change to the tributary and stormwater pond, south of Puhinui Road. The stream alignment appears to be modified through its unnatural alignment and concrete edges and combined with the low degree of natural qualities present in relation to the stormwater pond, any effects to these qualities during construction are considered to be **low** adverse.

### 6.3.1.6 Visual amenity effects – Section A

The temporary visual amenity effects associated with NoR 2 Section A, would arise from the presence of construction activities, elements and structures during the course of the Project. These temporary effects would affect a range of viewing audiences which are located within, adjacent to, and in the wider vicinity of the site.

#### Residential Viewing Audiences

In relation to residential viewing audiences, those that adjoin the Te Irirangi Drive road corridor will experience the greatest visual effects. In this respect, the change will occur in the road corridor which directly abuts their properties, or properties that are within the proposed designation boundary. For residents that already meet the road corridor, the change during construction, whilst of relatively low amenity value (due to the presence of construction machinery), will be a more expected activity due to their established outlook. Future intensification of the corridor, realised through the application of the NPS:UD may provide greater numbers of viewing audiences and additionally the potential to view the Project at a more elevated position (i.e. 6 storeys).

For those residents that now create the new edge of development, construction activities within an area previously occupied by housing will have greater effects. Notwithstanding this however, works will occur within the visible context of the established road corridor, and for this reason it is considered the temporary effects on residents will be no more than **low-moderate** adverse.

#### Travelling Viewing Audiences

Viewing audiences located along the road corridors and footpaths of the receiving environment will observe construction activities within or in the immediate context of the existing road corridor environment. The presence of construction machinery within the established road corridor will also be a familiar sight to that observed across Auckland where transport infrastructure upgrades are a common sight. Granted that the extent of works along the corridor may be of a greater scale or size to that typically observed, the works will be clearly associated with upgrading of a significant arterial road. Combined with the relatively short duration of the views experienced, it is determined that the adverse effects during construction would be no more than **low** adverse.

#### Occupational Viewing Audiences and Visitors to Business Premises and Redoubt North School.

These viewing audiences include those at local shops at the intersection of Te Irirangi Drive and Dawson Road, such as the Z Service Station and Liquor Legends<sup>17</sup>. Views are also considered for those visiting the Manukau Sports Bowl and Redoubt North School. Visual change during the construction of NoR 2 Section A would differ for each of these viewing audiences, due to the location and nature of their business and school premises. For example, activities may often occur on the

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<sup>17</sup> 1/186 Te Irirangi Drive

forecourt of the Z Service Station and on the school field or Redoubt North School and activities occur beyond the interface with the road at Manukau Sports Bowl and Liquor Legends.

Notwithstanding this, for the majority of businesses and the school, the temporary construction effects associated with the Project would be observed and acknowledged as an infrastructure project, primarily located within the existing the road corridor. Works outside the road corridor will remain clearly attributed to the works within Te Irirangi Drive. Due to the lower sensitivity to change that these audiences hold (i.e. it is considered the activities these viewing audiences are engaged within (e.g. filling up a car), do not result in viewing audiences being highly sensitive), together with the works clearly relating to upgrades in the road corridor, any construction activity relating to the Project is likely to result in adverse effects no more than **low**.

### **Recreational Viewing Audiences**

These viewing audiences are limited to the south eastern portion of Rongomai Park and Orlando Reserve (located near the Boundary Road intersection). Recreational viewing audiences in the south eastern portion of Rongomai Park would observe the change consisting of the widening of the road corridor, the proposed wrapping of the cycleway and pedestrian footpath into the park (to navigate around an existing transmission tower), and the removal of the pedestrian overbridge which bridges Te Irirangi Drive.

Visitors to the Orlando Reserve would typically be associated with those viewing audiences travelling along the footpath. The space between the road corridor and neighbouring residential development provides for very limited recreational opportunities. For both sets of viewing audiences, it is considered works will remain clearly associated with the upgrading of the road corridor. Viewing audiences within Orlando Reserve will effectively be amalgamated with those viewing audiences now obtaining access along the realigned footpath on the eastern side of Te Irirangi Drive. With the above considered, in that viewing audiences are within the immediate context of a road corridor (in which they are influenced by), and that works would be associated with transport infrastructure upgrades, it is considered any adverse effects during construction would be **low** adverse.

#### **6.3.1.7 Visual amenity effects – Section B**

The temporary visual amenity effects associated with NoR 2 Section B, would arise from the presence of construction activities, elements and structures during the course of the Project. These temporary effects would affect a range of viewing audiences which are located within, adjacent to, and in the wider vicinity of the site.

### **Residential Viewing Audiences**

Due to the location of this section, there are currently limited residential viewing audiences although this does not discount further residential development within the city centre. At present, the Renaissance Centre forms the main residential viewing audiences of this section, apart from those who obtain glimpsed, partial views from along the eastern side of SH1 (e.g. Jontue Place). For those viewing audiences at the Renaissance Centre, the lower level apartments will attain the greatest views of the street (notably Ronwood Avenue), and subsequently observe the greatest degree of change. Those in mid to upper levels may have the opportunity to view the street however views are more focused beyond the immediate street environment that features below.

For both groups of residential viewing audiences, it is considered that any views of the works from these locations would be of construction machinery within the busy road environment. For those along

the eastern side of SH1, views would form a small portion of their overall view. As such any effects would be **very low** adverse. Residents in the lower levels of the Renaissance Centre would obtain temporary adverse effects considered **low-moderate**.

### **Travelling Viewing Audiences**

Viewing audiences located along the road corridors and footpaths of this section will observe construction activities within or in the immediate context of the existing road corridor environment. In all cases, the presence of construction machinery within the established road corridor will also be a familiar activity, expected from time to time along road corridors. It is recognised that the nature of works along the corridor may be of a larger extent to that typically observed however the works will be clearly associated with upgrading significant infrastructure in the vicinity of the Manukau Central. With the above in mind, combined with the relatively short duration of the views experienced, it is determined that the adverse effects during construction would be no more than **low**.

### **Occupational Viewing Audiences and Visitors to Business Premises**

These viewing audiences include a wide range of business along the corridor route. Most of these businesses are internalised, i.e. apart from car parking, activities take place indoors, with little visual connection to the outdoor environment. Food and beverage facilities are also limited although it is noted that these facilities such as MELBA Manukau, provide views outside and other such activities could conceivably be established at the point of this Project's construction. In this respect, visual change during the construction of NoR 2 Section B would differ for each of these viewing audiences, due to the location and nature of their business.

Notwithstanding this, for the temporary construction effects brought about by the Project would be observed and acknowledged as an infrastructure Project, primarily located within the existing the road corridor. Combined with these viewing audiences' lower sensitivity to the proposed change, it is considered any adverse effects would be no more than **low**.

### **Recreational Viewing Audiences**

These viewing audiences are limited to Hayman Park, however this park is the key area of open space within the city centre (not to discount the civic space located at the intersection of Osterley Way and Putney Way in the core of the City Centre<sup>18</sup>). Works will be focused along the existing road corridors of Ronwood Avenue and Davies Drive. Works will also be visible within NoR 2 Section C. However as consideration will be located within the road corridors and that these viewing audiences would experience views for a relatively short duration, any effects during construction will be **low**.

#### **6.3.1.8 Visual amenity effects – Section C**

The temporary visual amenity effects associated with NoR 2 Section C, would arise from the presence of construction activities, elements and structures, particularly the Puhinui Bridge), during the course of the Project. These temporary effects would affect a range of viewing audiences which are located within, adjacent to, and in the wider vicinity of the site.

### **Residential Viewing Audiences**

In relation to residential viewing audiences, those that adjoin the Lambie Drive and Puhinui Road corridor will experience the greatest visual effects. In particular those residential viewing audiences in

<sup>18</sup> Views of the project from within this civic space are not anticipated to be obtained.

the vicinity of the proposed Puhinui Road Bridge. For residents that already meet the road corridor east of the Puhinui Bridge abutments, the change during construction will be a more expected activity due to their established outlook of a road environment. Any effects on these viewing audiences during construction are anticipated to be **low-moderate** adverse.

For those that are located opposite the proposed Puhinui Bridge, the change, although largely permitted in the zone, will be of a size and scale that may not be fully anticipated. Residential viewing audiences near to these areas would experience views of the overhead structure being built, including any abutment walls, columns, and the underside of the bridge. Whilst the bridge will appear clearly associated with the road corridor environment, the height and scale of construction activities along with the size of the bridge will not directly relate to the established scale of the road environment. For these reasons and noting that residential viewing audiences would have fixed views towards the Project, it is considered that adverse effects during construction would be **high** for residents that adjoin this portion of the road corridor, in particular the viewing audience on the northern side of Puhinui Road that are located directly adjacent to the bridge. Properties to the south are within the designation.

Viewing audiences further afield (i.e. at least one property back from the main interface,) would be more visually removed from the works, however, due to the height and scale of the activities, adverse effects will occur, particularly due to the receiving viewing audiences being residential nature. During construction, partial views of the Project may be visible either beyond the roof forms of established neighbouring properties, or across vacated properties that have been removed as part of the Projects land take strategy. With this considered, it is anticipated that residential viewing audiences set back from the road corridor will obtain **moderate** adverse effects during construction.

### **Travelling Viewing Audiences**

Viewing audiences located along the road corridors and footpaths of this section will observe construction activities within or in the immediate context of the existing road corridor environment. Moreover, the broader context, beyond the confines of the road corridor, the fundamental characteristics of this environment would remain intact. Additionally, these viewing audiences would be transient in nature and experience this change for a short duration of time. With the above in mind, it is considered that the temporary adverse visual effects on these viewing audiences would be **low-moderate**.

### **Occupational Viewing Audiences and Visitors to Business Premises including Puhinui School**

Occupational viewing audiences are limited to those associated with Puhinui School and the local shops positioned on the northern side of the road near the Ranfurly Road intersection. Shops here include a pawnbroker, butcher, convenience store, barber, bakery, two takeaway shops and a doctors surgery. Viewing audiences at Puhinui School will views the road corridor and associated works from the school play court. For both sets of viewing audiences, direct views to the road corridor will not include the proposed bridge abutments. It is anticipated that the Project would be observed and acknowledged as an infrastructure Project, primarily located within the existing the road corridor. Combined with these viewing audiences' lower sensitivity to the proposed change, it is considered any adverse effects would be no more than **low**.

### **Recreational Viewing Audiences**

During construction, there will be works alongside the tributary to Puhinui Stream and in relation to the stormwater reserve. Viewing audiences are considered to be very limited (constrained due to access),

and the park does not contain any key facilities or amenity features. With the above in mind, it is considered that during construction effects on viewing audiences will be **very low**.

### 6.3.2 Summary of construction effects on landscape character and values

The table below provides a summary of the construction effects on landscape character and values for Section A, Section B and Section C of NoR 2.

**Table 8: Summary of construction effects on landscape character and values for NoR 2**

Effect		Assessment – construction		
		Section A	Section B	Section C
<b>Natural Character Effects</b>				
Abiotic		Low		Low
Biotic		Low		Low
Experiential		Low		Low
<b>Landscape Effects</b>				
Landform		Low	Very Low	Very Low
Hydrology		Low	Very Low	Very Low
Vegetation	-	-	Moderate	Moderate
	Manukau Sports Bowl	Moderate		
	Washingtonia Palms	Low-Moderate		
	Ōtara Creek	Low-Moderate		
	Orlando Reserve	Low		
Open Space		Low	N/A	Very Low
Urban Development and Landuse		Low	Very Low	Low
Aesthetic Qualities	-	-	Moderate	Moderate
	Manukau Sports Bowl Vegetation	Moderate-High		
	Washingtonia Palms	Low-Moderate		
	Ōtara Creek	Low		
<b>Visual Amenity Effects</b>				
Residential	-	Low-Moderate	Low-Moderate	-
	East of proposed BRT bridge			Low-Moderate
	Opposite BRT bridge			High
	Setback BRT bridge			Moderate
Travelling		Low	Low	Low-Moderate
Occupational		Low	Low	Low
Recreational		Low	Low	Very Low

## 6.4 Assessment of operational effects

### 6.4.1 Summary of operational activities within the receiving environment

As set out in Section 7.1, the following points summarise the key changes to the receiving environment as a result of the Project:

- Realignment and widening of existing road corridors including Te Irirangi Drive, Great South Road, Ronwood Avenue, Davies Avenue, Manukau Station Road, Lambie Drive and Puhinui Road;
- Centre-running BRT corridor along Te Irirangi Drive, Great South Road, Ronwood Avenue, Manukau Station Road, Lambie Drive, and Puhinui Road;
- West-running BRT corridor along Davies Avenue, edge of Hayman Park;
- High quality walking and cycling facilities;
- Two lane vehicular carriageway in each direction with the exception of Davies Avenue (one way single lane) and Puhinui Road (one lane in each direction);
- Berms that can accommodate tree and shrub planting between the carriageway and walking and cycling facilities;
- Five BRT stations (Dawson Road Station, Diorella Drive Station, Ronwood Avenue Station, Manukau Station, Lambie Drive Station); and
- Other landscaping – to be confirmed – i.e. along road berms.

The following assessment also considers mitigation measures (as recommended in Section 11), as having been fully implemented. This includes careful consideration and design of structures such as BRT stations, outfalls, stormwater treatment, in addition to the appropriate level of planting to mitigate the removal of vegetation (including trees) and provision of a high-quality amenity environment. The following assessment considers the residual effects once vegetation has become fully established (i.e. 5 years growth), following planting and any plant and tree replacement (in the event of plant failure).

### 6.4.2 Effects on landscape characteristics and values

The potential effects on the landscape arise from the permanent physical changes to the receiving environment which may change its characteristics and values. When considering the permanent physical change, changes to the landform, hydrology, vegetation, open space, urban development, land uses in addition to aesthetic qualities and natural character are understood. The change in these attributes, in addition to the presence of permanent elements and structures will also alter the character of an area.

#### 6.4.2.1 Landform and hydrology

##### Section A

Grading and other such earthworks to accommodate the new road levels and surfaces will result in permanent changes to the landform characteristics of this section of NoR 2. It is considered that these effects are sufficiently covered in the construction effects section of this assessment (Section 7.3). There would not be further change to the landform during operation of the Project. In determining the effect rating, it is considered that the effects would remain consistent with those anticipated under the construction phases. It is therefore determined that the effects on the landform during operation would be **low** adverse.

Permanent effects to the hydrological values will also have been undertaken in the construction phase, impacting the tributary of Ōtara Creek near Rongomai Park. Stormwater ponds located along the corridor will occur outside of the established stream corridors (one is proposed alongside the corridor near Belinda Avenue and will assist in managing stormwater run-off before discharging into the waterways. Overall, it is considered that **very low** effects will occur on the hydrological values of the receiving environment.

### Section B

The permanent landform effects will be in relation to grading and other such earthworks to accommodate the new road levels and surfaces will result in permanent changes to the landform characteristics of this section of NoR 2. It is considered that these effects are sufficiently covered in the construction effects section of this assessment (Section 7.3). There would not be further change to the landform during operation of the Project. In determining the effect rating, it is considered that the effects would remain consistent with those anticipated under the construction phases. It is therefore determined that the effects on the landform during operation would be **low** adverse.

Permanent effects to the hydrological values will also have been undertaken in the construction phase. Overall, it is considered any permanent effects to the hydrological values will be **very low** adverse.

