

## **DRURY ACCESS RAMP PROJECT**

# Appendix H – Landscape and Visual Effects Assessment

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New Zealand Government

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#### **Document Control**

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### **Abbreviations**

Abbreviation	Term
AEE	Assessment of Environmental Effects
AUP	Auckland Unitary Plan (Operative in Part 2016)
CEMP	Construction Environment Management Plan
CIA	Cultural Impact Assessment
CNVMP	Construction Noise and Vibration Management Plan
CTMP	Construction Traffic Management Plan
CVA	Cultural Values Assessment
DSI	Detailed Site Investigation
ESCP	Erosion Sediment Control Plan
GD05	Guideline Document 2016/005
HNZPT	Heritage New Zealand Pouhere Taonga
LVIA	Landscape and Visual Impact Assessment

NES Contaminated Soil	National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011
NES Freshwater	National Environmental Standards for Freshwater 2020
NIMT	North Island Main Trunk
NOR	Notice of Requirement
NPSFM	National Policy Statement for Freshwater Management 2020
NPSUD	National Policy Statement for Urban Development 2020
NUMP	Network Utilities Management Plan
NUO	Network Utility Operator
P2B	SH1 Upgrades Project between Papakura to Bombay
RMA	Resource Management Act 1991
RIA	Relevant Iwi Authorities
SH1	State Highway 1 Motorway, the Southern Motorway
SH22	State Highway 22, Great South Road
SMAF-1	Stormwater Management Areas – Flow 1
Southern IIG	Southern Iwi Integration Group
SUP	Shared Use Path
TEAP	Transport Emissions Action Plan 2021
the Project	Drury Access Ramp Project
Waka Kotahi	Waka Kotahi NZ Transport Agency

## **EXECUTIVE SUMMARY**

#### **Project Overview**

This report comprises a Landscape and Visual Impact Assessment (LVIA) to support the Proposed Drury Access Ramp at Drury Interchange (the Project).

This assessment of effects on the Project has been undertaken in accordance with Te Tangi a te Manu – Aotearoa New Zealand Landscape Assessment Guidelines and Guidelines for Landscape and Visual Impact Assessment (IEMA, 2013). The visual impact is a result of combining the visual sensitivity level with the degree of visual modification using the visual effect determination matrix.

It has been considered that the effects of the Project include:

- Earthworks, construction and installation works;
- Installation of an elevated access ramp from the SH1 south bound off-ramp, across Great South Road, NIMT, Hingaia Stream and Flanagan Road; and
- Retaining walls beneath SH1 (Drury Interchange), the proposed Drury Access ramp as part of the Project and to the embankment parallel to the SH1 off-ramp.

#### Landscape Visual Baseline

This assessment examines the existing landscape and visual conditions of the Study Area (both physical and statutory) to establish a baseline against which potential effects of the Project can be assessed.

The Study Area has been defined within a radius of 500 metres from the location of the proposed site. This area captures where the Project is potentially observable and is more at risk of adverse effects.

Relevant planning policies and legislation have been reviewed to understand any specific landscape or visual conditions relating to the Study Area, as well as a desktop study to understand the various physical elements that combine to create landscape and visual character. There are no specific planning conditions attributing any specific landscape or visual value within the Study Area.

The Project site is currently zoned as a Transport Corridor and adjoining the future Metropolitan Centre Zone.

The baseline assessment identified a total of five distinct Landscape Character Types (LCTs) within the Study Area (refer to Section 4) including:

- LCT 1: Urban Centre (future)
- LCT 2: Industrial
- LCT 3: Riparian Corridor
- LCT4: Transport Corridor
- LCT 5: Residential

Visual receptors within the Study Area are predominantly users of the transport corridors (road and train). There are limited residential receptors expected to have views of the Project, with existing adjacent residential dwellings acquired by the Papakura to Drury South Project (P2DS) or the land zone changed to Future Metropolitan Centre Zone. Therefore, these viewpoints are representative of the future town centre receptors.

Seven representative viewpoints within the Study Area were assessed (refer to Section 5) including:

Viewpoints 1-3 (VP1, VP2, VP3): representative of motorists.

- Viewpoint 4 (VP4): representative of recreational users of Drury Sports Complex.
- Viewpoint 5-6 (VP5, VP6): representative of visitors or workers at the future town centre/railway station; and
- Viewpoint 7 (VP7): representative of residential receptors.

#### Landscape and Visual Assessment Findings

At year 1 of operation, visual effects have been assessed at **minor** at VP5 (Drury town centre/railway station) and **less than minor** where the Project is likely visible. The introduction of the elevated ramp results in a Moderate visual effects in foreground views experienced by town centre/railway station receptors. Low to Very Low visual **ss** are assessed at viewpoint where the Project is visible, due to the Project is located within an existing transport corridor and is of a scale and appearance commensurate with the Drury Interchange, elevated road and highway ramps.

The residual visual effects (at year 10 of operation), have the potential to be reduced for VP2 and VP5 as a result of other project works providing landscape amenity within the Hingaia Stream reserve. This results in **less than minor** for all assessed viewpoints.

**Less than minor** landscape character effects to Urban centre (LCT 1), riparian corridor (LCT 3), and residential (LCT 5). The riparian corridor is proposed to be developed to create an open space corridor which would increase the existing amenity of existing stream and surrounds. The effects of the Project on the riparian corridor (LCT 3) include some physical severance for open space users from the town centre and limited direct modification to the stream already modified by the NIMT rail bridge.

The Project is predominantly located in land zoned for transport and surrounding character types are already influenced by transport infrastructure.

#### Recommendations

These effects can be managed or mitigated by:

- Construction management plan.
- Consideration to the colour and finish of the access ramp safety barrier to reduce the visual prominence; and
- Installation and maturation of landscape planting to provide landscape amenity to soften views towards the built environment.

With the adoption of the above measures, the potential residual effects of *landscape and visual amenity* of the Project are considered to be **Less than Minor.** 

## **1** INTRODUCTION

### 1.1 Project background

This Report supports the application lodged by Waka Kotahi NZ Transport Agency (Waka Kotahi) for the construction of a new southbound access ramp at Drury Interchange (The Project).

The proposal is considered in the context of the Papakura to Drury South Project (P2DS). P2DS is a Waka Kotahi project set to improve the safety and functionality of State Highway 1 (SH1) and provide for long term growth in the south of Auckland. Waka Kotahi has structured P2B into five stages. The most pertinent of these is Stage 1B1, which pertains to the approved upgrades of Drury Interchange. Stage 1B1 was approved under the COVID-19 Recovery (Fast Track Consenting) Act 2020 ("FTA").

In addition, the proposed site for the Project interfaces the following consented and future developments in the area:

- Future development areas in Drury which are detailed in Section 2.1;
- Realigned SH1 corridor and SH22 / Great South Road as consented in Stage 1B1 of the Papakura to Drury ("P2D") project by Waka Kotahi;
- Future proofing works along North Island Main Trunk (NIMT) rail corridor by KiwiRail as part of Papakura to Pukekohe (P2P) rail electrification works; and

### 1.2 **Project description**

The proposal for the Project is the construction of a new southbound access ramp from SH1 to provide direct connection to future development areas in Drury Town Centre. The approximate location of the proposed off-ramp in relation to the surrounding existing and planned environment is referred to in the AEE and shown in Figure 1-1 below.