### Section C

As established in the baseline study, the topographical characteristics of this section of the NoR do not contain any notable features. The permanent effects will as a result of grading to accommodate the new road levels and surfaces in addition to excavations to enable the proposed Puhinui Bridge. In determining the effect rating, it is considered that the effects would remain consistent with those anticipated under the construction phases. It is therefore determined that the effects on the landform during operation would be **very low** adverse.

Permanent effects to the hydrological values will also have been undertaken in the construction phase, impacting the hydrological values of a modified tributary of Puhinui Stream and a man-made stormwater pond. As the hydrological values are already modified through historical earthworks. Overall, it is considered any permanent effects to the hydrological values will be **low** beneficial.

## 6.4.2.2 Vegetation patterns and open space

### Section A

Once this portion of NoR 2 is operational, it is anticipated that a substantial number of trees would have been established as part of NoR 2 works to mitigate proposed tree and vegetation removal. These trees would notably be native species and will in time grow to become well suited to and established within the existing urban environment. It is proposed that this will include a combination of street trees set out in a formalised pattern within the road corridor, in addition to tree groups within the proposed designation boundary. It is considered that initially, following construction, the adverse effects on the vegetation values would be low, as the trees would not be of a height and stature which was removed. Once established, these trees will provide a greater contribution to the area and provide greater presence through urban ngahere and the establishment of placemaking identity. Therefore, it is considered that once fully mature these trees would contribute to the vegetated cover of NoR 2 resulting in **very low** adverse effects.

In considering effects on open space, any residual effects would be **very low** adverse, noting that Orlando Reserve, whilst already small in size, will have been further reduced due to the widening of the road corridor.

### Section B

Following tree and vegetation removal, mitigation planting will have been established as part of the NoR 2 works. A focus on native tree species would result in a predominantly native tree palette across the NoR 2 section and result in a shift in the overall vegetation value identity, more suited to the natural values of Tāmaki Makaurau. Trees would be established within the street corridor and it is considered that initially, following construction, the adverse effects on the vegetation values would be **low**, as the trees would not be of a height and stature which was removed. Once established, these trees will provide a greater contribution to the area and provide greater presence through the establishment of placemaking identity. Therefore, it is considered that once fully mature these trees would contribute to the vegetated cover of NoR 2 resulting in **very low** beneficial effects.

### Section C

Tree and shrub planting would have been established as part of the construction of the Project and will include a predominantly native planting palette of large scale trees. For much of the Puhinui Road corridor, the replacement planting will remain in keeping with the look and feel of indigenous specimen trees (i.e. Pohutukawa). Vegetation and trees along the northern portion of Lambie Drive would be replaced with specimens better suited to the urbanised environment of Tāmaki Makaurau, i.e. in that they will reflect the indigenous vegetation values of the region. This would result in a shift of the vegetation patterns and characteristics in relation to this portion of the NoR in particular. Notwithstanding this, it is considered the amenity and biodiversity and cultural values, together with the recast identity of the road corridor will result in **very low** beneficial effects once the trees have become fully established (i.e. within 5 years).

In considering effects on open space, the opportunity to improve connectivity with Puhinui Road and upgrade stormwater facilities and enhance the park, any residual effects would be **low** beneficial due to the change to Puhinui Domain.

#### 6.4.2.3 Urban development and land use

### Section A

The Project is focused along the developed road corridors of the area and supports a variety of land uses, including residential, commercial and recreational open space. These established land uses will remain along the interface of the Project and continue to represent the urban patterns of the area, although noting that Orlando Reserve will effectively be removed due to the extent of the required road widening.

The increased prominence of Te Irirangi Drive will signalise the importance of the arterial route and the deliberate move to invest into improving the connectivity to the wider area. Future development realised through the NPS:UD, notably occurring around the proposed BRT stations along Te Irirangi Drive will reinforce these objectives and contribute to urban intensification. Overall, it is considered that any residual effects will be **very low** adverse.

## Section B

These established commercial and open space land uses will remain along the interface of the Project and continue to represent the urban patterns of the area. Future development, particularly residential development within Manukau Central will support the newly established stations and will reinforce these objectives and contribute to and reflect a compact urban form.

The provision of the busway along Davies Road will in some way adversely impacted the connectivity of Hayman Park open space to the city centre core however it is considered that appropriate landscaping and urban design techniques including traffic calming will ensure these effects are appropriately managed. Overall, it is considered the effects on the urban development and land use characteristics and values will be **very low** adverse.

## Section C

These established predominantly land uses will remain along the interface of the Project and continue to represent the urban patterns of the area. It is considered the Project which involves the modernisation of public transport along the existing road corridor will be an appropriate modification to land use. It is therefore considered the urbanised land use will readily absorb the Project and as such any level of effect following completion would be **very low** adverse.

### 6.4.2.4 Aesthetic qualities including views and visual coherence

#### Section A

The removal of the recognisable pattern of Washingtonia Palms will remain an adverse effect during operation of the Project. Notwithstanding, this provision has been made in the design of the Project in which a 2 m (minimum) landscaped berm is provided for either side of the bus way, which will mean that at a minimum, two rows of trees will occur along the Te Irirangi Drive corridor. Landscape planting (including trees is also proposed on residual land, that is not suitable for urban reintegration, along the road corridor) and together, with a coordinated planting palette, a boulevard like characteristic will be reinstated. As previously considered, the provision of a native tree palette will move to better relate the characteristics of the road corridor to Tāmaki Makaurau's unique identity.

New areas of indigenous planting will be established along the corridor, in locations where redevelopment of vacated sites are not feasible or practicable, this will go some way of mitigating the removal of vegetation in the road frontage of the Manukau Sports Bowl land. Further opportunities around stream margins will also be established in which indigenous riparian planting will be considered.

Views of neighbouring open spaces and to vegetated sections of the neighbouring tributary of Ōtara Creek will be reinstated following the removal of construction machinery in addition to any interruptions to views to more distant landscape features.

With the above considered, it is determined that any residual effects on the aesthetic qualities and visual coherence will be **low** adverse.

#### Section B

Following construction and once the Project is in operation, vegetation patterns along the road corridors will have been established, and although the characteristics and aesthetic values may have been affected this does not necessarily mean that effects are considered adverse. As expressed, the

move to introducing a predominantly native planting palette will better relate to the local area and foster a more meaningful identity. The widening of road corridors to provide for the busway will have the potential to reduce the aesthetic values of the streetscape however in time, with the provision of tree and landscape planting it is considered an updated transport network will signalise the modernisation of the city centre and immediate environs. The widening of the Davies Road corridor may reduce the legibility of the Hayman Park open space from the City Centre. Street tree planting along Davies Road and techniques to effectively draw the open space landscape across the road corridor will assist in reducing these effects and retain important aesthetic qualities associated with public open space.

Therefore, and with the above in mind it is considered that any residual effects in relation to the streetscape environment will be **very low** beneficial.

### Section C

The key aesthetic qualities of this section of NoR 2 will be the deliberate decision to establish predominantly native planting. It is considered that this will better relate to the local area and foster a more meaningful identity. The widening of road corridors to provide for the busway will have the potential to reduce the aesthetic values of the streetscape however in time, with the provision of tree and landscape planting it is considered an updated transport network, building on the Puhinui Train Station will signalise the modernisation of the immediate environs. With the above considered, any residual effects in relation to the streetscape environment will be **very low** beneficial.

#### 6.4.2.5 Natural character

##### Section A

Once the Project has been completed, it is considered any residual abiotic, biotic and experiential effects will be **very low** adverse. The proposed rain garden will result in some level of change however such change will remain alongside a developed context, in an area that has limited natural attributes.

##### Section B

There are no Natural Character attributes within this section of the NoR.

##### Section C

On completion of the Project, opportunities to enhance the park and associated tributary and stormwater pond will have been undertaken. Whilst these aspects will not create a 'natural environment', new planting in the form of indigenous species will provide some greater natural character attributes to the area, and indirectly may encourage indigenous fauna to the area. With the above considered, any natural character effects are considered **very low** beneficial.

#### 6.4.2.6 Visual amenity effects – Section A

The potential effects on the identified viewing audiences arise from the permanent physical changes to the receiving environment which may change the viewers visual appreciation of the area.

### Residential Viewing Audiences

Residential viewing audiences adjacent to NoR 2 Section A will experience the greatest degree of change due to their proximity to the Project and availability of views towards the road corridor. Once the Project is complete, their view will continue to be of a major arterial road corridor (albeit upgraded), with vehicular traffic located a comparable distance from these property boundaries.

The proposed pedestrian footpath and cycleway will form the immediate element of their view towards Te Irirangi Drive. The road will be visual softened by appropriate landscaping including trees and supporting shrub planting. These areas of landscaping are proposed along the berms of the corridor which, when established, will provide a similar level of amenity to that currently experienced. For this reason, it is considered the residential visual effects on existing and indeed future residential viewing audiences, will be **very low** adverse.

### Travelling Viewing Audiences

Permanent change for travelling viewing audiences will arise from the slight realignment and change in road width of Te Irirangi Drive, in addition to the presence of new bus stations in the road corridor (Dawson Road Station and Sports Bowl Station). These changes will however take place within the road corridor, and such change will be in keeping with that expected within a major arterial route as it evolves with the growth of the area it services. These viewing audiences will remain transient and when considered alongside an improved amenity experience as a result of streetscape enhancement works, it is determined that the permanent visual effects for these viewing audiences would be **very low** beneficial.

### Occupational Viewing Audiences and Visitors to Business Premises and Redoubt North School

Following completion of the Project, these viewing audiences will interact with the road corridor in much the same way as they do at present. For those working within or visiting local business or the Redoubt North School, it is considered the lower sensitivity these viewing audiences will have to change, combined with clear similarities the Project has with the receiving environment, any residual effects will be **very low** adverse.

### Recreational Viewing Audiences

It is considered that any residual effects will be limited, although it is noted that areas of Orlando Reserve will be impacted as a result of the Project (and consequentially the viewing audiences that currently access it). The completed Project will interact with the areas of open space in much the same way as they do at present, and in doing so, effects on the users of these spaces will experience **low** adverse visual effects.

The potential effects on the identified viewing audiences arise from the permanent physical changes to the receiving environment which may change the viewers visual appreciation of the area.

#### 6.4.2.7 Visual amenity effects – Section B

### Residential Viewing Audiences

Residual effects on residential viewing audiences are on balance anticipated to be **very low** beneficial due to the modernisation of the road corridor and provision for landscape planting which would have been established (for at least 5 years). Potential views will be limited to lower levels of the

Renaissance Centre and indeed further residential apartments that may be established before the Project is undertaken. For these to the east of SH1, it is not considered there will be an appreciable change to the Te Irirangi Drive road environment.

### Travelling Viewing Audiences

Permanent change for travelling viewing audiences will arise from the alteration of the road corridors in addition to the presence of new bus stations in the road corridors. Any permanent effects are considered to be **very low** beneficial. This will be due to the modernisation and proposed streetscape enhancements as a result of the Project.

### Occupational Viewing Audiences and Visitors to Business Premises

Following completion of the Project, these viewing audiences will interact with the road corridor in much the same way as they do at present. For those working within or visiting commercial business, it is considered the lower sensitivity these viewing audiences will have to change, combined with clear similarities the Project has with the receiving environment, any residual effects will be **very low** adverse.

### Recreational Viewing Audiences

Residual effects on recreational viewing audiences within Hayman Park are considered to be **very low** adverse due to the marginal reduction of visual connectivity between Manukau Central and Hayman Park across Davies Avenue.

#### 6.4.2.8 Visual amenity effects – Section C

The potential effects on the identified viewing audiences arise from the permanent physical changes to the receiving environment which may change the viewers visual appreciation of the area.

### Residential Viewing Audiences

Residual effects on residential viewing audiences east of the Puhinui Bridge will experience some level of change in their views which would now include the dedicated busway, cycle way and updated footpaths. Landscape planting established within the first planting season of the Project's completion will provide aesthetic qualities and visually soften the widened road corridor. For these viewing audiences it is considered any residual adverse effects will be **very low** adverse.

For those directly opposite the proposed Puhinui BRT bridge, permanent change will be more apparent and depending on the location of the viewing audience in relation to the bridge, views would be of the ramp abutments or columns with the underside of the bridge visible near the crossing of Cambridge Terrace where it will require a 5.8m clearance. For these viewing audiences, properties located on the northern side of Puhinui Road, the change will be particularly adverse. Although there are obvious aspects of the activity that relate to the road environment, the size and scale of the bridge will be contrary to the established character of outlooks for these viewing audiences. As such it is considered that up to **moderate** adverse effects will occur following mitigation.

For those residents set back from the road corridor, as established during the construction phase, partial views of the bridge will be partly influenced by the intervening roof forms of neighbouring properties, and these will likely obscure aspects of their views. It is considered that from these properties and in relation to the Project, the profile of the bridge will be most apparent. Mitigation measures employed to reduce the visual weight of the bridge will be important here. With mitigation

measures applied it is considered that any residual effects on these viewing audiences would be **low-moderate** adverse.

### Travelling Viewing Audiences

Permanent change for travelling viewing audiences will arise from the slight realignment and change in road width of Lambie Drive and Puhinui Road, in addition to the presence of a new busway bridge. Although changes will take place within the road corridor it is considered that the presence of the bridge will bring about some greater adverse amenity effects for traveling road users due to the height and scale of the structure. Regardless, and with good design outcomes applied to the form and appearance of the bridge, it is considered any residual adverse effects on these road users will be **very low** adverse.

### Occupational Viewing Audiences and Visitors to Business Premises and Puhinui School

Following completion of the Project, these viewing audiences will interact with the road corridor in much the same way as they do at present. For those working within or visiting local business or the Puhinui School, it is considered the lower sensitivity these viewing audiences will have to change, combined with clear similarities the visible portions of the Project will have with the receiving environment, any residual effects will be **very low** adverse.

### Recreational Viewing Audiences

Following completion of the Project, it is recognised that the entrance to the park along Puhinui Road will have the opportunity to be widened and. The existing stormwater pond, being a tributary to Puhinui Stream will be upgraded and enhanced and therefore provide greater connectivity and amenity values. Overall, it is considered there will be **low** beneficial effect on Puhinui Domain as a result of the Project.

## 6.4.3 Summary of operational effects on landscape character and values

The table below provides a summary of the operational effects on landscape character and values for Section A, Section B and Section C of NoR 2.

**Table 9: Summary of operational effects on landscape character and values for NoR 2**

Effect	Assessment – construction		
	Section A	Section B	Section C
<b>Natural Character Effects</b>			
Abiotic	Very Low		Very Low +
Biotic	Very Low		Very Low +
Experiential	Very Low		Very Low +
<b>Landscape Effects</b>			
Landform	Low	Low	Very Low
Hydrology	Very Low	Very Low	Low +
Vegetation	-	Very Low	Very Low +
	Manukau Sports Bowl	Very Low	

	Washingtonia Palms	Very Low		
	Ōtara Creek	Very Low		
	Orlando Reserve	Very Low		
Open Space		Very Low	N/A	Low +
Urban Development and Landuse		Very Low	Very Low	Very Low
Aesthetic Qualities	-	-	Very Low +	Very Low +
	Manukau Sports Bowl Vegetation	Low		
	Washingtonia Palms	Low		
	Ōtara Creek	Low		
<b>Visual Amenity Effects</b>				
Residential	-	Very Low	Very Low +	-
	East of proposed BRT bridge			Very Low
	Opposite BRT bridge			Moderate
	Setback BRT bridge			Low-Moderate
Travelling		Very Low +	Very Low +	Very Low
Occupational		Very Low	Very Low	Very Low
Recreational		Low	Very Low	Low +

## 6.5 Cultural landscape values

It is acknowledged that the Project traverses areas of cultural significance. As set out in the AEE, Manawhenua have been involved as partners through the NoR phase of the Project. To appropriately recognise the cultural landscape in the future phases of the Project, it is recommended that:

- Manawhenua are involved as partners in the future design of the Project;
- Opportunities to provide appropriate wayfinding and signage are explored in partnership with Manawhenua;
- Opportunities are identified to enhance water quality and restore streams within the Project area. With respect to NoR 2, it is recognised that there are opportunities to naturalise parts of Puhinui Stream (within the Puhinui Domain) and expand riparian corridors to enhance the mauri of the stream;
- An integrated stormwater management approach is adopted for the Project. In particular, it is identified that in NoR 2, there are opportunities to integrate proposed stormwater infrastructure within the park environment (Hayman Park);
- Provision is made for tree planting within and adjacent to the Project corridor to represent an urban ngahere; and
- Opportunities are identified to acknowledge cultural narratives in the design of Project elements.