Figure 1-1: Proposed Acces Ramp at Drury Interchange

The preliminary concept design of the Project consists of:

- Construction of a 245m long seven span structure bridge from southbound lane of SH1 to an area off Flanagan Road (see Appendix A – Kiwi Property Drury off ramp);
- Foundation piling works for bridge support; and
- The ramp will consist of a single 3.5m wide lane, a left-hand shoulder (2m) and a right-hand shoulder (1m). A second lane is proposed only at the southern end on the approach to the Pitt Road intersection.

Further details of the proposed off-ramp are shown on the plans attached as Appendix B and key elements described in Section 3.1 Project components.

The Project takes place within the existing Flanagan Road (considered as a local road in the Auckland Unitary Plan) and existing services and utilities, which include:

- 1200mm diameter underground Waikato watermain parallel to the NIMT corridor.
- Underground sewer and watermain pipes along Flanagan Road; and
- High voltage overhead lines located directly above the proposed ramp, which are planned to be removed.

### **1.3** Purpose of this report

This report on landscape visual and character effects forms part of a suite of technical reports prepared for the Project. Its purpose is to inform the AEE for:

- NoR for alteration to the existing Designation 6706 for which Waka Kotahi is the Requiring Authority under section 181 of the RMA.
- Resource consent application for national environmental standard matters under NES-CS and NES-F; and
- Resource consent application for regional matters under the AUP.

The objectives of this report are to:

- Understand the natural and built landscape, and visual attributes and characteristics in the vicinity of the Project, including their relationship to land use patterns and history.
- Identify areas of sensitivity to landscape and visual change associated with the Project.
- Identify opportunities to improve and enhance the visual environment from a precinct perspective and for the Project's components.
- Assess the landscape and visual effects associated with the Project.
- Satisfy regulatory requirements under the Resource Management Act 1991.

In assessing the effects related to landscape visual and character the main elements associated with the proposed works that are assessed in this report are:

- During the construction phase, the effects of:
  - Temporary earthworks
  - Temporary road works and elevated ramp installation
  - Temporary construction laydown sites
- During the operation phase, the effects of:
  - Built form of the access ramp
  - Retaining walls to Great South Road

### 1.4 Scope

This assessment has been prepared in general accordance with 'Te Tangi a te Manu – Aotearoa New Zealand Landscape Assessment Guidelines', Version 01 2022 NZ Institute of Landscape Architects and Guidelines for Landscape and Visual Impact Assessment, third edition (IEMA, 2013).

The persons undertaking, managing, reviewing, and certifying (verifying) this report are suitably qualified and experienced practitioners (SQEPs) in Landscape Architecture.

### **1.5** Consultation and engagement with Mana Whenua

Engagement with Mana Whenua has occurred throughout the design and consenting phase of the Project. Engagement has been managed directly by Waka Kotahi through various meetings with the relevant Mana Whenua representative(s). Of particular relevance to the design are the following interactions:

- March 2023 meeting and site visit to review possible alignment options and agree preferred alignment,
- 23 May 2023 meeting to present bridge design alignment, and indicative pier locations,
- March 2023 site visit to view alignment and wider development plans,
- April 2023 meeting to discuss ongoing design and consent application, and;
- June 2023 meeting to discuss the proposed consent conditions and AEE.

Additionally, Mana Whenua have been actively engaged on the P2D project and associated Drury Interchange upgrade works.

### **1.6 Explanatory statement**

#### 1.6.1 Review scope and use

Aurecon has prepared this report for Waka Kotahi NZ Transport Agency (Waka Kotahi), exclusively for its use. It has been prepared in accordance with our scope of services and the instructions given by or on behalf Waka Kotahi. Data or opinions contained within the report may not be used in other contexts or for any other purposes without Aurecon's prior review and agreement.

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#### 1.6.2 Limits on investigation and information

There are the following limitations associated with this assessment:

- There are limited specifications for the assessment of landscape and visual impacts specific to New Zealand. Therefore, the below guidelines have been used as a basis for the methodology for this assessment:
  - Aotearoa New Zealand Landscape Assessment Guidelines Te Tangi a te Manu, Version 01 2022, NZ Institute of Landscape Architects.
  - The Guidance for Landscape and Visual Impact Assessment (GLVIA), Third Edition (2013), prepared by Landscape Institute and Institute of Environmental Management & Assessment (IEMA, UK).
  - Guideline for Landscape Character and Visual Impact Assessment (August 2020), Transport for New South Wales; and
  - Guidance Note for Landscape and Visual Assessment (June 2018), Australian Institute of Landscape Architects (Queensland chapter).
- The LVIA process aims to be objective and, as such, seeks to describe any changes factually. Potential changes resulting from the Project have been defined. However, the significance of these changes requires qualitative (subjective) judgements to be made. Therefore, the conclusions to this assessment combine both objective measurement and subjective professional interpretation. This assessment has attempted to be objective; however, it is recognised that visual assessment can be highly subjective, and individuals are likely to associate different visual experiences to the Study Area;
- This LVIA is based on the Preliminary design general arrangement preferred alignment (Pre-design consultation concept plan 510611-0300-DRG-BB-0001-A.pdf, refer Appendix B) produced by Aurecon.

- The impact assessment is focused on the current and approved land uses and zoning, which include the following:
  - Access to sensitive viewpoints on private land, such as residences or accommodation, were not undertaken for this LVIA. However, effects from these locations were considered in the assessment.
  - Methodology, program and timing of the construction works are currently indicative and dependent upon planning approvals.
- Should further information become available regarding the conditions at the site, Aurecon reserves the right to review the report in the context of the additional information.
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#### 1.6.3 Assumptions on Investigation and Information

This report has been developed based on the following assumptions:

- Desktop investigations were undertaken to inform the findings of this report supplemented by site visits by project review colleagues.
- Waka Kotahi has engaged with relevant Mana Whenua representative(s) throughout the Project, by arranging ongoing meetings to discuss the proposed design (discussed in Section 1.5 above).
- The preliminary environmental assessments were undertaken based on the Project investigation area mapped in each specialist assessment. Any additional project area has not been considered by these reports and therefore has not been considered in this report.
- The landscape and visual assessment is based on the Proposed Works as outlined in Section 3. As the design of the Project is not yet finalised, our advice provides a point in time reference that is subject to change.
- The methodology adopted for this LVIA assumes that if the works would not be seen, there is no impact.
- For the purpose of the assessment, an unobstructed viewpoint depicted from the point-cloud 3d geospatial model has been used as a worst-case scenario of potential visual impacts from surrounding viewpoints.

### **1.7** Approach to the assessment

The Project is located at the Drury Interchange where SH1 crosses SH22/Great South Road. The North Island Main Trunk (NIMT) rail line and Hingaia Stream will be traversed by the proposed access ramp.

The report's key focus is on the visual sensitivity being the tolerance of the viewer and the landscape setting to change as a result of the proposed development. The visual effect of the Project is determined by evaluating the degree of its visual fit in the context of the visual sensitivity of the surrounding land uses (based on the land use zones of the applicable planning scheme).

The following scope of works was undertaken for the assessment of Landscape and Visual effects:

- Baseline analysis including:
  - Desktop study to examine and review existing available information pertaining to the study area including but not limited to environmental reports, historical information, aerial photographs and property files
  - Identify relevant statutory and non-statutory provisions
- Describe the Project including scale, materiality and areas affected.

- Assessment of landscape and visual effects:
  - Identify any significant landscapes, views and sensitive receptors
  - Analysis of site photography and design models provided by the design team;
  - Assessment of landscape and visual impacts based on the sensitivity to change and level of modification.
- Production of this LVIA report, whereby the desktop review and recommendations are presented.

Refer to Appendix C for the assessment methodology.

### 1.8 Study area

A viewshed is defined as the surface area visible from a given viewing location. As the distance increases from any proposed development, the field of view decreases causing the visibility of components to diminish. Appendix D defines this diminishing visual prominence rationale.

The extent of the Site's potentially visible surface area from a given viewing location was identified during a desktop study using topographical data. The Study Area for the purposes of this assessment includes the Project extents (the Site) and a conservative viewshed analysis of an 500m radius from the centre of the proposed access ramp.



Figure 1-2: LVIA Study Area (red circle indicating 500m radius from the Site)

## 2 LANDSCAPE BASELINE ANALYSIS

Legislation, policies, and guidelines that have been reviewed and that are applicable to this impact assessment are outlined below.

## 2.1 Legislation and Policy

#### 2.1.1 National

#### Table 2-1: Relevant National policies and legislation

Legislation/Policy reference	Brief description legislation, salient parts and intent	How legislation/policy is relevant to the study
Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA);	The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tūpuna, wāhi tapu, and other taonga.	Consideration of the heritage registered elements as an importance cultural aspect which helps influence the landscape character.
Environment Act 1986	The Act provides the framework for land use and development. 17b. areas, landscapes, and structures of aesthetic, archaeological, cultural, historical, recreational, scenic, and scientific value.	Local planning schemes are reviewed below.
Resource Management Act 1991 (RMA)	New Zealand's key piece of legislation to manage the effects of use and development	Schedule 6: Information required in assessment of environmental effect.
	of natural and physical resources. It sets out the key functions, powers and duties for local authorities, such as Auckland Council.	Schedule 7: Matters that must be addressed by assessment environmental effects (b) any physical effect on the locality, including and landscape and visual effects.
		Section 6 (a) - <b>The preservation of the</b> <b>natural character of the coastal</b> <b>environment</b> (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development.
		Section 7c - The maintenance and enhancement of amenity values
		Section 7d - Intrinsic values of ecosystems
		Section 7f - Maintenance and enhancement of the quality of the environment
lwi /Hapū Resource Management Plans and Treaty Settlement Acts	Capacity and resourcing to participate fairly for Māori rights and interests.	Collaboration with Mana Whenua on the landscape and urban design elements is to occur to develop the design and its response to its landscape and cultural context.

Legislation/Policy reference	Brief description legislation, salient parts and intent	How legislation/policy is relevant to the study
National Policy Statement on Urban Development 2020	Requiring Councils to plan for growth and ensure a well-functioning urban environment for all people, communities and future generations; and Ensuring capacity is provided in accessible places close to jobs, community services, public transport, and other amenities our communities enjoy.	<ul> <li>PC 78: Intensification to respond to the NPS-UD includes:</li> <li>Enable development in and around neighbourhood, local and town centres;</li> <li>Incorporate Medium Density <ul> <li>Residential Standards that enable three storey housing in relevant residential zones in urban Auckland.</li> </ul> </li> </ul>

#### 2.1.2 Plan Change 48

Private Plan Change 48 (PC48) was approved by Auckland Council to rezone approximately 95 hectares of land from Future Urban to 35.5 hectares of Business: Metropolitan Centre Zone, approximately 51.8 hectares of Business Mixed Use Zone surrounding the Metropolitan Centre and, 7.4 hectares of Open Space: Informal Recreation Zone at Drury known as PC48 – Drury Centre Precinct. PC48 considered the potential for a future southbound off ramp into Drury Centre Precinct.

The development and infrastructure thresholds that are relevant to this assessment are set out in the Operative Plan Change. These are summarised at Table 2-2 below.

Section	Criteria	Relevance to assessment
I450.3 Policies	<b>Street Network and Built Form</b> 13. Require large format retail activities in Sub- Precinct B to provide for the visual quality and interest of streets and other public places, having regard to the functional requirements of that activity.	Visual amenity of streetscapes. Built form to contribute to the sense of place in the commercial and residential developments.
	<ul> <li>Manage building height and form to:</li> <li>(b) Contribute positively to Drury's sense of place, including by: <ul> <li>(i) Reinforcing the function of Sub-precinct A as the core of Drury Centre;</li> <li>(ii) Responding to landform; and</li> <li>(iii) Transitioning the scale of built form to visually integrate with adjoining areas.</li> <li>(c) Minimise shading effects on large publicly accessible open spaces.</li> </ul> </li> </ul>	
I450.6.10	F. Ensure development positively contributes to the visual quality and interest of open spaces	Avoid adverse visual effects to open spaces within the development.
1450.8.2	Assessment criteria (d) Whether a high quality and integrated network of local roads is provided within the precinct that provides a good degree of	Visual amenity of streetscapes including visual and physical connectivity to open spaces.

Table 2-2: Assessment criteria set out in Operative Plan Change 48

accessibility and supports a walkable street network. Whether roads and pedestrian and cycle paths are aligned to provide visual and physical connections to open spaces, including along the stream network, where the site conditions allow.

(2) Development of publicly accessible open space greater than 1000m2:

(a) Whether open spaces are provided in locations generally consistent with their indicative locations shown on I450.10.2 Drury Centre Precinct Plan 2 and have adequate street frontage to ensure the open spaces are visually prominent and safe.

#### 2.1.3 Local

#### **Planning Zones**

The Auckland Unitary Plan Zones are mapped in Figure 2-1 below and a description of those identified within the Study Area provided in Table 2-3: below.

Tab	le 2	-3:	Land	uses

Planning Zones	Land Use Features	How zoning is relevant to the assessment
Strategic Transport Corridor	State Highway 1 (SH1) Auckland – Hamilton motorway Great South Road North Island Main Trunk railway line (NIMT)	State highway and railway corridor zoned within Study Area is commensurate with the proposal. All yards for buildings and transport storage must be landscaped or screened from zone.
Business – Metropolitan Centre	Area to the south of NIMT and east of the Hingaia stream	The zone provides for a wide range of activities including commercial, leisure, high-density residential, tourist, cultural, community and civic services and contain hubs serving high frequency transport. Provide a landscaped buffer between buildings and activities and adjoining residential zones and some special purpose zones, to mitigate adverse visual and nuisance effects.
Business – Mixed Use	North of Great South Road and east of SH1	Provide a landscaped buffer between buildings and activities and adjoining residential zones and some special purpose zones, to mitigate adverse visual and nuisance effects.
Open Space – Informal Recreation Zone	Adjacent to Hingaia stream including between NIMT and Great South Road	Limiting development in these areas maintains the open space character and amenity values, and enables opportunities for a range of informal recreation activities to occur. The creek corridor is planned as a future Open Space under the Drury Centre development.
Open Space – Conservation	Ngakoroa Reserve - east of Study Area at intersection of Karaka Road and Great South Road	Project avoids zone.