## 7 Airport to Botany Bus Rapid Transit – NoR 3

This section assesses landscape and visual matters relating to NoR 3 – the Project corridor between Puhinui Station (in the vicinity of Plunket Avenue) and the SH20/20B interchange.

### 7.1 Overview and description of works

As set out in Table 10 below, the proposed works in NoR 3 include the widening of the existing Puhinui Road to accommodate a centre-running BRT corridor, vehicle lanes and high quality walking and cycling facilities. As part of the proposed works, a BRT bridge over the NIMT is proposed to connect to the Puhinui Station.

Table 10: Overview of NoR 3

NoR 3 – Puhinui Station, in the vicinity of Plunket Avenue to SH20/20B Interchange	
<p><b>LEGEND</b></p> <ul style="list-style-type: none"> <li><span style="color: blue;">—</span> Proposed Airport to Botany Bus Rapid Transit Corridor and high quality walking and cycling facilities</li> <li><span style="color: red;">- - -</span> NoR 3 - proposed designation boundary</li> <li><span style="color: blue;">—</span> Proposed bridge structure</li> <li><span style="color: blue;">○</span> Proposed Bus Rapid Transit station</li> </ul>	
<p><b>Key features</b></p>	
BRT Corridor	Centre-running along Puhinui Road connecting to the Puhinui Station concourse via a new BRT bridge structure
BRT Stations	Puhinui Station
Walking and cycling facilities	<ul style="list-style-type: none"> <li>Walking and cycling facilities on both sides of the corridor; and</li> <li>Walking and cycling facilities will be provided along Cambridge Terrace, Bridge Street and Kenderdine Road.</li> </ul>

General traffic	One lane in each direction on Puhinui Road
Access	Limited right turn access
Speed environment	50 km/h
Signalised intersections	<ul style="list-style-type: none"> <li>• Puhinui Road and Noel Burnside Road; and</li> <li>• Puhinui Road and Wyllie Road.</li> </ul>
Stormwater infrastructure	Wetland
<b>NoR 3 typical cross section</b>	

## 7.2 Existing environment

Refer to **Appendix D** for the suite of Figures.

### 7.2.1 Location description

NoR 3 includes Puhinui Road from the Puhinui Station to the SH20/SH20B interchange. The existing environment along Puhinui Road consists of a mix of business – commercial, industrial and residential uses, with residential being the most influential land use along this section. The corridor is a busy arterial road with four traffic lanes, few street trees and overhead power lines.

The following sections provide a further description of the receiving environment in addition to a selection of site appraisal photographs.

### 7.2.2 Landscape characteristics and values

#### 7.2.2.1 Landform and hydrology

This portion of Puhinui Road is located inland from the coast and within an urbanized and heavily developed area. The topography of the area features gentle undulations, broadly sitting at around the 20 mRL mark. To the north of Puhinui Road, these topographical undulations are more legible, inducing a 30 mRL knoll in the vicinity of Hillside Road and Hillside South Park. To the south of Puhinui Road the area has been levelled to accommodate the industrial land uses.

As a historic inland urbanised environment, there are no natural streams remaining, instead overland flow paths exist, following road corridors and traversing across properties. These tend to flow south towards Noel Burnside Road before flowing to Roscommon Road Drainage Reserve to the south of SH20.

### 7.2.2.2 Vegetation patterns and open space

As an established residential suburb, the primary vegetation types are the garden ornamentals and lawns within the residential lots, which line much of Puhinui Road and the surrounding street, particularly to the north. In recent times, a number of trees have been removed during road upgrades including the provision of a shared use path (**SUP**) on the northern side of the road corridor as part of the recent Puhinui Road and Lambie Drive Improvements. A notable tree does however exist at the Puhinui Road / Vision Place intersection which is a large Flowering Gum<sup>19</sup>. Other notable trees also exist within the grounds of Cambria House however, these are outside of the proposed designation although it should be noted that some mature trees, particular a Magnolia exist at the entrance to Cambria House and sit within the road reserve and Project designation.

In relation to open space, only one area of open space (zoned Open Space – Community Zone) exists along the corridor which is the aforementioned Cambria House grounds. This area of open space is approximately 0.3 ha in size and positioned on the southern side of Puhinui Road, opposite Raymond Road. The open space features a number of mature trees and a historic building (Cambria House). The property falls under a Historic Heritage and Special Character overlay in the AUP:OP.<sup>20</sup>

### 7.2.2.3 Urban development and landuse

This section of Puhinui Road features residential land uses either side of the road corridor in addition to a mix of light industrial land uses, local convenience shops and businesses. The Puhinui Station features at the eastern end of NoR 3, bisecting Puhinui Road which continues in a north easterly direction after being severed by the rail corridor. Light industrial development is predominately located to the south of Puhinui Road, occupying just under half of the interface with the road corridor. Residential development, local shops and the parcel of Open Space make up the balance of these land uses. Noel Burnside Road forms the only local road on the southern side of the road corridor which meets Puhinui Road at a node of local shops and business.

The northern side of the road primarily contains residential land uses, notwithstanding a light industrial area to the west, focused around Vision Place, nearby the SH20 road corridor. A number of local roads feed into Puhinui Road from the north including Kenderdine Road, Raymond Road, Milan Road, Wyllie Road and Vision Place.

As set out in detail in the AEE, it is anticipated that additional intensification is likely to occur at all residential zoned land, existing centres and around the proposed BRT stations as envisioned by the NPS:UD.

### 7.2.2.4 Aesthetic qualities including views and visual coherence

Due to the low elevation of the existing road corridor in relation to the surrounding environment, views to distant landmarks are not attainable, with the nature of the views characterized by the mix of land uses. Glimpse views to low intensity residential development beyond Puhinui Road are attainable

<sup>19</sup> Tree ID 1526

<sup>20</sup> ID 1469

where local roads intersect with the road corridor. Whilst views are fleeting, the vegetated frontage and historic nature of Cambria House provides a level of amenity, contributing to historical connections and sense of place to the local area.

The straight alignment of the existing road corridor also provides for a view corridor to the north east and south west. The newly completed Puhinui Station provides a built marker at the eastern termination of NoR 3. The considered architectural qualities of the building signalises the modernisation of Auckland's passenger rail infrastructure. To the south west, a view corridor towards the SH20 over bridge is obtained. The notable Flowering Gum, while offset from the road, forms a recognisable natural marker in this view, in part defining a book end to this section of road as it approaches the SH20 / SH20B interchange. Cambria House, defined by its open space characteristics, vegetated site and historic buildings also forms a key aesthetic quality to NoR 3.

#### 7.2.2.5 Viewing audiences

The proposed designation boundary extends principally to the south, beyond the Puhinui Road Corridor, removing a number of residential and neighborhood centre properties. The removal of buildings within the designation will form a new 'edge' between Puhinui Road and the properties outside of the proposed designation. Due to the low intensity of development, views of the works will in many places be restricted to those existing residential properties that front Puhinui Road, those to the south of Puhinui Road now forming the new interface and road users along Puhinui Road and those on local roads approaching the intersection. Views of the works will also be obtained along Bridge Street and Kenderdine Road where road upgrades are proposed.

NoR 3 includes a BRT bridge over the Southern Line rail corridor which will drop off and pick up bus passengers at the Puhinui Station. Abutments will be required along Puhinui Road. The elevation of the BRT will start increasing around the intersection with Raymond Road before meeting the Puhinui Station building bus concourse. This structure will be more visible than other sections of this NoR due to its elevation. It is considered that views towards the structure will be obtained from a number of locations in the local vicinity. This includes but is not limited to those viewing audiences either side of Puhinui Road, the western end of Milan Road, the southern end of Kenderdine Road and those around Bridge Street, Cambridge Terrace and Clendon Avenue. Most of these viewing audiences are residential, although views from neighbouring light industrial premises (Altus Enterprises), a church (Kingdom Hall of Jehovah's Witnesses) and a Te Kohanga Reo ki Puhinui (school) will obtain proximate views.



Figure 30: Puhinui Station from Bridge Street. The surrounding area is residential (Single House Zone) to the north of Puhinui Road and industrial to the south



Figure 31: Puhinui Station



Figure 32: Historic Heritage Building “Cambria Homestead” at 250 Puhinui Road



Figure 33: Puhinui Road looking east from Vision Place towards Puhinui Station. Includes Business - Light Industrial Zone, (container storage) land uses at the western end and mixed residential and commercial closer to Puhinui Station

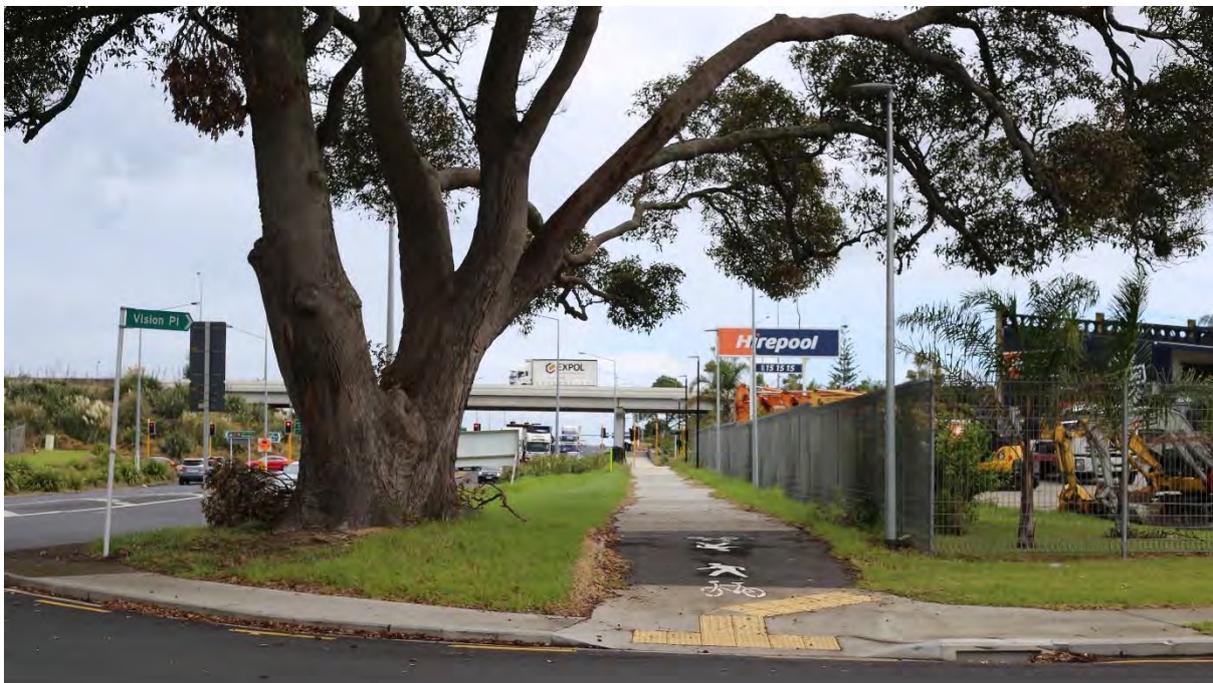


Figure 34: View from Vision Place to the west, includes a notable tree (Flowering Gum) and SH20 bridge over Puhinui Road with planted abutments

## 7.3 Assessment of construction effects

### Construction Areas

Construction compounds, laydowns, construction machinery, earthworks and material storage will be present across the NoR. Night works, where required, will in places introduce artificial light into an existing urban environment. Landscape effects related to activities across the NoR will be associated with the widening of Puhinui Road for the construction of the BRT corridor, high quality walking and cycling facilities and stormwater infrastructure. A bridge structure is also proposed to be constructed along Puhinui Road, directly connecting the BRT corridor to the Puhinui Station.

### Vegetation Clearance

Broad areas of vegetation are proposed to be removed to accommodate the widened road corridor of Puhinui Road. This consists of trees and shrubs (including some indigenous trees and a notable tree, Flowering Gum<sup>21</sup>). Grass berms and lawn areas along the corridors will also be impacted.

#### 7.3.1 Effects on landscape characteristics and values

The potential construction effects on the landscape arise from the physical changes to the receiving environment which may change its characteristics and values. When considering the physical change during construction of NoR 3, changes to the landform, hydrology, vegetation, open space, urban development, land use in addition to aesthetic qualities are understood. The presence of elements and activities associated with construction (i.e. Construction machinery such as cranes for the Puhinui Station BRT Bridge, lay down areas, stockpiles etc.) can also temporarily change the values and characteristics of an area.

##### 7.3.1.1 Landform and hydrology

It is not considered that NoR 3 contains any landform features of note, with the topography containing some gentle undulations around the 20m RL mark. Localised grading of this road corridor and immediately adjacent areas within the designation will be required to facilitate the required levels for the new road and bridge structure.

It is also considered that hydrologically this portion of the road corridor is of low value. The change proposed, i.e. the construction of stormwater treatment devices will not meaningfully effect the hydrological values. With the above considered, it is determined the adverse effects during construction will be **very low** adverse.

##### 7.3.1.2 Vegetation patterns and open space

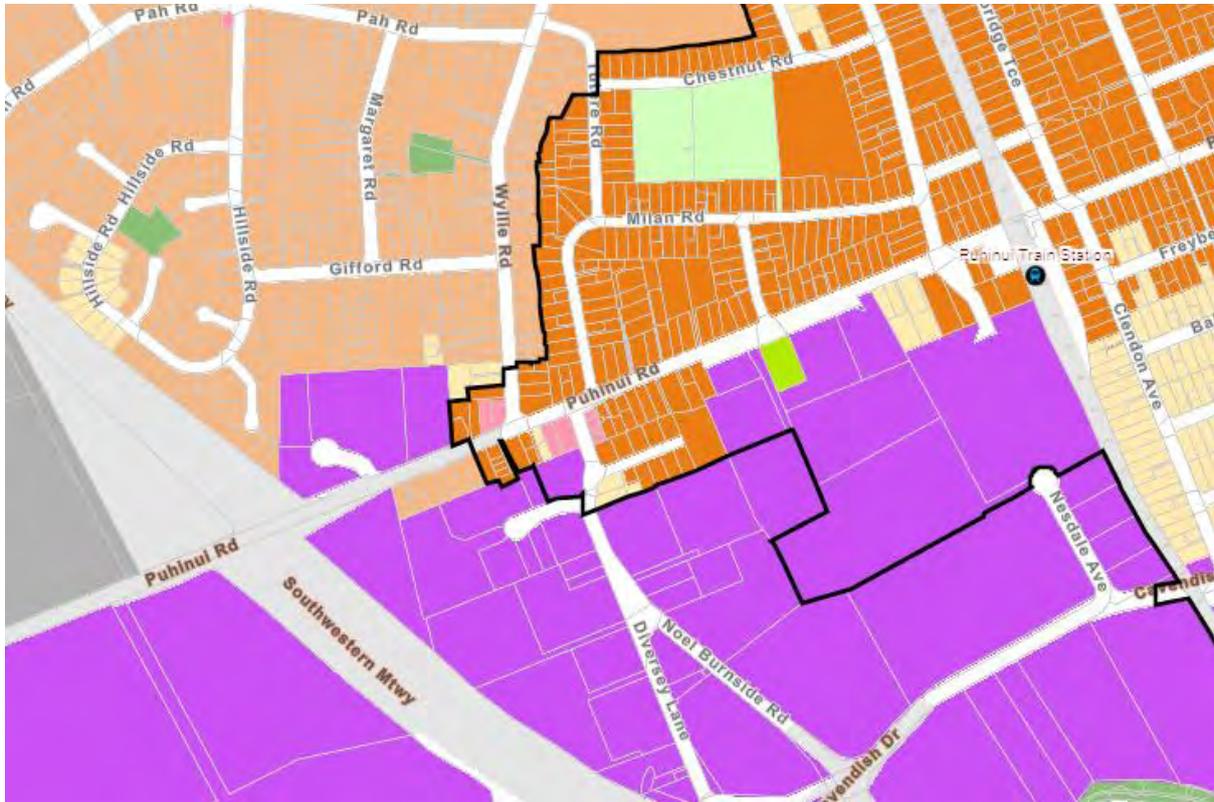
Within NoR 3, the Project will require the removal of 21 protected trees. This includes one notable tree located within the road corridor of Puhinui Road which is considered to be a local landmark. Taking the notable tree into account, the removal of these trees during the construction stages of the Project, will result in **moderate-high** adverse effects particularly when considering that at the time of removal, a number of these trees may be mature native specimens in addition to the significance of the notable tree to be removed.

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<sup>21</sup> Tree ID 1526

### 7.3.1.3 Urban development and land use

The receiving environment includes residential land uses either side of the road corridor in addition to a mix of light industrial land uses, local convenience shops and businesses. Similar to NoR 2 Section C, Puhinui Road is well recognised as an important connector road. The significance of this road is also signalled as much of it is positioned within a walkable catchment of the Puhinui Station.



**Figure 35: Black line indicating identified Walkable Catchment. Light orange areas represent medium density residential areas, dark orange represent terraced housing and apartment areas. Source, Auckland Council, Plan Change 78 map viewer, 18 August 2022**

Aircraft noise overlays follow Puhinui Road with the MANA overlaying land on the northern side of Puhinui Road and the HANA) on the southern side of Puhinui Road. As set out in the AUP:OP, the HANA overlay prohibits new residential development.

With the above in mind, it is considered that the construction of the Project will be an appropriate response to the likely intensified land use. The Project will appropriately tie into these land uses and any adverse effects during construction will be **low** adverse.

### 7.3.1.4 Aesthetic qualities including views and visual coherence

The affected aesthetic qualities of this section during construction are principally limited to the removal of vegetation along the road corridor, particularly the notable Flowering Gum. It is however noted that construction machinery, particularly in the immediate context of the proposed Puhinui Station BRT Bridge will also impact the aesthetic qualities and legibility of the Cambria House site. It is considered that the adverse effects on the aesthetic qualities during construction will be **moderate**.

### 7.3.1.5 Visual amenity effects

The temporary visual amenity effects associated with NoR 3, would arise from the presence of construction activities, elements and structures, particularly the Puhinui Station BRT bridge), during the course of the Project. These temporary effects would affect a range of viewing audiences which are located within, adjacent to, and in the wider vicinity of the site.

#### Residential Viewing Audiences

In relation to residential viewing audiences, those that adjoin Puhinui Road and the southern portion of Kenderdine Road will experience the greatest visual effects during construction. In particular those residential viewing audiences to the east of Raymond Road near the proposed Puhinui Station BRT bridge.

For residents that already meet the road corridor west of the Puhinui Station BRT bridge, the change during construction will be a more expected activity due to their established outlook of an existing road environment. Any effects on these viewing audiences during construction are anticipated to be **low-moderate** adverse.

For residential viewing audiences positioned directly opposite the proposed Puhinui Station BRT bridge, it is anticipated that change will not be in keeping with the low rise residential nature which currently exists. It is considered that adverse effects during construction would be **high** for residents that adjoin this portion of the road corridor.

Residential viewing audiences beyond the immediate road interface will not have the same level of impacts due to intervening building forms in addition to the reduced visual prominence of the structure due to their greater distance. During construction, it is anticipated that residential viewing audiences set back from the road corridor will obtain **moderate** adverse effects.

#### Travelling Viewing Audiences

Viewing audiences located along the road corridors and footpaths of this section will observe construction activities within or in the immediate context of the existing road corridor environment. Moreover, the broader context, beyond the confines of the road corridor, the fundamental characteristics of this environment would remain intact. Additionally, these viewing audiences would be transient in nature and experience this change for a short duration of time. With the above in mind, it is considered that the temporary adverse visual effects on these viewing audiences would be **low-moderate**.

#### Occupational Viewing Audiences and Visitors to Business Premises including Te Kohanga Reo ki Puhinui and the Kingdom Hall of Jehovah's Witnesses

Occupational viewing audiences include those associated with Te Kohanga Reo ki Puhinui, the Kingdom Hall of Jehovah's Witnesses Puhinui School, the local shops and industrial business. All except the Te Kohanga Reo ki Puhinui principally support their activities indoors, it is considered effects would be no more than **very low** adverse during construction. For those at Te Kohanga Reo ki Puhinui, outdoor activities appear to be somewhat supported and therefore these viewing audiences are considered to have a greater sensitivity. With this in mind, and due to the proximity of the works it is considered adverse effects up to **low-moderate** may occur during construction.

### 7.3.2 Summary of construction effects on landscape character and values

The table below provides a summary of the construction effects on landscape character and values for NoR 3.

**Table 11: Summary of construction effects on landscape character and values for NoR 3**

Effect		Assessment – construction
<b>Natural Character Effects</b>		N/A
<b>Landscape Effects</b>		
Landform		Very Low
Hydrology		Very Low
Vegetation		Moderate-High
Open Space		N/A
Urban Development and Landuse		Low
Aesthetic Qualities		Moderate
<b>Visual Amenity Effects</b>		
Residential	West of Proposed BRT Bridge	Low-Moderate
	Opposite BRT Bridge	High
	Setback BRT Bridge	Moderate
Travelling		Low-Moderate
Occupational	Te Kohanga Reo ki Puhinui	Low-Moderate
	Other Occupational Audiences	Very Low
Recreational		N/A

## 7.4 Assessment of operational effects

As set out in Section 8.1, the following points summarise the key changes to the receiving environment as a result of the Project:

- Realignment and widening of Puhinui Road;
- Centre-running BRT corridor including a central BRT bridge structure starting in the vicinity of Plunket Avenue towards Puhinui Station;
- High quality walking and cycling facilities;
- One lane vehicular carriageway in each direction;
- Berms that can accommodate tree and shrub planting between the carriageway and the walking and cycling facilities;
- A series of stormwater treatment devices alongside Puhinui Road with appropriate planting; and
- Other landscaping – To be confirmed – i.e. along road berms.

The following assessment also considers mitigation measures (as recommended in Section 11), as having been fully implemented. This includes careful consideration and design of structures such as

the Puhinui Station BRT bridge, BRT stations, outfalls, stormwater treatment and the like, in addition to the appropriate level of planting to mitigate the removal of vegetation (including trees) and provision of a high-quality amenity environment. The following assessment considers the residual effects once vegetation has become fully established (i.e. 5 years growth), following planting and any plant and tree replacement (in the event of plant failure).

#### 7.4.1 Landform and hydrology

The topographical characteristics of this NoR does not contain any notable features. The permanent effects will as a result of grading to accommodate the new road levels and surfaces in addition to excavations to enable the proposed Puhinui Station BRT bridge (e.g. columns). There will also be no further adverse effects to the NoRs hydrological values. In determining the effect rating, it is considered that the effects would remain consistent with those anticipated under the construction phases. It is therefore determined that the effects on the landform during operation would be **very low** adverse.

#### 7.4.2 Vegetation patterns and open space

It is considered that tree and shrub planting would have been established as part of the construction of the Project and will include a predominantly native planting palette of large scale trees. It is proposed that new tree planting will follow a defined and rhythmic pattern within roadside berms. Although it is acknowledged that the flowering gum will be in part, mitigated by the overall greater number of trees within the corridor, it is not considered that within 5 years of establishment, the landmark values of this tree will be fully mitigated. With that considered, it is determined that adverse effects at 5 years after the completion of the Project will be **low** adverse.

There will be no permanent effects on the open space values of the Community Zone identified in the Cambria House land. Notable trees and the vegetation values of this space will remain protected.

#### 7.4.3 Urban development and land use

These established predominantly residential land uses will remain along the interface of the Project and continue to represent the urban patterns of the area. It is considered the Project which involves the modernisation of public transport and walking and cycling facilities along the existing road corridor will be an appropriate response to the modification to the likely intensified land use. It is therefore considered that the urbanised land use will readily absorb the Project and as such any level of effect following completion would be **very low** adverse.

#### 7.4.4 Aesthetic qualities including views and visual coherence

The key aesthetic qualities of NoR 3 are the street tree planting and the Cambria House site. The deliberate decision to establish predominantly native planting at regular locations along the road corridor, together with occasional tree groupings will relate to the local area. This tree planting will soften the appearance of the widener road corridor, reinforcing the established residential characteristics of the receiving environment. The Cambria House site, which will not be impacted by the works will remain as a landmark historic feature along the road corridor apart from some alteration to the road frontage of the garden. With the above considered, any residual effects in relation to the streetscape environment will be **very low** adverse.

### 7.4.5 Visual amenity effects

The potential effects on the identified viewing audiences arise from the permanent physical changes to the receiving environment which may change the viewers visual appreciation of the area.

#### Residential Viewing Audiences

To the west of the Puhinui Station BRT bridge, residential viewing audiences will experience change which would now include the dedicated BRT corridor and walking and cycling facilities. Landscaping established along the road corridor would also feature, visually softening the streetscape and contributing to the residential characteristics of the view. For these viewing audiences it is considered any residual adverse effects will be **very low** adverse.

For those residents directly opposite the BRT bridge, i.e. east of Raymond Road, there will be a greater level of permanent change. Depending on their position along the corridor, they would view one or a combination of the bridge features including ramp abutments or columns with the underside of the bridge visible near the crossing of Kenderdine Road.

It is considered that these viewing audiences will have the greatest levels of effects due to the size and scale of the bridge which will be contrary to the established character of outlooks for these viewing audiences. As set out in detail in the AEE, it is anticipated that additional intensification is likely to occur at all residential zoned land, existing centres and around the proposed BRT stations as envisioned by the NPS:UD. Therefore, there is likely to be an increase in the residential viewing audience on the northern side of Puhinui Road adjacent to the BRT bridge. As such it is considered that if the future developed environment is established after the BRT bridge effects will be up to **high** adverse.

A number of residents set back from the road corridor will also have their views impacted. This partially includes those to the north, i.e. Milan Road and Bridge Street. Views of the Puhinui Station BRT bridge will be partially obscured by the intervening roof forms of neighbouring properties. It is considered that from these properties and in relation to the Project, only the profile of the bridge will be apparent. With mitigation measures to reduce the perceived visual weight of the bridge applied it is considered that any residual effects on these viewing audiences would be **low-moderate** adverse.

#### Travelling Viewing Audiences

Permanent change for travelling viewing audiences will arise from the slight realignment and change in road width along Puhinui Road, in addition to the presence of a new busway bridge. Although changes will take place within the road corridor it is considered that the presence of the bridge will bring about some greater adverse amenity effects for traveling road users due to the height and scale of the structure. Regardless, and with good design outcomes applied to the form and appearance of the bridge, it is considered any residual adverse effects on these road users will be **very low** adverse.

#### Occupational Viewing Audiences and Visitors to Business Premises including Te Kohanga Reo ki Puhinui and the Kingdom Hall of Jehovah's Witnesses

Following completion of the Project, most viewing audiences will interact with the road corridor in much the same way as they do at present. It is considered effects on Te Kohanga Reo ki Puhinui would experience **low** residual adverse effects. For other occupational businesses it is expected **very low** adverse effects will arise.

### 7.4.6 Summary of operational effects on landscape character and values

The table below provides a summary of the operational effects on landscape character and values for NoR 3.

**Table 12: Summary of operational effects on landscape character and values for NoR 3**

Effect		Assessment – construction
<b>Natural Character Effects</b>		N/A
<b>Landscape Effects</b>		
Landform		Very Low
Hydrology		Very Low
Vegetation		Low
Open Space		N/A
Urban Development and Landuse		Very Low
Aesthetic Qualities		Very Low
<b>Visual Amenity Effects</b>		
Residential	West of Proposed BRT Bridge	Very Low
	Opposite BRT Bridge	High
	Setback BRT Bridge	Low-Moderate
Travelling		Very Low
Occupational	Te Kohanga Reo ki Puhinui	Low
	Other Occupational Audiences	Very Low
Recreational		N/A

## 7.5 Cultural landscape values

It is acknowledged that the Project traverses areas of cultural significance. As set out in the AEE, Manawhenua have been involved as partners through the NoR phase of the Project. To appropriately recognise the cultural landscape in the future phases of the Project, it is recommended that:

- Manawhenua are involved as partners in the future design of the Project;
- Opportunities to provide appropriate wayfinding and signage are explored in partnership with Manawhenua;
- Provision is made for tree planting within and adjacent to the Project corridor to represent an urban ngahere. Manawhenua noted that this was particularly important in the context of NoR 3, as several trees have been removed along Puhinui Road as part of previous road upgrades; and
- Opportunities are identified to acknowledge cultural narratives in the design of Project elements, in particular the proposed BRT bridge connecting to Puhinui Station.

## 8 Airport to Botany Bus Rapid Transit – NoR 4a and NoR 4b

This section assesses landscape and visual matters relating to NoRs 4a and 4b – the Project corridor between the SH20/20B Interchange and Orrs Road.

### 8.1 Overview and description of works

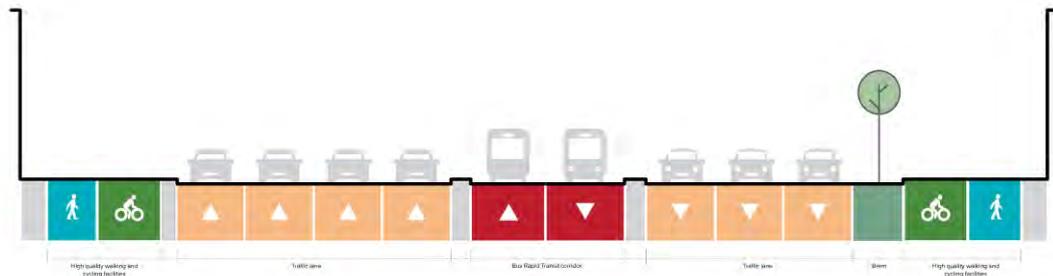
As set out in Table 13 below, the proposed works in NoRs 4a and 4b include the widening of SH20B to accommodate a centre-running BRT corridor until the Manukau Memorial Gardens. From this point, the BRT corridor shifts south of SH20B until Orrs Road. Proposed works also include high quality walking and cycling facilities, eastbound lanes to Auckland Airport and a ramp from SH20B onto SH20 for southbound traffic.