Planning Zones	Land Use Features	How zoning is relevant to the assessment
Open Space – Sport and Active Recreation	Drury Sports Complex	Project avoids zone.
Future Urban Zone	Drury southeast of Brookfield Road and areas east of the Hingaia stream	Applied to greenfield land that has been identified as suitable for urbanisation. Land subject to Rural Production Zone until it has been rezoned for urban purposes. Project avoids zone.
Residential – Mixed Housing Urban	New residential development accessed by Auranga Drive	Project avoids zone.
Water	Hingaia stream Ngakoroa stream to the west & northwest of the Proposal	Project crosses stream. Project avoids zone.

#### **Overlays**

The Auckland Unitary Overlays are mapped in Figure 2-2 below and a description of those identified within the Study Area provided in Table 2-4 below.

#### Table 2-4: Planning overlays

Overlays	Land Use Features	How zoning is relevant to the assessment
Significant Ecological Areas - Terrestrial and Marine	Tidal and marine areas associated with the Ngakoroa Stream of the Manakau Harbour	Project avoids overlay.
Kauri Management Areas – Other Areas	Hingaia Stream (KMA003657) Ngakoroa Stream – Drury Sports Complex (KMA003686)	The Proposal traverses the Hingaia Stream. Not relevant to this assessment, as this is not an AUP:OP overlay.
Ecosystem - Treelands		Protect notable trees and notable groups of trees from danger or destruction resulting from development. Project avoids overlay.
Drury Conservation Area	To the west of SHI, north of Bremner Road (R12309)	Project avoids overlay.

#### Summary

The Project is located in land zoned Strategic Transport Corridor, Business – Metropolitan Centre and Open Space

Informal Recreation Zone. The key considerations for development within these zones, is to mitigate adverse visual effects, maintain and enhance open space character and amenity values.

The Project avoids areas of ecological significance and there are no significant view shafts or areas of outstanding natural beauty identified.



Figure 2-1: Plan zones. Source: Auckland Council Geomaps (red circle indicating the Study Area)



Figure 2-2: Overlays. Source: Auckland Council Geomaps (red circle indicating the Study Area)

### 2.2 Landscape context

#### 2.2.1 Site context

The following section provides a brief description of the existing conditions, associated land uses and key landscape features within the 500m radius Study Area.

#### Land Use

The land use zones are mapped in Figure 2-1 and provided in Table 2-3:. The area is undergoing urbanisation with a town centre development planned by Kiwi Property, as per Plan Change 48 (Private): Drury Centre Precinct (Auckland Unitary Plan Operative, 16 December 2022). The 51-hectare development proposes a town centre (see Figure 2-3 and Figure 2-4) with retail and commercial businesses, residential dwellings; connections to parklands along the Hingaia Stream, a Shared Use Path and the new Drury Railway Station. Refer also to Appendix B for the Land Use & Parcel Plan and Building Heights included in the 2048 Master Plan.

The proposed built form is a contrast to the existing site conditions (at the time of this report), which comprises residential large lots and land subject to rural production (refer images Figure 2-5). The building heights for the Kiwi Property Drury Centre (Precinct Plan 1, Plan Change 48), include multi-storey and high-rise buildings – refer Figure 2-7.



Artist's impression subject to change. Images are for illustrative purposes only and do not impose any obligation or liability upon Kiwi Property.

Figure 2-3: Artist impression of the Drury Centre development with Flanaghan house retained (source: Kiwi Property https://www.kiwiproperty.com/corporate/drury/) letropolitan Centre 2048 Master Plan Report (28 June 2019) For Internal Refer

#### The 2048 Master Plan

The following list is a summary of the notable features of the 2048 Master Plan. Each of the features, and the relationship between them, are detailed in the subsequent chapters of this Report. The following numbered list corresponds to the numbered annotations in figure 1.

Within Kiwi Property lands:

- 1. Station Plaza
- 2. Valley Park
- 3. Main Street
- 4. Community/Aquatic Centre
- 5. Local Civic Centre
- 6. Town Square
- 7. Cinema
- 8. Homestead Park
- 9. Hingaia Creek Reserve
- 10. Creekside Recreational Route
- 11. Pocket Park
- 12. LFR and Bulky Goods

#### Within lands not under Kiwi Property ownership:

- 13. Fitzgerald Stream
- 14. Railway Station
- 15. Potential Medical Precinct
- 16. Neighbourhood Park
- 17. Local convenience centre

#### Legend



CIVITAS | KIWI PROPERTY

Figure 2-4: 2048 Master Plan

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Figure 2-5: Farming elements and windrow trees within Study Area (image: Aurecon, Oct. 2021)



Figure 2-6: Undulating rural land within Study Area (image: Aurecon, Oct. 2021)



Figure 2-7: Drury Centre Precinct plan 1 – Building Height (source: Auckland Council Plan Change 48)

#### **Topography and Hydrology**

The land is typically undulating, will the Drury Hills rising a short distance to the east (refer Figure 2-9). The elevation is approximately 20m above sea level (ASL) to the top east of the study area (around 120 Flanagan Road), and 10m ASL at the motorway. The low point is a short distance to the northwest where the Ngaakooroa Stream and Hingaia Stream (see Figure 2-8) meet the Pahurehure Inlet. The Hingaia Stream and Fitzgerald Stream flow from the Drury Hills, intersecting just north of Great South Road. The stream has low but steep embankments, with flood areas forming in flatter areas including between the NIMT and Great South Road.

The motorway is framed by embankments and land built up at the Drury Interchange.

The Ngaakooroa Stream is estuarine to the west of the Drury Sports Complex.



Figure 2-8: Hingaia Stream within Study Area (image: Aurecon, Oct. 2021)



Figure 2-9: Undulating rural land within Study Area (image: Aurecon, Oct. 2021)

#### Ecology

The landscape is highly modified with a history of land cultivation and animal grazing. Stock access to stream banks has had an adverse effect on bank slumping and instability.

Along the Hingaia Stream riparian corridor, vegetation species comprise pasture grasses and pampas, with patches of exotic weed species, and rarely ponga (*Cyathea dealbata*) on the top of the bank. Exotic windrows are typically placed to the perimeter of grassed paddocks, with occasional shade trees.

Proposed riparian planting along stream corridors to develop the blue-green network will result in a demonstrable improvement in instream habitat.

Refer to Appendix L – Freshwater Ecological Assessment (Aurecon, rev. A, February 2023) for further information.