Table 13: Overview of NoRs 4a and 4b

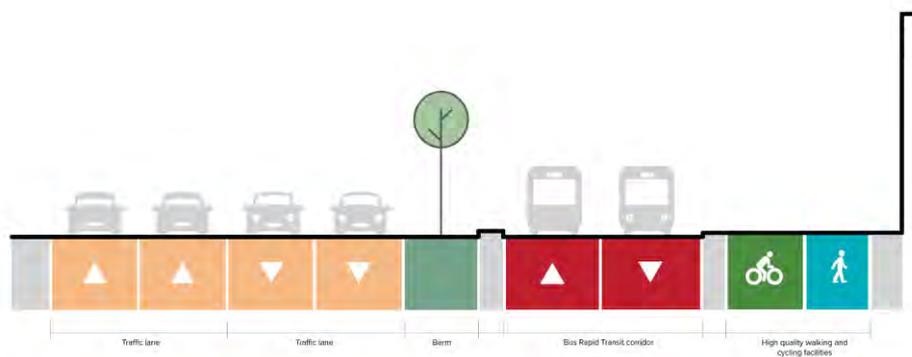
NoRs 4a and 4b – SH20/20B Interchange to Orrs Road	
<b>Key features</b>	
BRT corridor	<ul style="list-style-type: none"> <li>Centre-running on Puhinui Road through to the Manukau Memorial Gardens intersection (approx. 600 m west of SH20/20B Interchange); and</li> <li>South running to Orrs Road.</li> </ul>
Walking and cycling facilities	Walking and cycling facilities on southern side of the corridor

General traffic	<ul style="list-style-type: none"> <li>• Two lanes in each direction; and</li> <li>• New southbound ramp from SH20B onto SH20.</li> </ul>
Access	<ul style="list-style-type: none"> <li>• Limited access; and</li> <li>• Access maintained via signals at Manukau Memorial Gardens and Campana Road.</li> </ul>
Speed environment	60 km/h
Signalised intersections	<ul style="list-style-type: none"> <li>• SH20/SH20B Interchange;</li> <li>• Puhinui Road and Manukau Memorial Gardens; and</li> <li>• Puhinui Road and Campana Road.</li> </ul>
Stormwater infrastructure	Swales

**NoR 4b typical cross section**



**NoR 4a typical cross section**



## 8.2 Existing environment

Refer to **Appendix E** for the suite of Figures.

### 8.2.1 Location description

- NoRs 4a and 4b follow the alignment of Puhinui Road (SH20B).
- NoR 4a extends from the SH20/SH20B interchange to the intersection with Orrs Road.
- NoR 4b is a proposed alteration to existing designation 6717 between the SH20/20B interchange and Manukau Memorial Gardens.

The existing designation is principally characterised by the road corridor which features a double lane carriageway (with one lane being a T3 lane), flush central median and Shared Use Path on the northern side, east of SH20 and shifting to the southern side of the road at Manukau Memorial Gardens. Beyond these road extents is a mix of landscape characteristics including at the Manukau Memorial Gardens, commercial premises and agricultural land, some of which is being earth worked for future commercial development.

The following sections provide a further description of the receiving environment in addition to a selection of site appraisal photographs.

### 8.2.2 Landscape characteristics and values

#### 8.2.2.1 Landform and hydrology

SH20B is located on a broad headland which is defined by the Otaimako Creek, Pūkaki Creek and Waokauri Creek. The topography rises in elevation from the coast, often reaching 10 mRL within 50 m to 100 m from the coastal edge, remaining at around this elevation for much of the area. A series of creeks and small gullies reach into the headland forming a sequence of shallow, rounded shoulders either side of SH20B. The central portion of the SH20B road alignment intersects with some of these features, resulting in a series of crossing points in the form of bridges and culverts. In the vicinity of the Project, there are a number of wetlands notably to the south of SH20B. These wetlands are often located within the current arable farmland environments and sit alongside the road corridor and partly within the existing designation. These wetlands feed into the neighbouring watercourse which include four tributaries of the Waokauri Creek.

#### 8.2.2.2 Vegetation patterns and open space

A variety of vegetation types and patterns feature across the NoR 4a and NoR 4b extents. The agricultural production fields of exotic pasture, whilst much has been removed (currently bare soil), crops remain a defining vegetation type, particularly evident in the western portion of the Project area (Prices Road to Orrs Road). The Manukau Memorial Gardens in the eastern portion of the NoRs feature a mix of street tree planting and mature exotic specimen tree planting interspersed between burial plots. One of the aforementioned creeks (a tributary of Waokauri Creek) reaches into the Manukau Memorial Gardens from the north (intersecting with SH20B) and features a mix of native riparian planting and a predominance of exotic weed species.

Three other tributaries of Waokauri Creek reach in toward SH20B and feature a mix of riparian vegetation, with mangroves occupying the tidal areas also being a key feature. These three tributaries are part of the marine SEA (SEA-M2-27a).

Formal street tree planting is not particularly apparent along the length of SH20B however roadside vegetation does exist, notably in the context of Prices Road, nearby the three branches of the Waokauri Creek. A mix of exotic and indigenous shrub and tree species exist along the roadside in

this area, in addition to a green buffer along the interface with the Manukau Memorial Gardens. Other occasional groups of trees occur along the berms of SH20B.

### 8.2.2.3 Urban development and landuse

The current land use within NoR 4a is primarily rural, featuring grazing and cropping fields. Commercial premises are focused along the southern side of the road corridor, to the east of Prices Road (predominately in NoR 4b). SH20B is located within both NoRs 4a and 4b. A Park and Ride facility which has been partially constructed by Auckland Airport is located on land opposite the Campana Road / SH20B intersection and is characterised by a large car park.

Whilst the above describes the land use at present, a large portion of the surrounding area is zoned as Light Industry Zone including all of the land to the south of SH20B, and a small wedge adjoining the western boundary of the Manukau Memorial Gardens. A portion of this land is already being earth worked in preparation for future land uses and is in a transitional state between its former rural land use and future light industrial use. The Future Urban Zone to the north of SH20B broadly west of Prices Road is anticipated to be business land and is sequenced to be development ready by 2038-2032. It is therefore recognised that the future receiving environment of the Project is likely to, in many places more accurately reflect the activities of the associated zoning.

### 8.2.2.4 Aesthetic qualities including views and visual coherence

Due to the inherent openness associated with large, broadly flat pasture fields, together with breaks in roadside planting, views of the surrounding landscape are currently obtained from a number of locations along the SH20B road corridor. Views are often terminated by distant tree stands or shelterbelts, with occasional distant pasture covered ridges and maunga attainable to the north (e.g. near Campana Road). Views of old or disused farm buildings are also evident along the corridor, reinforcing the current but transitioning rural characteristics of the area. Glimpsed views of the Waokauri Creek tributaries to the north of SH20B are also attainable from a short section along the road corridor which reinforces the remnant natural qualities and values of the area.

### 8.2.2.5 Natural character

The areas relevant to the NZCPS within NoR 4a are the margins associated with the Waokauri Creek in addition to identified wetlands within the proposed designations. The key abiotic attributes of NoR 4a include the geology, water catchments and landform, formed predominantly by geological and coastal processes. The geology of NoRs 4a and 4b, considered to be in the region mesozoic and tertiary non-volcanic rocks. Lava rocks and tuff deposits exist within the area but beyond the designation, associated with Pūkaki, Crater Hill and Cemetery Hill. In relation to the hydrological processes, the Project sits in the Pūkaki Waokauri water catchment which is coherently supporting an area undergoing land use transition from a rural environment, to one that supports light industry (land in the future residential), land uses. The tributaries of the Waokauri Creek and associated wetlands appear as legible natural watercourse features although areas of these have been interrupted by the existence of SH20B, including culverts. Overall, it is considered the abiotic attributes of these features are moderate.

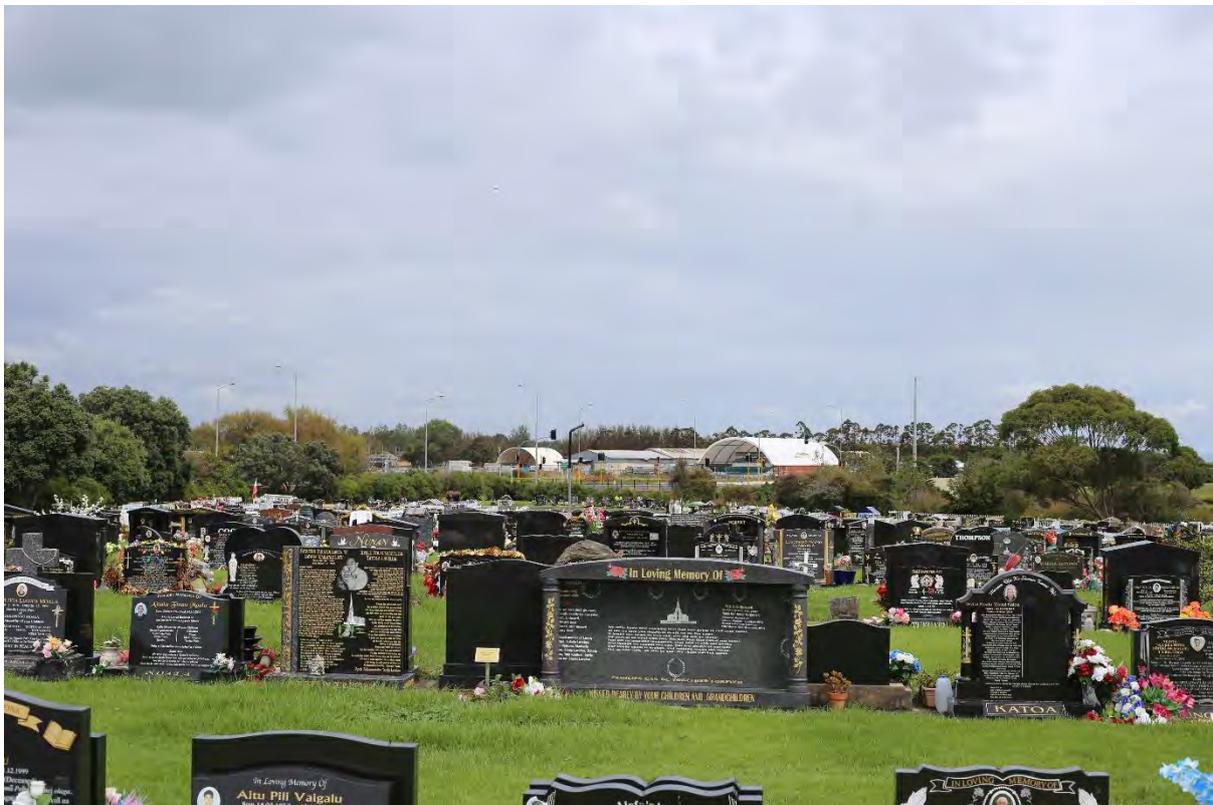
The biotic attributes of the receiving environment are the living organisms which shape an ecosystem. This aspect in part relies on the surveys undertaken by the Project Ecologist and Arborist, with their findings outlined in their respective assessments. The margins of the streams and wetlands within the NoR environments feature a mix of native and exotic vegetation in addition to weed species being

present. Some areas of these features are shaded and the woody debris provided habitat to a moderate population of shortfin eel in addition to a selection of other species, although in places water quality measurements showed very poor habitat quality. Overall, it is considered that the abiotic attributes are moderate of these streams and wetlands are moderate.

In relation to experiential attributes, whilst some areas may have slightly more elevated attributes, all areas occur within the immediate vicinity of the SH20B road corridor, and human modification in the form of culverts are also nearby, affecting perceived naturalness. While the biotic attributes also contain native species, the introduction of exotic species which remain clearly legible, also reduce these levels. With the above in mind, any experiential attributes associated with these features will be no more than low-moderate.

### 8.2.2.6 Viewing audiences

Existing viewing audiences in relation to these NoRs include road users of Puhinui Road in addition to those limited road users along Prices Road, Campana Road and Orrs Road. People visiting the Manukau Memorial Gardens will also obtain views of the proposal along Selfes Road<sup>22</sup> (main entry), in addition to some locations in the southern portion of the Manukau Memorial Gardens particularly due to the proposed ramp structure connecting SH20B to southbound traffic on SH20. Low numbers of viewing audiences will also obtain views from the commercial / open area storage facilities to the south of SH20B. Viewing audiences on SH20 will have brief opportunities to view the proposed ramp structure connecting SH20B to SH20. East of SH20, residential viewing audiences and industrial viewing audiences will obtain partial views of the Project. However, these views will be limited due to intervening roof forms within these developed areas.



<sup>22</sup> Internal road for the Manukau Memorial Gardens

Figure 36: Manukau Memorial Gardens looking towards the SH20B/SH20 interchange



Figure 37: Puhinui Road (SH20B) looking east from Prices Road



Figure 38: View south including Waokauri Creek and cultural markers



Figure 39: SH20B, bridge over Waokauri Creek, westerly view towards Auckland Airport



Figure 40: Waokauri Creek Estuary

## 8.3 Assessment of construction effects

### Construction Areas

Construction compounds, laydowns, construction machinery, earthworks and material storage will be present across the NoRs. Night works, where required, will in places introduce artificial light into an urban fringe environment. Landscape effects related to construction activities across the NoRs will be the widening and construction of the BRT corridor, the associated widening of SH20B and the provision for a dedicated SH20 on-ramp bridge in addition to stormwater devices and culverts.

### Vegetation Clearance

Broad areas of vegetation are proposed to be removed to accommodate the widened road corridor of SH20B. Primary areas of vegetation to be removed along the northern side of the corridor along the frontage of the Manukau Memorial Gardens which includes a mix of predominantly native roadside buffer vegetation. Other areas of vegetation removal along the road corridor are focused along the southern side of the road corridor and include occasional shelterbelt planting, occasional trees (often exotic including a large macrocarpa), and isolated areas of riparian vegetation within the margins of the affected tributaries and wetlands.

### 8.3.1 Effects on landscape characteristics and values

The potential construction effects on the landscape arise from the physical changes to the receiving environment which may change its characteristics and values. When considering the physical change during construction of NoRs 4a and 4b, changes to the landform, hydrology, vegetation, urban development, land use in addition to aesthetic qualities are understood. The presence of elements and activities associated with construction can also temporarily change the values and characteristics of an area.

#### 8.3.1.1 Landform and hydrology

The topographical values along the NoRs are limited in relation to the gentle gradient of the pasture fields that have been maintained and managed due to arable farming practices. The tributaries and wetlands of the area and within the designation hold both topographical and hydrological values as well as high value agricultural soils, and these will be impacted by the Project through earthworks and grading of surfaces to prepare the site to the road elements. It is considered that the impacts on these specific areas during construction will be **low** adverse for landform and **high** adverse due to their natural hydrological values.

For the remaining areas of the landform and hydrology that will be impacted by the Project, it is considered these effects will be **low** adverse due to the modified and managed nature of the topography.

#### 8.3.1.2 Vegetation patterns and open space

NoRs 4a and 4b will not require the removal of any protected trees as trees do not occur within the road reserve or open space and are therefore not protected by District Plan rules. Furthermore, only one area of vegetation will be affected and will be as a result of the construction of the ramp structure. An estimated 100 m<sup>2</sup> of riparian vegetation (protected by Regional Plan provisions) of the western and eastern side of the existing stream will be removed to enable the piling works. With the above in mind, it is considered any effects will be **low** during construction.