#### **Heritage Values**

There are a few archaeological sites of local heritage value within the Study Area as identified in Figure 2-13. Historic sites mapped within the Study Area include the following structures. These buildings contribute to the history and character of Drury.

- Flanagan Homestead (see Figure 2-10)
  - This historic structure at 120 Flanagan Road, is a surviving 19th century farmhouse, with a long association with the Flanagan family in Drury. The house is proposed to be retained and reused as part of the Drury Centre Development (see Figure 2-10).



Drury Presbyterian Church, Norrie Street (see 2-11)

built in late 1894 and presided by Reverend Norrie, an early minister and community facilitator of the area. It remains in use as a building of worship.

Former Drury Presbyterian Manse (Keith Hay site)

the building is no longer on this site.

Sites of archaeological significance are identified and located near to the Hingaia Stream and Ngaakooroa Stream.



Figure 2-10: Flanagan Homestead (source: Historic Heritage Assessment for Kiwi Property by Matthews & Mathews Architects Ltd))



Figure 2-11: Presbyterian Church, Norrie Street (source: doc.org.nz)





Figure 2-12: Topography and hydrology mapping. Source Auckland Council Geomaps (red circle indicating the Study Area)



Figure 2-13: Areas of significance. Source Auckland Council Geomaps (red circle indicating the Study Area)

#### Cultural Heritage Inventory Public

CHI Place (only visible at 1:25000 and above)

- Archaeological Site
- Hayward and Diamond
- A Historic Botanical Site
- Historic Structure
- Maori Heritage Area
- Maritime Site

Reported Historic Site

Priority Coastal Areas For Survey (only visible at 1:25000 and above)

Archaeological Surveyed (only visible at 1:25000 and above)

Priority Areas For Survey (only visible at 1:25000 and above)

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## **3 PROPOSED WORKS**

### 3.1 **Project components**

A draft urban design concept plan showing the latest aerial imagery sourced from LINZ Data Service is presented in Appendix B.

#### 3.1.1 Construction

The construction works for Drury Access Ramp will be undertaken over an approximately 2-year programme. Actual dates will be confirmed once detailed design is completed.

The construction will involve the following key works:

- Set up of works zone.
- Construction compound.
- Earthworks (cut and fill); and
- Use of machinery including crane, and transport trucks.

#### 3.1.2 Operational

The key Project components relevant to landscape and visual, are outlined in Table 3-1.

#### Table 3-1: Site Identification

Element	Description	Indicative scale
Access ramp	2-lane ramp with SUP from SH1 off-ramp, crossing over SH22, Hingaia Stream and NIMT embankment formed south of Flanagan Road for road level surface	7.3-8.3m wide 9.7-10.8m height above SH22, 10.0–8.7 above Hingaia Stream and 7.98m above NIMT (5.5m vertical clearance), 7.1m height above Flanaghan Road
Safety screens	<ul> <li>Concrete parapets to bridge with rebate for urban design treatment, design to be coordinated with mana whenua</li> <li>Safety screen in wire mesh to top of parapet across NIMT span</li> </ul>	1.7m height parapet 1.1m height
Columns	Singular round concrete columns central to the ramp, positioned in road median at SH22,	Typ. spans 31.0-33.0m, with long span 41.0m over SH22 and NIMT
Retaining walls	<ul> <li>Weathered steel feature retaining walls beneath SH1, along north and south sides of SH22 (see Figure 3-1,Figure 3-2)</li> <li>Weathered steel feature retaining wall to west side of SH1 off-ramp. (see Figure 3-1)</li> <li>Concrete wing wall to south side of Flanaghan Road and retaining wall (CH-570-640) to the south</li> </ul>	7m high x 80m length – south side SH22, 6m high x 75m length – north side SH22 Up to 5m high x 102m length – off-ramp

Element	Description	Indicative scale
	<ul> <li>Low retaining wall to the south side of the road (CH-850-1050, connecting into development (Brookfield Road)</li> </ul>	



Figure 3-1: Proposed feature retaining walls beneath the Drury Interchange (source: Aurecon)



Figure 3-2: Proposed feature retaining walls at Drury Interchange parallel to SH1 (source: Aurecon)

## 4 LANDSCAPE CHARACTER

### 4.1 Landscape Character Types

Landscape Character Types (LCT) help to identify unifying aspects of the landscape and distinguish why one landscape is visually distinct from another. The LCTs have been determined through a desktop assessment and confirmed through a site visit by the landscape team. Each LCT identified is based on the consideration of the following attributes:

- Landscape value, i.e. landscape designated for their scenic or landscape importance or valued recreational function;
- Landscape elements that contribute to defining character, i.e. residential, commercial and landform;
- Landscape character attributes, including scale, grain, perceptual characteristics such as connection to natural landscape, industrial nature of the area;
- Observed land uses and current and future land use zones outlined in strategic planning documents and Local Environmental Plans; and
- Topography and vegetation.

The LCTs identified within the Study Area are shown in Figure 4-1 and include the following, as described in the following section:

- LCT 1 Urban Centre
- LCT 2 –Industrial
- LCT 3 Riparian Corridor
- LCT 4 Transport Corridor
- LCT 5 Residential

#### LCT 1: Urban Centre

The Drury Centre Development under Plan 48 (refer Section 2.1.2) is an urban development in design phase, proposed to have a commercial town centre and residential housing. This will be connected to the new Drury Railway Station along Flanagan Road / Great South Road (SH22). The development will comprise built form, roads and streets. Key landscape features are not yet defined within the design phase, however typical urban centres comprise mid-storey commercial buildings and public urban spaces.

#### LCT 2: Industrial

The mixed-use business park to the north of SH22, comprises building depots and large storage yards with sheds up to two storeys in height.

These are highly modified landscapes with little to no natural characteristics. The Hingaia Stream that winds through some of this area, has a narrow waterway reserve with limited public access or amenity, thus providing negligible influence on the character.

Buildings are typically of little aesthetic value, including large sheds and factories made from building materials ranging from corrugated steel, timber, brick, and concrete.

Medium industrial activity includes depots for distributors, automotive and mechanical works; within large storage yards with sheds up to four storeys in height. These areas are frequented within standard working hours, by workers or visitors seeking goods or services.

The large transmission towers traversing SH22, contribute to the industrial character due their scale and clearance of trees and structures around them.

Effects which may occur as result of the Project are indirect to this LCT, except for the construction worksites.

#### LCT 3: Riparian Corridor

The Hingaia Stream is a narrow and winding stream with banks either grassed or with mixed shrubs and trees. The quality of the waterways (at the time of this report) are of degraded ecological quality due to stock access, presence of exotic and weed species, with limited native riparian vegetation (refer Ecological Assessment – Appendix L).

The Ngaakooroa Stream to the west of Drury Sports Complex and SH1, is an estuarine stream withing the Study Area with abundant riparian vegetation. There are a number of low-lying wetland areas, especially to the north nearer to the Pahurehure Inlet. There are passive and active recreational reserves located in the waterway floodplains including the Drury Sport Complex, comprising active sports fields, courts, a clubhouse and carparking. Sports clubs and groups often use the facilities on weekends and evenings.

The aesthetic quality of waterways and adjacent waterway reserves provide an opportunity for recreation, as well as for flora and fauna, make these areas valued landscapes. As part of the Drury Centre Development, the Hingaia Stream reserve will be enhanced, creating recreational paths and a public open space connecting to the town centre.

Effects which may occur as result of the Project are direct to this LCT, with the Access Ramp traversing over the stream near the Drury Interchange, where the NIMT rail line also crosses the stream.

#### LCT 4: Transport Corridor

There are three major transport corridors within the study area including SH1/Auckland Southern Motorway, SH22/Great South Road and the North Island Main Trunk (NIMT) railway. These are busy transport corridors with built roads and bridges. Other road elements include signage, traffic lights, road barriers and overhead lighting. At the interchange, embankments and retaining walls are present, around the elevated roads and bridges.

Although roads typically take on the character of the adjacent land use, the scale of the transport infrastructure at the Drury Interchange, within the Study Area, dominates the character for road users.

Effects which may occur as result of the Project are direct to this LCT, with additional transport infrastructure introduced at the Drury Interchange.

#### LCT 5: Residential

The residential character within the Study Area comprise existing and new developments associated with the land zones designated as:

- Residential -Terrace Housing and Apartment Buildings Zone;
- Future Urban Zone; and
- Residential Mixed Housing Suburban Zone.

Within these residential suburbs of Drury (east of SH1) and Karaka (west of SH1); there are occasional local neighbourhood parks which consist of larger trees, grassed areas and playgrounds. Dwellings are typically one to two stories in height and setback from the road, with low fencing to the fronts and high fencing to the sides and back. Dwellings typically face onto the street and do not overlook the adjacent LCTs. The streetscapes are complimented with grassed nature strips and occasional trees. The presence of built form (houses and roads) are more prevalent than natural features.

Effects which may occur as result of the Project are indirect to this LCT.



Figure 4-1: LCTs within study area (black line representative of Project location)

## 4.2 Absorptive capability of the Landscape Character Type

The ability of the landscape types to absorb change has been assessed and is outlined below.

#### Table 4-1: LCT absorptive capability

Landscape Type	Potential landscape impact	Comments
LCT 1: Urban Centre	Very Low	Within the Drury Centre development there is proposed to be an abundance of built form and streetscape elements. New residential and commercial areas will form its

Landscape Type	Potential landscape impact	Comments
		own sense of place created within shopping and café areas. The LCT has a high ability to absorb the proposed changes.
		The Project has a very low magnitude of change to the urban centre, which is an area surrounded by multi-storey buildings.
LCT 2: Industrial	Negligible	The scale and extent of these complexes are prominent within the study area, are highly modified landscapes and provide significant capacity to absorb further change. The LCT has a high ability to absorb the proposed changes. The Project has a negligible magnitude of change to the industrial area, which is already highly modified area with limited visual amenity.
LCT 3: Riparian corridor	Moderate	This LCT varies in the ability to absorb change based on the whether the setting is influenced by infrastructure, such as highways and industrial areas; or has a sense of naturalness. These spaces are valued for their vegetation and waterways, with a public open space corridor being developed as part of the Drury Town Centre development increasing the recreation and environmental amenity. As such, the landscape character has a low ability to absorb change.
		The magnitude of change is considered to be low due to the following:
		The Project traverses over the stream in an area where the stream is already influenced by rail, road and electrical infrastructure relatively small portion of what is a widely distributed and expansive LCT.
		<ul> <li>The elevated road provides a physical barrier between the town centre and proposed recreational space along Hingaia stream.</li> </ul>
		The high sensitivity and low magnitude of change would result in a Moderate effect to LCT 3.
LCT4: Transport corridor	Negligible	The LCT is highly modified and provides significant capacity to absorb further change. These are transient viewpoints (corridor with only fleeting views) in which receptors are not sensitive to change.
		The addition of the access ramp reinforces the existing character.
LCT 5: Residential	Low	<ul> <li>Changes to views immediately adjacent to residential receptors are often more critically received. As such, it is assumed that the viewer is highly sensitive to changes in their immediate surroundings. The ability to absorb change is considered low.</li> <li>The magnitude of change is considered to be Low due to the following:</li> <li>The Project is likely to be visible from within this LCT within a limited area within this LCT5, with residential areas widely spread to the periphery of the</li> </ul>
		Study Area.
		<ul> <li>The high sensitivity and very low magnitude of change would result in a Low effect to LCT 5.</li> </ul>

## 5 VISUAL EFFECTS

### 5.1 Visibility of the Project

The assessment of the visual effect has been based on the sensitivity of the view and the degree of modification or changes to the view as part of the Project at construction phase, at year 1 of operation and Residual phase. The following section outlines the impact assessment on the visual components of the Project and the residual effects that remain following the implementation of mitigation measures.

The theoretical view is based on Lidar modelling and the analysis of proposed elements and their relative levels compared to the level of viewpoint receptors. Site photos have been captured by the team working on the <u>Papakura</u> to Bombay Stage 1B1 (31 March 2023).

#### 5.1.1 Detailed assessment of representative viewpoints

Seven viewpoints were identified for the Project based on the design, viewing distance, aspect and sensitivity of receptors. The viewpoints are located with a 500m radius of the ramp alignment. Outside of this area, views of the ramp are unlikely due to the presence of existing and proposed built form. Therefore, these viewpoints are considered worst-case scenarios for potential visual impacts. The location of the assessed viewpoints are shown in Figure 5-1.

Site photos (March 2023) and preliminary renders of the Project are included from each of the viewpoints. The site photos are of the existing conditions and do not demonstrate the baseline conditions which include approved developments. These are used to demonstrate the landscape context and the scale of key elements against those proposed. The preliminary renders are produced from a 3d model of the Project which indicates key proposed elements for the purpose of scale and alignment. It is noted that these renders do not represent all of the existing or proposed elements, nor proposed finishes. They are intended for indicative comparison to determine the level of visual modification.



Figure 5-1: Viewpoint locations

#### **VIEWPOINT 01**

Viewing location	Bremner Road overpass at Auckland Southern Motorway
Existing setting	The view is representative of motorists driving south on Auckland Southern Motorway (State Highway 1-SH1) looking towards the Drury Interchange (refer Figure 5-2). Bremner Road overpass is a road bridge over the northbound and southbound lanes. SH1 is two lanes in each direction, widening for on and off ramps at the Drury interchange. The motorway has grassed embankments to either side with trees. Industrial buildings are visible to the top of the embankment to the east and occasional views to residential houses to the west. In the mid-ground of the view, transmission towers and lines cross the highway. Transport infrastructure is including traffic barriers are present to the centre and sides of the motorway, as well as lighting poles and road signage. Background views of adjacent land are not visible due to the motorway within a cutting and the embankments screening views.
	The baseline conditions include approved plans which include Stage 1B1 Papakura to Drury

The baseline conditions include approved plans which include Stage 1B1 Papakura to Drury Interchange and NIMT bridge for Papakura to Pukekohe electrification.