### 8.3.1.3 Urban development and landuse

The receiving environment includes limited arable land uses to the south of SH20B. This current land use does not however represent the anticipated land uses of the area which should be considered, given that these developments are likely to precede the Project. These developments include a substantial area of light industry zoned land on the southern side of SH20B, some of which is being earth-worked at the time of writing, in addition to two large segments along the northern side. In addition to the above, Manukau Memorial Gardens is located to the north of SH20B, adjacent to SH20.

Future urban zoning has also been allocated between Orrs Road and proposed light industrial land to the west of the Manukau Memorial Gardens. These land uses will significantly change the current arable land uses of the receiving environment.

In relation to the Project and these land uses, it is considered the established arterial route to the airport has already set the scene as an important connection between the Airport, SH20 and the urban areas further to the east. Upgrades to the corridor have been progressively undertaken to modernise the service and meet current and future capacity. Therefore, it is considered that the Project will appropriately tie into these land uses and any adverse effects during construction will be **low** adverse. It is also possible that the surrounding land use will still be partially undergoing construction at the same time as the Project is constructed.

### 8.3.1.4 Aesthetic qualities including views and visual coherence

The inherent current openness of the pasture fields that surround large portions of the corridor will in part be impacted during construction of the Project. It is anticipated that the views and visual coherence of the established arable land to the north will remain broadly as they are at present. Views of these land uses will however be affected towards the south. Groups of riparian vegetation in the immediate vicinity of the road corridor will also be impacted during construction. Glimpse views of the tributaries to the north are likely to remain during construction as works take place to the south of the existing road corridor. As views of key aesthetic qualities will remain from the road corridor and works will relate to the road corridor environment, it is considered any adverse effects on the aesthetic qualities will be no more than **low**.

### 8.3.1.5 Natural character

Effects on the abiotic natural character values will be in relation to the removal of an approximate 48.5m length of intermittent tributary associated with the Waokauri Creek and two natural wetlands also being affected as a result of the Project. The use of bridges rather than culverts may reduce the extent of wetland removal. It is considered that adverse effects on the abiotic and biotic attributes during construction will be **moderate** until mitigation measures take effect following construction. The low experiential attributes in these areas will be further affected due to the impact on these features however as these attributes are already compromised (i.e. by the reduced abiotic and biotic attributes due to the degraded condition), any effects during construction would be **moderate**.

### 8.3.1.6 Visual amenity effects

The temporary visual amenity effects associated with NoRs 4a and 4b, would arise from the presence of construction activities, elements and structures, particularly the construction of the proposed ramp structure from SH20B to SH20, during the course of the Project. These temporary effects would affect a range of viewing audiences which are located within, adjacent to, and in the wider vicinity of the site.

### Residential Viewing Audiences

In relation to residential viewing audiences, these are particularly limited and are primarily associated with the agricultural land uses. For those that are along the northern side of SH20B, the dwellings are offset from the existing road corridor and often behind established vegetation to effectively screen them from the road. Construction activities will be observed on the southern side of the road (away from the viewing audiences and in the context of the road corridor). It is not considered that these viewing audiences will be meaningfully impacted by the proposed ramp structure and these residential viewing audiences may no longer be in place at the time of construction as they are likely to be replaced by uses enabled by the industrial zoning.

Viewing audiences around the proposed ramp structure however, e.g., off Hillside Road, will observe the change in the construction in the context of the existing SH20 motorway any such change will remain in keeping with the nature of their existing outlooks. Therefore, during construction it is considered adverse effects will be no more than **low**.

### Travelling Viewing Audiences

Viewing audiences located along the SH20B road corridors and footpaths of this section will observe construction activities to the south of the road and within the context of SH20. Although this will reduce the amenity values of their views, temporarily - due to their sensitivity to change and transient nature, in combination with the nature of works proposed, it is considered any effects during construction will be **low** adverse.

### Occupational Viewing Audiences and Visitors to Business Premises

Occupational viewing audiences are particularly limited and their sensitivity to visual change is considered to be low. Construction will appear in keeping with the existing road corridor environment and will result in effects considered **low** adverse.

### Visitors to Manukau Memorial Gardens

Manukau Memorial Gardens will have the opportunity to obtain views of the proposed ramp structure in addition to works along SH20B when looking south along the main entrance road (Selfes Road). Some locations within the gardens themselves will provide views of the ramp structure. During construction, any works will appear visually and physically separated to the Manukau Memorial Gardens. Whilst works will temporarily reduce amenity values of the environment, the source of effects will occur beyond the boundaries of the gardens and in the vicinity of existing road corridors and elevated road structures, and for these reasons it is considered any temporary effects on these viewing audiences will be no more than **low**.

## 8.3.2 Summary of construction effects on landscape character and values

The table below provides a summary of the construction effects on landscape character and values for NoRs 4a and 4b.

**Table 14: Summary of construction effects on landscape character and values for NoRs 4a and 4b**

Effect	Assessment – construction
<b>Natural Character Effects</b>	

Abiotic	Moderate
Biotic	Moderate
Experiential	Moderate
<b>Landscape Effects</b>	
Landform	Low
Hydrology	High
Vegetation	Low
Open Space	N/A
Urban Development and Landuse	Low
Aesthetic Qualities	Low
<b>Visual Amenity Effects</b>	
Residential	Low
Travelling	Low
Occupational	Low
Recreational	N/A

## 8.4 Assessment of operational effects

The following points summarise the key changes to the receiving environment as a result of the Project:

- Realignment and widening of Puhinui Road (SH20B);
- Centre running BRT corridor between SH20/SH20B interchange and Manukau Memorial Gardens. Shifting to the southern side of SH20B from Manukau Memorial Gardens to Orrs Road;
- High quality walking and cycling facilities;
- Retention of vehicular carriageway;
- A new elevated ramp structure connecting SH20B to SH20;
- Berms that can accommodate tree and shrub planting between the carriageway and the walking and cycling facilities;
- A series stormwater treatment devices; and
- Other landscaping – including to the east of the Manukau Memorial Gardens.

The following assessment also considers mitigation measures (as recommended in Section 11), as having been fully implemented. This includes careful consideration and design of structures such as the elevated ramp structure, outfalls, storm water ponds and the like, in addition to the appropriate level of planting to mitigate the removal of vegetation (including trees) and provision of a high-quality amenity environment. The following assessment considers the residual effects once vegetation has become fully established (i.e. 5 years growth), following planting and any plant and tree replacement (in the event of plant failure).

#### 8.4.1.1 Landform and hydrology

As established in the baseline study, the topographical characteristics of NoRs 4a and 4b do not contain any notable features apart from the tributaries and wetlands toward the eastern portion of the NoR 4a. The permanent effects will as a result of grading to accommodate the new road levels and surfaces in addition to excavations to enable waterway crossings. It is considered that any residual effects will be **low-moderate** adverse.

#### 8.4.1.2 Vegetation patterns and open space

It is considered that an appropriate number of trees would have been established as part of NoRs 4a and 4b works to mitigate proposed tree and vegetation removal. Riparian planting will also be proposed around affected tributary and wetland margins. This vegetation would notably be of native species and will in time grow to become well suited to, and established within the existing environment, with consideration of the current zoning and anticipated outcomes of the area. It is proposed that this will include a combination of street trees within berms along the road corridor, in addition to tree groups where redevelopment of leftover space is not feasible or practicable. It is considered that initially, following construction, the adverse effects on the vegetation values would be **low-moderate**. Once established, it is considered any residual effects will be no greater than **low** adverse.

#### 8.4.1.3 Urban development and land use

As new land uses in line with the proposed AUP:OP zoning are established, it is considered the Project which involves the modernisation of public transport along the existing road corridor will be an appropriate response. It is therefore considered the urbanised land use will readily absorb the Project and as such any level of effect following completion would be **very low** adverse.

#### 8.4.1.4 Aesthetic qualities including views and visual coherence

The key aesthetic qualities of NoRs 4a and 4b are the views of open areas of pasture, roadside trees and glimpse views of the tributaries. Once construction is complete, it is considered that broadly these aesthetic qualities and values will continue to be observed on the north side of SH20B. It is noted however that such qualities on the southside of SH20B will be impacted in the future following anticipated development of the wider area in line with the Auckland Unitary Plan zoning. Overall, it is considered that any residual effects will be **very low** adverse.

#### 8.4.1.5 Natural character

It is expected that details regarding the effects on streams and wetlands will be addressed as part of future consenting processes. At that time, it is anticipated that any effects will be appropriately managed and any residual adverse effects are anticipated to be **very low**.

#### 8.4.1.6 Visual amenity effects

The potential effects on the identified viewing audiences arise from the permanent physical changes to the receiving environment which may change the viewers visual appreciation of the area.

#### Residential Viewing Audiences

In relation to residential viewing audiences, there will be some permeant level of change to their views however it is considered that this will be limited. Those along the corridor route may perceive a slightly

widened road corridor however due to their low elevation and low elevation of the main Project elements where residents adjoining the corridor are located, any residual effects will be **very low** adverse.

For those residents that obtain views of the completed on-ramp to SH20, the structure will be seen in the locality of the SH20 and SH20B road corridors and the proposed characteristics of the structure will align with the scale of this established infrastructure. Moreover, views of the ramp structure are likely to be partially obstructed by intervening roof forms of neighbouring properties and will form a very small portion of their overall view. With the above considered, it is determined that any residual effects will be **very low** adverse.

### Travelling Viewing Audiences

Permanent change for travelling viewing audiences will be limited given the established nature of the existing road corridor along SH20B. The increase in width will signify the importance of the road corridor in connecting the Airport to locations toward the east. New tree planting, following a deliberate native planting regime will provide an appropriate level of visual amenity as expected along such an arterial route and any effects are likely to be **very low** adverse.

### Occupational Viewing Audiences and Visitors to Business Premises

Following completion of the Project, these viewing audiences will interact with the road corridor in much the same way as they do at present. For those working within or visiting local business, it is considered the lower sensitivity these viewing audiences will have to change, combined with clear similarities the visible portions of the Project will have with the receiving environment, any residual effects will be **very low** adverse.

### Visitors to Manukau Memorial Gardens

Once the project is completed, views from the entrance to the gardens will continue to capture the upgraded SH20B road corridor, and any residual effects will be **very low**. From within the gardens themselves, views of the at grade components are unlikely to be discernible due to the existing vegetation along the southern edge of the gardens. Views of the completed ramp structure will be attainable from certain locations (particularly the south-eastern corner). Nevertheless, the ramp structure will appear clearly related to the existing infrastructure present and servicing SH20. Whilst the structure will result in an additional built element within the view, given the nature of the existing environment, being the confluence of two major road corridors, it is not considered there will be any residual effects above **low** adverse as a result of the project on these viewing audiences.

## 8.4.2 Summary of operational effects on landscape character and values

The table below provides a summary of the operational effects on landscape character and values for NoRs 4a and 4b.

**Table 15: Summary of operational effects on landscape character and values for NoRs 4a and 4b**

Effect	Assessment – construction
<b>Natural Character Effects</b>	
Abiotic	Very Low
Biotic	Very Low

Experiential	Very Low
<b>Landscape Effects</b>	
Landform	Low-Moderate
Hydrology	Low-Moderate
Vegetation	Low
Open Space	N/A
Urban Development and Landuse	Very Low
Aesthetic Qualities	Very Low
<b>Visual Amenity Effects</b>	
Residential	Very Low
Travelling	Very Low
Occupational	Very Low
Recreational	N/A

## 8.5 Cultural landscape values

It is acknowledged that the Project traverses the Puhinui peninsula, which is of significant cultural value to Manawhenua, in particular the history, stories, whakapapa (genealogy) and mythology of Te Ākitai Waiohūa.

The Puhinui area is part of the cultural landscape which is considered a taonga by the people of Te Ākitai Waiohūa. The relationship Te Ākitai Waiohūa maintains with the land and waterways of Puhinui reflect the history, whakapapa, values and significance of the area to the iwi.

As such, it is recognised that the development of infrastructure in this area has the potential to negatively impact the cultural landscape through visual, physical and spiritual changes potentially eroding these important connections to Te Ākitai Waiohūa's whakapapa.

As set out in the AEE, Manawhenua have been involved as partners through the NoR phase of the Project. To appropriately respond to the cultural landscape in the future phases of the Project, it is recommended that:

Manawhenua are involved as partners in the future design of the Project;

- Opportunities are identified in partnership with Manawhenua to acknowledge cultural narratives in the design of Project elements. In particular, this could include (but is not limited to) how the historic and cultural significance of the Puhinui Historic Gateway can be recognised through the Project design;
- Opportunities to provide appropriate wayfinding and signage are explored in partnership with Manawhenua, particularly in relation to the proposed bridge structure from SH20B to SH20;
- Opportunities are identified to enhance water quality and restore waterways within the Project area. With respect to NoRs 4a and 4b, it is recognised that there are opportunities to enhance the mauri of Waokauri and Pūkaki creeks through revegetation of the riparian areas;

- An integrated stormwater management approach is adopted for the Project. In particular, it is identified that in NoRs 4a and 4b, there are opportunities to integrate the walking and cycling facilities with the proposed stormwater infrastructure to create a natural stream flow effect; and
- Provision is made for tree planting within and adjacent to the Project corridor to represent an urban ngahere.

## 9 Recommended measures to avoid, remedy or mitigate construction effects

The mitigation measures for all activities and built elements during construction for all NoRs are outlined below. An Urban and Landscape Design Management Plan (**ULDMP**) is recommended as a condition on the proposed designations which should include the following matters:

- **Site compounds and construction yards:** reinstate construction and site compound areas by removing any left-over fill and shaping ground to integrate with surrounding landform. Reinstall with grass at the completion of works;
- **Hoarding:** Provision for hoarding around the boundaries of site compounds that face on to adjacent residential properties;
- **Interpretation:** where practicable, during construction, install construction hoardings with interpretive panels in selected areas which are in close proximity and visible to the public (e.g. parks and commercial areas with multiple shops), to provide information about the Project and its progress;
- **Vegetation clearance:** wherever possible, limit the removal of noteworthy trees and indigenous vegetation; and
- **Lighting:** Where possible, mitigate effects related to lighting during night time works through the use of directional lighting to prevent glare / spill light falling on residential properties.

## 10 Recommended measures to avoid, remedy or mitigate operational effects

The following matters outlined below address the key elements of the Project that are likely to have permanent adverse effects on landscape character and values, natural character and visual amenity. It is recommended that a ULDM is a condition on the proposed designations which should include but not be limited to the following measures to mitigate landscape and visual effects:

### 10.1 All NoRs

These matters apply to all Project NoRs. Where there are NoR specific recommendations, these are specified in the sections below.

- Urban design details for works including the form and detailing of structures;
- Detailed Landscape design details for works including;
  - Type, number and location of replacement planting (including trees);
  - Lighting, signage and street furniture details; and
  - All large specimen trees to be a minimum planter bag size of 160 litre, small trees to be 45 litre, shrubs 2 litre and ground covers 1 litre.
- Measures to achieve a safe level of transition for cycling and walking modes, including providing advanced warning and signage to cyclists and pedestrians, and safe and convenient cycling transitions at the ends of the Project;
- Design features and methods for cultural expression in order to reflect outcomes agreed through partnership with Manawhenua;
- Design features associated with the landscape integration and management of stormwater, including both hard and soft landscaping;
- A maintenance plan and establishment requirements for landscaping and specimen trees following planting. Further opportunities around stream margins will also be established in which indigenous riparian planting will be considered; and
- Views of neighbouring open spaces and vegetated sections of the neighbouring tributaries of waterways, as well as views to more distant landscape features, will be reinstated following the removal of construction machinery.