Viewing context	Duration of view: dynamic	Viewing angle: perpendicular		
Visual Sensitivity Level	LOW			
Viewer sensitivity	Landscape sensitivity			
Land use	Strategic Transport Corridor	Landscape Type	LCT 4 - Transport Corridor	
Viewing distance (m)	Foreground (approx. 240m from top of ramp)			
Viewer sensitivity level	Low	Absorptive ability	High	
Visual Modification Level				
Viewpoint discussion	As indicated in Figure 5-3, the Drury Access Ramp will be partially visible from SH1. The access ramp will continue at a similar level to the motorway lanes to traverse over Great South Road, with the existing off-ramp continuing to ramp down to SH22. The Project is considered commensurate in scale and appearance to the motorway and Drury Interchange. There will be additional road signage to indicate the lane movements required for the direction of travel. The Project proposes a new elevated lane, at the Drury Interchange which is recent road upgrade. The Project does not obscure views and is commensurate with the other access ramps at the interchange.			
Construction Visual Effects	LOW			
	Temporary site works will be in the foreground view of VP1. This will be commensurate with regular road works including lane closures and works undertaken for the Drury Interchange. Although the construction works will be a noticeable temporary change in the view from VP1, the level of visual modification against the permitted works is considered low. A <b>Low level of modification</b> , experienced by motorists of <b>low sensitivity</b> , results in a <b>Low adverse visual effect</b> during construction.			
Operational Visual Effects	VERY LOW			
(at year 1 of operation)	The introduction of the Drury Access Ramp will be a noticeable to motorists on SH1, however the scale of built elements is considered a low visual modification, commensurate with surrounding road infrastructure.			
	A very low level of modification, experienced by motorists of low sensitivity, results in a Very Low adverse visual effect at year 1 of operation.			
Residual Visual Effects	VERY LOW			
(at years 10 of operation)	There is no further modification apparent within this viewpoint, therefore the visual effects remain Very Low.			



Figure 5-2: VP1 View looking south from Bremner Road overpass



Figure 5-3: 3d model indivative of Project from VP1

/iewpoint 02				
Viewing location	Great South Road, east of Auckl	and Southern Motorway		
Existing setting	The view (refer Figure 5-4) is representative of motorists driving west on Great South Road looking towards the Drury Interchange. In the foreground to the periphery of the view to the south (left of SH22), the Hingaia Stream has a limited landscape area surrounding due to the highly modified surrounds. The NIMT railway runs parallel to the road, although is barely visible, screened by existing trees. A building depot is visible to the north of the road, comprising on-site housing construction. SH1 bridge traverses over the road in the middle ground. A motorway on-ramp is viewed to the south. Transmission towers and lines span high above the road, to the foreground of SH1. Transport infrastructure is including a central median, road signage and lighting poles. Background views are limited to the tops of trees, due to the intervening motorway and topography.			
	Figure 5-4 shows the viewpoint from March 2023. The baseline conditions include approved plans including Stage 1B1 Papakura to Drury Interchange, NIMT bridge for Papakura to Pukekohe electrification and Drury Town Centre to the south which will include a new train station and buildings at 7-9 m height. There will be some increased landscape amenity to the Hingaia Stream reserve, between the railway line and SH22. (refer Master Plan – appendix B). Due to the introduction of the Drury rail station, there is likely to be an increase in pedestrian traffic.			
Viewing context	Duration of view: dynamic	Viewing a	ngle: perpendicular	
Visual Sensitivity Level	LOW			
Viewer sensitivity		Landscape sensitivity		
Land use	Strategic Transport Corridor	Landscape Type	LCT4 - Transport Corrido	
Viewing distance (m)	Foreground (approx. 120m from ramp)			
Viewer sensitivity level	Low	Absorptive ability	High	
Visual Modification Level				
Viewpoint discussion	As indicated in Figure 5-5, the Drury access ramp will be visible in the foreground view, elevated above Great South Road and supported by concrete piers which will be located to either side within road reserves/traffic islands. Views beneath the elevated ramp will be retained, with existing SH1 on-ramp visible. Feature retaining walls beneath the ramp are unlikely to be noticeable from this distance. The Project introduces a low level of compositional modification in a setting zoned Strategic Transport Corridor and within an existing major transport interchange comprising of elevated roads and ramps.			
Construction Visual Effects	LOW			
	Temporary site works will be in the foreground view of VP1 including installation of the ramp and use of large haulage trucks and cranes. This will be commensurate with regular road works including lane closures and construction vehicles.			
	Although the construction works will be a noticeable temporary change in the view from VP1, the level of visual modification against the permitted works is considered moderate. A <b>moderate level of modification</b> , experienced by motorists and pedestrian traffic of <b>low</b>			
	sensitivity, results in a low adve	erse visual effect during co	nstruction.	
Operational Visual Effects (at year 1 of operation)	LOW			
(	The introduction of the access ramp will be commensurate with the Drury Interchange at Great South Road, within the foreground view.			
	A low level of modification, experienced by motorists and pedestrian traffic of low sensitivity, results in a low adverse visual effect at year 1 of operation.			
Residual Visual Effects	VERY LOW	VERY LOW		
(at years 10 of operation)	The establishment and maturing of landscaping within the creek corridor are likely to provide an increased landscape amenity visible from the road corridor to the south of the viewpoint. Additionally, there will be increased built form associated with the Drury Town Centre. The Project will still be apparent within this viewpoint; however, the visual effect is expected to be reduced by a level due to both increased landscape amenity and built elements associated with other projects, resulting in a <b>very low adverse visual effect</b> .			



Figure 5-4: VP2 View looking west from Great South Road at the Drury interchange, east of SH1



Figure 5-5: 3d model indivative of Project from VP02 (note: transmission towers will be retained and landscape restoration works to creek corridor, left of image, are not rendered)