#### **Manawhenua Partnership**

As set out in the AEE, Manawhenua should be invited to continue their role as partners in the urban design and landscape design of the Project. This includes but is not limited to:

- The appropriate application of the core Māori values in the future phases of the Project;
- Treatment of residual open spaces;
- The selection and supply of plant species and planting designs;
- The potential for enhancement of habitat and other identified areas of customary importance such as awa; and
- Opportunities to enhance cultural values and sites by incorporating cultural recognition elements into features of the Project. Cultural recognition elements may include (but is not limited to) Māori carvings and/or art, pou and/or other cultural features and/or markers to recognise and provide for the cultural relationship of Manawhenua with the land directly affected by the Project.

**Transport Corridor**

- Design the road to be the minimum width and have the minimum number of lanes practicable, particularly at intersections, to reduce the visual and physical severance impacts of the corridor;
- Provide trees and planting along the transport corridor to reinforce the existing planted character, soften the interface with adjoining uses, reduce the apparent width of the corridor, define views towards landmarks and highlight key nodes;
- Provide a minimum 2 m wide berm for tree planting (where practicable) on both sides of the corridor, separating traffic lanes from footpaths and cycleways; and
- Locate utilities in a dedicated service trench outside of the berms.

**BRT Stations**

- Design bus stations to reflect high quality design outcomes;
- Provide an opportunity for Mana Whenua to provide local contextual naming of the BRT stations that will support placemaking and wayfinding; and
- Incorporate planting including trees to signalise BRT stations along corridor.

**Vegetation / Planting**

- Initiatives from local iwi should be undertaken to incorporate culturally significant planting or landscaping elements;
- Provide for a predominantly native planting palette;
- Use street tree planting for shade as well as to soften the edges of the transport corridor, creating a pleasant walking and waiting environment; and
- Use planting to screen off the Project from adjacent private properties where adverse effects will require mitigation and frame orientation views, while increasing the amenity of the Project.

**Integration with Adjacent Properties**

- Consider opportunities to enhance existing interfaces with vegetation and trees;
- Avoid placing infrastructure elements such as transformers in visually prominent positions next to neighbouring properties; and
- Where the edges of elevated structures are visible in close proximity to residents, care should be undertaken to consider introducing better amenity outcomes such design refinement to integrate structural elements, patterning/ textures in addition to planting.

**Stormwater Infrastructure**

- Avoid unnatural shapes of ponds, introduce naturalised curves where possible;
- Incorporate appropriate planting around margin of ponds to integrate planting areas and species with adjoining vegetation patterns; and
- Where swales are proposed, incorporate suitable low maintenance native planting.

**10.2 NoR 2**

In addition to the matters outlined above, it is recommended that the following measures are considered to mitigate landscape and visual effects on Hayman Park:

**Hayman Park**

- Provision of appropriate planting around Hayman Park stormwater pond/ wetland; and
- Upgrades to recreational footpaths within park to ensure the stormwater pond / wetland is integrated into the park and not considered in isolation to the surrounding areas of open space.

### 10.3 NoR 3

In addition to the matters outlined above, it is recommended that the following measures are considered to mitigate landscape and visual effects associated with the Puhinui Road BRT bridge:

#### **Puhinui Road Bridge**

- Consideration given around the form, function and exterior appearance of bridge including embankments, walls, abutments, depth, columns and underside;
- Planting on the southern side of Puhinui Road within the HANA; and
- Street tree and shrub planting in the northern berm of Puhinui Road, in particular adjacent to the Puhinui BRT bridge.

### 10.4 NoRs 4a and 4b

In addition to the matters outlined above, it is recommended that the following measures are considered to mitigate landscape and visual effects associated with the proposed ramp structure from SH20B to SH20 for southbound traffic:

#### **Ramp structure**

- Consideration given around the form, function and exterior appearance of the ramps and bridge including embankments, walls, abutments, depth, columns and underside; and
- Incorporation of any cultural narratives developed with Manawhenua.

## 11 Conclusion

In Summary the Project will be developed through a largely existing urban environment and for much of the Project area the centre running busway will be built on an existing median that was built into the original road corridor to provide for future rapid transit.

The below table summarises the natural character, landscape and visual amenity effects of each NoR. These effects have been considered with the proposed mitigation measures and recommendations described in Sections 10 and 11 being implemented.

The Airport to Botany Project will occur within or alongside an existing road corridor and clearly relate to and signify significant infrastructure upgrades alongside an established transport orientated environment. Effects during construction are often greater than those during operation (once the project is completed), due to construction activities occurring prior to the completion of mitigation measures such as tree planting and the ultimate appearance of above ground structures and therefore construction effects are temporary.

Once the project is completed and the proposed mitigation measures (such as tree planting) have been established, residual / long term effects can be fully appreciated. On the whole, whilst the Project will result in a level of change to the receiving environment, it is considered that the Project will achieve high quality design and environmental outcomes whilst providing high quality transport facilities (BRT and active modes) for existing and future populations resulting from urban intensification.

The below table summarises the natural character, landscape and visual amenity effects of each NoR. These effects have been considered with the proposed mitigation measures and recommendations described in Section 10 and 11 being implemented.

### NoR 1

Effect	Assessment – construction	Assessment – operational
<b>Natural Character Effects</b>		
Abiotic	Low	Very low
Biotic	Low	Very low
Experiential	Low	Very low
<b>Landscape Effects</b>		
Landform	Low	Low
Hydrology	Low	Very low
Vegetation	Moderate-High	Low +
Open Space	Very Low	Very Low
Urban Development and Landuse	Low	Very Low
Aesthetic Qualities	Low	Very Low
<b>Visual Amenity Effects</b>		
Residential	Low-Moderate	Very Low

Travelling		Low	Very Low +
Occupational		Low	Very Low
Recreational	Kellaway Drive Reserve	Low	Very Low
	Rongomai Park	Low	Very Low

**NoR 2, Section A**

Effect		Assessment – construction	Assessment – operational
<b>Natural Character Effects</b>			
Abiotic		Low	Very Low
Biotic		Low	Very Low
Experiential		Low	Very Low
<b>Landscape Effects</b>			
Landform		Low	Low
Hydrology		Low	Very Low
Vegetation	Manukau Sports Bowl	Moderate	Very Low
	Washingtonia Palms	Low-Moderate	Very Low
	Ōtara Creek	Low-Moderate	Very Low
	Orlando Reserve	Low	Very Low
Open Space		Low	Low
Urban Development and Landuse		Low	Very Low
Aesthetic Qualities	Manukau Sports Bowl Vegetation	Moderate-High	Low
	Washingtonia Palms	Low-Moderate	Low
	Ōtara Creek	Low	Low
<b>Visual Amenity Effects</b>			
Residential		Low-Moderate	Very Low
Travelling		Low	Very Low +
Occupational		Low	Very Low
Recreational		Low	Very Low

**NoR 2, Section B**

Effect	Assessment – construction	Assessment – operational
<b>Natural Character Effects</b>	N/A	
<b>Landscape Effects</b>		
Landform	Very Low	Low
Hydrology	Very Low	Very Low
Vegetation	Moderate	Very Low
Open Space	N/A	N/A
Urban Development and Landuse	Very Low	Very Low
Aesthetic Qualities	Moderate	Very Low +
<b>Visual Amenity Effects</b>		
Residential	Low-Moderate	Very Low +
Travelling	Low	Very Low +
Occupational	Low	Very Low
Recreational	Low	Very Low

**NoR 2, Section C**

Effect		Assessment – construction	Assessment – operational
<b>Natural Character Effects</b>			
Abiotic		Low	Very Low
Biotic		Low	Very Low
Experiential		Low	Very Low
<b>Landscape Effects</b>			
Landform		Very Low	Very Low
Hydrology		Very Low	Low +
Vegetation		Moderate	Very Low +
Open Space		Very Low	Low +
Urban Development and Landuse		Low	Very Low
Aesthetic Qualities		Moderate	Very Low +
<b>Visual Amenity Effects</b>			
Residential	East of proposed BRT bridge	Low-Moderate	Very Low
	Opposite BRT bridge	High	Moderate
	Setback BRT bridge	Moderate	Low-Moderate

Travelling		Low-Moderate	Very Low
Occupational		Low	Very Low
Recreational		Very Low	Low +

**NoR 3**

Effect		Assessment – construction	Assessment – operational
<b>Natural Character Effects</b>		N/A	
<b>Landscape Effects</b>			
Landform		Very Low	Very Low
Hydrology		Very Low	Very low
Vegetation		Moderate-High	Low
Open Space		N/A	N/A
Urban Development and Landuse		Low	Very low
Aesthetic Qualities		Moderate	Very low
<b>Visual Amenity Effects</b>			
Residential	West of Proposed BRT Bridge	Low-Moderate	Very low
	Opposite BRT Bridge	High	High
	Setback BRT Bridge	Moderate	Low-Moderate
Travelling	-	Low-Moderate	Very low
Occupational	Te Kohanga Reo ki Puhinui	Low-Moderate	Very low
	Other Occupational Audiences	Very Low	Very low
Recreational	-	N/A	N/A

**NoR 4a and 4b**

Effect		Assessment – construction	Assessment – operational
<b>Natural Character Effects</b>			
Abiotic		Moderate	Very Low
Biotic		Moderate	Very Low
Experiential		Moderate	Very Low
<b>Landscape Effects</b>			
Landform		Low	Low
Hydrology		High	Low-Moderate

Vegetation	Moderate-High	Low
Open Space	N/A	N/A
Urban Development and Landuse	Low	Very Low
Aesthetic Qualities	Low	Very Low
<b>Visual Amenity Effects</b>		
Residential	Low	Very Low
Travelling	Low	Very Low
Occupational	Low	Very Low
Recreational	N/A	N/A

# Appendix A

## Assessment methodology

## Appendix A – Assessment methodology

### 1.1 Introduction

The Natural Character and Landscape Effects Assessment (**NCLEA**) process provides a framework for assessing and identifying the nature and level of likely effects that may result from a proposed development. Such effects can occur in relation to changes to physical elements, changes in the existing character or condition of the landscape and the associated experiences of such change. In addition, the landscape assessment method includes an iterative design development processes, which seeks to avoid, remedy or mitigate adverse effects (see Figure 41).

This outline of the landscape and visual effects assessment methodology has been undertaken with reference to the *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines* and its signposts to examples of best practice, which include the *Quality Planning Landscape Guidance Note*<sup>23</sup> and the *UK guidelines for landscape and visual impact assessment*.<sup>24</sup>

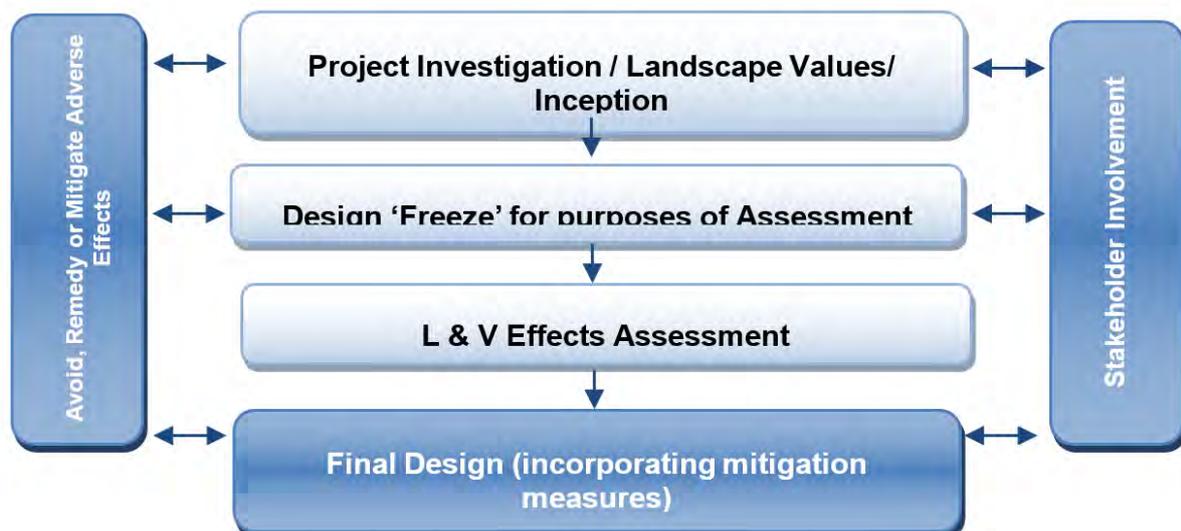


Figure 41: Design feedback loop

When undertaking any landscape assessment, it is important that a structured and consistent approach is used to ensure that findings are clear and objective. Judgement should be based on skills and experience and be supported by explicit evidence and reasoned argument.

While natural character, landscape and visual effects assessments are closely related, they form separate procedures. Natural character effects consider the characteristics and qualities and associated degree of modification relating specifically to waterbodies and their margins, including the coastal environment. The assessment of the potential effects on landscape considers effects on landscape character and values. The assessment of visual effects considers how changes to the physical landscape affects the viewing audience. The types of effects can be summarised as follows:

<sup>23</sup> <http://www.qualityplanning.org.nz/index.php/planning-tools/land/landscape>

<sup>24</sup> Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition (GLVIA3)

**Natural Character effects:** *Change in the characteristics or qualities including the level of naturalness*

**Landscape effects:** *Change in the physical landscape, which may affect its characteristics and values*

**Visual effects:** *Consequences of change on landscape values as experienced in views including visual amenity*

The policy context, existing landscape resource and locations from which a development or change is visible, all inform the 'baseline' for landscape and visual effects assessments. To assess effects, the first step requires identification of the landscape's character and values including the attributes on which such values depend. This requires that the landscape is first described, including an understanding of relevant physical, sensory and associative landscape dimensions. This process, known as landscape characterisation, is the basic tool for understanding landscape character and may involve subdividing the landscape into character areas or types. The condition of the landscape (i.e. the state of an individual area of landscape or landscape feature) should also be described together with, a judgement made on the value or importance of the potentially affected landscape.

## 1.2 Natural character effects

In terms of the RMA, natural character specifically relates to the coastal environment as well as freshwater bodies and their margins. The RMA provides no definition of natural character. RMA, section 6(a) considers natural character as a matter of national importance:

*...the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development.*

Natural character comprises the natural elements, patterns and processes of the coastal environment, waterbodies and their margins, and how they are perceived and experienced. This assessment interprets natural character as being the degree of naturalness consistent with the following definition:

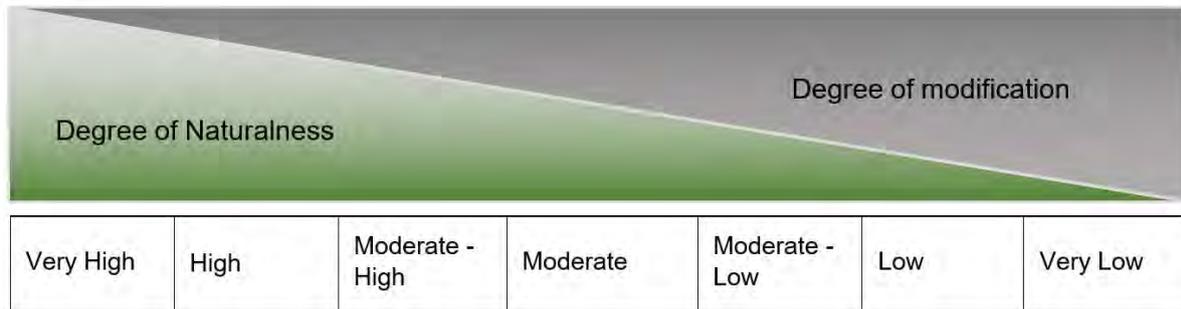
*Natural character is a term used to describe the naturalness of waterbodies and their margins. The degree or level of natural character depends on:*

- *The extent to which natural elements, patterns and processes occur;*
- *The nature and extent of modifications to the ecosystems and landscape/seascape;*
- *The highest degree of natural character (greatest naturalness) occurs where there is least modification; and*
- *The effect of different types of modification upon the natural character of an area varies with the context and may be perceived differently by different parts of the community.*

The process to assess natural character involves an understanding of the many systems and attributes that contribute to waterbodies and their margins, including biophysical and experiential factors. This can be supported through the input of technical disciplines such as marine, aquatic and terrestrial ecology, and landscape architecture.

### 1.2.1 Defining the level of natural character

The level of natural character is assessed in relation to a seven-point scale. The diagram below illustrates the relationship between the degree of naturalness and degree of modification. A high level of natural character means the waterbody is less modified and vice versa.

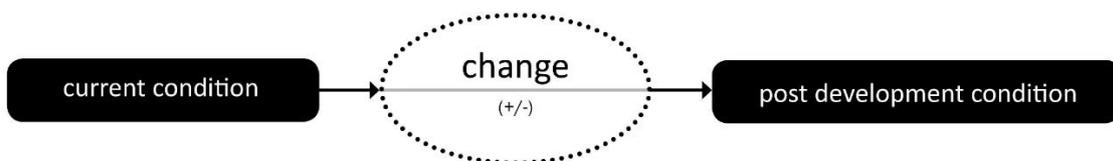


### 1.2.2 Scale of assessment

When defining levels of natural character, it is important to clearly identify the spatial scale considered. The scale at which natural character is assessed will typically depend on the study area or likely impacts and nature of a proposed development. Within a district or region-wide study, assessment scales may be divided into broader areas which consider an overall section of coastline or river with similar characteristics, and finer more detailed 'component' scales considering separate more local parts, such as specific bays, reaches or escarpments. The assessment of natural character effects has therefore considered the change to attributes which indicate levels of natural character at a defined scale.

### 1.2.3 Effects on natural character

An assessment of the effects on natural character of an activity involves consideration of the proposed changes to the current condition compared to the existing. This can be negative or positive.



The natural character effects assessment involves the following steps:

- Assessing the existing level of natural character;
- Assessing the level of natural character anticipated (post construction); and
- Considering the significance of the change.

## 1.3 Landscape effects

Assessing landscape effects requires an understanding of the landscape resource and the magnitude of change which results from a proposed activity to determine the overall level of landscape effects.

Landscape Resource

Assessing the sensitivity of the landscape resource considers the key characteristics and qualities. This involves an understanding of both the ability of an area of landscape to absorb change and the value of the landscape.

Ability of an area to absorb change

This will vary upon the following factors:

- Physical elements such as topography / hydrology / soils / vegetation;
- Existing land use;
- The pattern and scale of the landscape;
- Visual enclosure / openness of views and distribution of the viewing audience;
- The zoning of the land and its associated anticipated level of development;
- The scope for mitigation, appropriate to the existing landscape.

The ability of an area of landscape to absorb change takes account of both the attributes of the receiving environment and the characteristics of the proposed development. It considers the ability of a specific type of change occurring without generating adverse effects and/or achievement of landscape planning policies and strategies.

### 1.3.1 The value of the landscape

Landscape value derives from the importance that people and communities, including tangata whenua, attach to particular landscapes and landscape attributes. This may include the classification of Outstanding Natural Feature or Landscape (ONFL) (RMA s.6(b)) based on important physical, sensory and associative landscape attributes, which have potential to be affected by a proposed development. A landscape can have value even if it is not recognised as being an ONFL.

### 1.3.2 Magnitude of landscape change

The magnitude of landscape change judges the amount of change that is likely to occur to areas of landscape, landscape features, or key landscape attributes. In undertaking this assessment, it is important that the size or scale of the change is considered within the geographical extent of the area influenced and the duration of change, including whether the change is reversible. In some situations, the loss /change or enhancement to existing landscape elements such as vegetation or earthworks should also be quantified.

When assessing the level of landscape effects, it is important to be clear about what factors have been considered when making professional judgements. This can include consideration of any benefits which result from a proposed development. Table 16 below helps to explain this process. The tabulating of effects is only intended to inform overall judgements.

**Table 16: Determining the level of landscape effects**

Contributing Factors		Higher	Lower
Landscape (sensitivity)	Ability to absorb change	The landscape context has limited existing landscape detractors which make it highly vulnerable to the type of change resulting from the proposed development.	The landscape context has many detractors and can easily accommodate the proposed development without undue consequences to landscape character.

	The value of the landscape	The landscape includes important biophysical, sensory and shared and recognised attributes. The landscape requires protection as a matter of national importance (ONF/L).	The landscape lacks any important biophysical, sensory or shared and recognised attributes. The landscape is of low or local importance.
Magnitude of Change	Size or scale	Total loss or addition of key features or elements. Major changes in the key characteristics of the landscape, including significant aesthetic or perceptual elements.	The majority of key features or elements are retained. Key characteristics of the landscape remain intact with limited aesthetic or perceptual change apparent.
	Geographical extent	Wider landscape scale.	Site scale, immediate setting.
	Duration and reversibility	Permanent. Long term (over 10 years).	Reversible. Short Term (0-5 years).

## 1.4 Visual effects

Visual effects are a subset of landscape effects. They are consequences of change on landscape values as experienced in views. To assess the visual effects of a proposed development in a landscape, a visual baseline must first be defined. The visual 'baseline' forms a technical exercise which identifies the area where the development may be visible, the potential viewing audience, and the key representative public viewpoints from which visual effects are assessed.

### 1.4.1 The sensitivity of the viewing audience

The sensitivity of the viewing audience is assessed in terms of assessing the likely response of the viewing audience to change and understanding the value attached to views.

### 1.4.2 Likely response of the viewing audience to change

Appraising the likely response of the viewing audience to change is determined by assessing the occupation or activity of people experiencing the view at particular locations and the extent to which their interest or activity may be focussed on views of the surrounding landscape. This relies on a landscape architect's judgement in respect of visual amenity and the reaction of people who may be affected by a proposal. This should also recognise that people more susceptible to change generally include: residents at home, people engaged in outdoor recreation whose attention or interest is likely to be focussed on the landscape and on particular views; visitors to heritage assets or other important visitor attractions; and communities where views contribute to the wider landscape setting.

### 1.4.3 Value attached to views

The value or importance attached to particular views may be determined with respect to its popularity or numbers of people affected or reference to planning instruments such as viewshafts or view corridors. Important viewpoints are also likely to appear in guide books or tourist maps and may include facilities provided for its enjoyment. There may also be references to this in literature or art, which also acknowledge a level of recognition and importance.

### 1.4.4 Magnitude of visual change

The assessment of visual effects also considers the potential magnitude of change which will result from views of a proposed development. This takes account of the size or scale of the effect, the geographical extent of views and the duration of visual change, which may distinguish between temporary (often associated with construction) and permanent effects where relevant. Preparation of any simulations of visual change to assist this process should be guided by best practice as identified by the NZILA.<sup>25</sup>

When determining the overall level of visual effect, the nature of the viewing audience is considered together with the magnitude of change resulting from the proposed development. Table 17 has been prepared to help guide this process:

**Table 17: Determining the level of visual effects**

Contributing Factors		Higher	Lower	Examples
The Viewing Audience (sensitivity)	Ability to absorb change	Views from dwellings and recreation areas where attention is typically focused on the landscape.	Views from places of employment and other places where the focus is typically incidental to its landscape context. Views from transport corridors.	Dwellings, places of work, transport corridors, public tracks
	Value attached to views	Viewpoint is recognised by the community such as an important view shaft, identification on tourist maps or in art and literature. High visitor numbers.	Viewpoint is not typically recognised or valued by the community. Infrequent visitor numbers.	Acknowledged viewshafts, Lookouts
Magnitude of Change	Size or scale	Loss or addition of key features in the view. High degree of contrast with existing landscape elements (i.e. in terms of form scale, mass, line, height, colour and texture). Full view of the proposed development.	Most key features of views retained. Low degree of contrast with existing landscape elements (i.e. in terms of form scale, mass, line, height, colour and texture). Glimpse / no view of the proposed development.	Higher contrast/ Lower contrast. Open views, Partial views, Glimpse views (or filtered); No views (or obscured)
	Geographical extent	Front on views. Near distance views; Change visible across a wide area.	Oblique views. Long distance views. Small portion of change visible.	Front or Oblique views. Near distant, Middle distant and Long distant views
	Duration and reversibility	Permanent. Long term (over 15 years).	Transient / temporary. Short Term (0-5 years).	Permanent (fixed), Transitory (moving)

<sup>25</sup> Best Practice Guide: Visual Simulations BPG 10.2, NZILA

## 1.5 Nature of effects

In combination with assessing the level of effects, the landscape and visual effects assessment also considers the nature of effects in terms of whether this will be positive (beneficial) or negative (adverse) in the context within which it occurs. Neutral effects can also occur where landscape or visual change is benign.

It should also be noted that a change in a landscape does not, of itself, necessarily constitute an adverse landscape or visual effect. Landscape is dynamic and is constantly changing over time in both subtle and more dramatic transformational ways; these changes are both natural and human induced. What is important in managing landscape change is that adverse effects are avoided or sufficiently mitigated to ameliorate the effects of the change in land use. The aim is to provide a high amenity environment through appropriate design outcomes.

This assessment of the nature effects can be further guided by Table 18 set out below:

**Table 18: Determining the nature of effects**

Nature of effect	Use and Definition
Adverse (negative):	The activity would be out of scale with the landscape or at odds with the local pattern and landform which results in a reduction in landscape and / or visual amenity values
Neutral (benign):	The activity would be consistent with (or blend in with) the scale, landform and pattern of the landscape maintaining existing landscape and / or visual amenity values
Beneficial (positive):	The activity would enhance the landscape and / or visual amenity through removal or restoration of existing degraded landscape activities and / or addition of positive elements or features

## 1.6 Cumulative effects

This can include effects of the same type of development (e.g. bridges) or the combined effect of all past, present and approved future development<sup>26</sup> of varying types, taking account of both the permitted baseline and receiving environment. Cumulative effects can also be positive, negative or benign.

### 1.6.1 Cumulative landscape effects

Cumulative landscape effects can include additional or combined changes in components of the landscape and changes in the overall landscape character. The extent within which cumulative landscape effects are assessed can cover the entire landscape character area within which the proposal is located, or alternatively, the zone of visual influence from which the proposal can be observed.

### 1.6.2 Cumulative visual effects

Cumulative visual effects can occur in combination (seen together in the same view), in succession (where the observer needs to turn their head) or sequentially (with a time lapse between instances

<sup>26</sup> The life of the statutory planning document or unimplemented resource consents.

where proposals are visible when moving through a landscape). Further visualisations may be required to indicate the change in view compared with the appearance of the project on its own.

Determining the nature and level of cumulative landscape and visual effects should adopt the same approach as the project assessment in describing both the nature of the viewing audience and magnitude of change leading to a final judgement. Mitigation may require broader consideration which may extend beyond the geographical extent of the project being assessed.

## 1.7 Determining the overall level of effects

The landscape and visual effects assessment conclude with an overall assessment of the likely level of landscape and visual effects. This step also takes account of the nature of effects and the effectiveness of any proposed mitigation. The process can be illustrated in Figure 42:



Figure 42: Assessment process

This step informs an overall judgement identifying what level of effects are likely to be generated as indicated in Table 19 below. This table which can be used to guide the level of natural character, landscape and visual effects uses an adapted seven-point scale derived from Te Tangi A Te Manu.

Table 19: Determining the overall level of landscape and visual effects

Effect Rating	Use and Definition
Very High:	Total loss of key elements / features / characteristics, i.e. amounts to a complete change of landscape character and in views.
High:	Major modification or loss of most key elements / features / characteristics, i.e. little of the pre-development landscape character remains and a major change in views. Concise Oxford English Dictionary Definition High: adjective- Great in amount, value, size, or intensity.
Moderate- High:	Modifications of several key elements / features / characteristics of the baseline, i.e. the pre-development landscape character remains evident but materially changed and prominent in views.
Moderate:	Partial loss of or modification to key elements / features / characteristics of the baseline, i.e. new elements may be prominent in views but not necessarily uncharacteristic within the receiving landscape. Concise Oxford English Dictionary Definition Moderate: adjective- average in amount, intensity, quality or degree
Low – Moderate:	Minor loss of or modification to one or more key elements / features / characteristics, i.e. new elements are not prominent within views or uncharacteristic within the receiving landscape.
Low:	Little material loss of or modification to key elements / features / characteristics. i.e. modification or change is not uncharacteristic or prominent in views and absorbed within the receiving landscape.

	Concise Oxford English Dictionary Definition Low: adjective- 1. Below average in amount, extent, or intensity.
Very Low:	Negligible loss of or modification to key elements/ features/ characteristics of the baseline, i.e. approximating a 'no change' situation and a negligible change in views.

## 1.8 Determination of “minor”

Decision makers determining whether a resource consent application should be notified must also assess whether the effect on a person is less than minor<sup>27</sup> or an adverse effect on the environment is no more than minor.<sup>28</sup> Likewise, when assessing a non-complying activity, consent can only be granted if the s104D ‘gateway test’ is satisfied. This test requires the decision maker to be assured that the adverse effects of the activity on the environment will be ‘minor’ or not be contrary to the objectives and policies of the relevant planning documents.

These assessments will generally involve a broader consideration of the effects of the activity, beyond the landscape and visual effects. Through this broader consideration, guidance may be sought on whether the likely effects on the landscape or effects on a person are considered in relation to ‘minor’. It must also be stressed that more than minor effects on individual elements or viewpoints does not necessarily equate to more than minor landscape effects. In relation to this assessment, moderate-low level effects would generally equate to ‘minor’ (see Table 20). Where low effects occur, it may be necessary to assess whether this is minor.

The third row highlights the word ‘significant’. The term ‘significant adverse effects’ applies to particular RMA situations, namely as a threshold for the requirement to consider alternative sites, routes, and methods for Notices of Requirement under RMA s171(1)(b), the requirements to consider alternatives in AEEs under s6(1)(a) of the 4th Schedule. It may also be relevant to tests under other statutory documents such as for considering effects on natural character of the coastal environment under the NZ Coastal Policy Statement (NZCPS) Policy 13(1)(b) and 15(b).

**Table 20: Determining adverse effects for notification determination, non-complying activities and significance**

very low	low	low-mod	moderate	mod-high	high	very high
less than minor	minor		more than minor			
				significant <sup>29</sup>		

<sup>27</sup> RMA, Section 95E

<sup>28</sup> RMA, Section 95D

<sup>29</sup> To be used only about Policy 13(1)(b) and Policy 15(b) of the New Zealand Coastal Policy Statement (NZCPS), where the test is ‘to avoid significant adverse effects’.

# Appendix B

## NoR 1 Figures