/iewpoint 03				
Viewing location	Great South Road, west of Aucklar	nd Southern Motorway		
Existing setting	The view (refer Figure 5-6) is representative of motorists driving east on Great South Road looking towards the Drury Interchange. SH1 bridge traverses over the road in the foreground to the east. A motorway on-ramp is viewed to the north. Transmission towers and lines span high above the road, with towers visible behind SH1. Transport infrastructure is including traffic lights, a central median, road signage and lighting poles. Background views are limited to the tops of trees, due to the intervening motorway and topography.			
	Figure 5-6 shows the viewpoint from plans including Stage 1B1 Papakur Pukekohe electrification and Drury	m March 2023. The baselin ra to Drury Interchange, NII Town Centre to the southe	e conditions include approved MT bridge for Papakura to ast.	
Viewing context	Duration of view: dynamic	Viewing an	gle: perpendicular	
Visual Sensitivity Level	LOW			
Viewer sensitivity		Landscape sensitivit	<sup>t</sup> y	
Land use	Strategic Transport Corridor	Landscape Type	LCT4 - Transport Corrido	
Viewing distance (m)	Foreground (approx. 140m from ramp)			
Viewer sensitivity level	Low	Absorptive ability	High	
Visual Modification Level				
	elevated bridge to the foreground a to Figure 5-7). Feature retaining wa Drury Interchange and Drury Access the pedestrian path. Views beneath the elevated ramp v The Project introduces a low level of Transport Corridor and within an ex highway and ramps.	Ind screening the Project walls and pedestrian path wills and pedestrian path wills Ramp. It is likely that the will be retained. of compositional modification for the strength of the streng	hich is at a similar level (refer l be visible beneath both the re will be safety lighting to light on in a setting zoned Strategic change comprising an elevated	
Construction Visual Effects	VERY LOW			
	Temporary site works will be located to the east side of the Drury Interchange, though a short distance from this viewpoint. This will be commensurate with regular road works including lane closures and onsite construction vehicles.			
	Although the construction works will be a noticeable temporary change in the view from VP3, the level of visual modification against the permitted works is considered low.			
	A very low <b>level of modification</b> , experienced by motorists of <b>low sensitivity</b> , results in a <b>very low visual effect</b> during construction.			
<b>Operational Visual Effects</b>	LOW			
(at year 1 of operation)	The introduction of the feature retaining wall will be a noticeable built element, compared to the existing vegetated embankment. The introduction of pedestrian paths so both side of the road beneath the roads will allow pedestrian traffic using this route between the Drury Town Centre or railway station and the Drury Sports Complex.			
	Due to this being a major intersection, the retaining wall to the foreground and elevated ramp is not an unexpected contrast to the existing conditions. The scale of built elements is considered a low visual modification.			
	A low level of modification, experienced by motorists and new pedestrian traffic of low sensitivity, results in a low adverse visual effect at year 1 of operation.			
Residual Visual Effects	LOW			
(at years 10 of operation)	There is no further modification apparent within this viewpoint, therefore the visual effect remains low adverse.			



Figure 5-6: VP3 View looking east from Great South Road at the SH1 off-ramp intersection, west of SH1



Figure 5-7: 3d model indivative of Project from VP3 (note: overhead lines, road elements and the feature retaining wall are not rendered)

/iewpoint 04				
Viewing location	Drury Sports Complex at Victoria	Street and Great South Road		
Existing setting	The view (refer Figure 5-8) is representative of recreational users of the Drury Sports Complex looking towards the Drury Interchange. It is acknowledged that views are likely internally focussed on activities, although there is not screening between the sports fields the motorway. The foreground view to the east comprises the elevated SH1, north-bound on-ramp and intersection including traffic lights, a central median, road signage and lighting poles. Transmission towers and lines span high above the road, with towers visible behind SH1 Background views are limited to the tops of trees, due to the intervening motorway and topography.			
	The baseline conditions include ap Interchange and NIMT bridge for F	pproved plans including Stage Papakura to Pukekohe electri	e 1B1 Papakura to Drury fication.	
Viewing context	Duration of view: static	Viewing ang	le: perpendicular	
Visual Sensitivity Level	MODERATE			
Viewer sensitivity		Landscape sensitivity		
Land use	Sport and Active Recreation	Landscape Type	LCT3 - Riparian Corridor	
Viewing distance (m)	Foreground (approx. 250m from ramp)			
Viewer sensitivity level	Moderate	Absorptive ability	Low	
Visual Modification Level				
Viewpoint discussion	As indicated Figure 5-9, Drury access ramp is obscured by the Drury Interchange and elevated SH1 to the foreground. Feature retaining walls and pedestrian path will be barely visible beneath the Drury Interchange from this viewpoint. Views beneath the elevated SH1 will be retained. The Project introduces a very low level of compositional modification in a setting zoned Strategic Transport Corridor and within an existing major transport interchange comprising an elevated highway and ramps.			
Construction Visual Effects	VERY LOW			
	Temporary site works will be located to the east side of the Drury Interchange, though a short distance from this viewpoint. This will be commensurate with regular road works including lane closures and onsite construction vehicles.			
	Although the construction works will be a noticeable temporary change in the view from VP4, the level of visual modification against the permitted works is considered very low.			
	A very low <b>level of modification</b> , experienced by recreational uses of <b>mod</b> results in a <b>very low visual effect</b> during construction.			
<b>Operational Visual Effects</b>	NEGLIGIBLE			
(at year 1 of operation)	The feature retaining walls are the only Project elements that are not obscured by the Drury Interchange, however as these will be shaded by the road over, the retaining walls are unlikely to be noticeable.			
	A <b>negligible level of modification</b> , experienced by recreational uses of <b>moderate</b> <b>sensitivity</b> , results in a <b>negligible visual effect</b> at year 1 of operation.			
Residual Visual Effects	NEGLIGIBLE			
(at years 10 of operation)	There is no further modification apparent within this viewpoint.			



Figure 5-8: VP4 View looking northeast from corner Victoria Street/Great South Road to southeast perimeter of the Drury Sports Complex



Figure 5-9: 3d model indivative of Project from VP4 (note: overhead lines and road utilities are not rendered)

#### Viewpoint 05

roject;			
The viewpoint is adjacent a residential property, located at 108 Flanagan Road, east of the Project; however, this area is zoned as <i>Metropolitan Centre</i> , with future receptors visitors or workers of the Drury Town Centre. The current foreground view (refer Figure 5-10) shows a grassed area which is part of the NIMT railway reserve and surrounding an existing industrial building. SH1 bridge traverses over the road in the middleground view. The motorway on-ramp is viewed to the north. Transmission towers and lines span high above the road, with towers visible to the foreground of SH1			
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reys), to road concrete and rks to vorks, the ments Plan,			
ion.			
The Project is likely to be visible looking west down Flanagan Road, between multi-storey buildings to the south (left) of the road, the NIMT and a landscaped creek reserve to the north (right of view). The ramp is of a height lower than foreground commercial buildings at 7-9 storey height (refer Section <b>Error! Reference source not found.</b> ). The foreground buildings and streetscape are prominent, with the ramp a noticeable elevated road within the foreground view. Views beneath the ramp over the NIMT and creek reserve are retained, with the ramp viewed slightly above the existing horizon, comprising SH1.			
existing			
existing of the nostly			
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and representative of the railway station location, will comprise multi-storey buildings (5-7 store the south (left) of the viewpoint (see Figure 5-11). The Project elements potentially visible from this viewpoint include the elevated ramp, a pier, r barriers and lighting poles. Moving vehicles will be visible on the road, partially screened by co safety barriers. The ramp contributes to the highly modified form existing with the rail corridor a adjacent Flanagan Road. These elements contrast to the proposed landscape restoration wor the creek corridor. The ramp and position of piers has limited effect on proposed landscape we except for some overshadowing. To the north of the viewpoint, a SUP is proposed alongside Flanagan Road and landscape restoration alongside the Hingaia stream. The Project is likely to be noticeable to the west, to t background of the future town centre buildings). The landscape setting will comprise built elem including commercial built form, as part of the town centre development (refer to the Master PI Appendix B). <b>NEGLIGIBLE</b> The visual modification is not expected to be experienced by any receptors, until the Drury Centre development is completed. This results in a <b>negligible visual effect</b> during construction <b>MODERATE</b> The Project is likely to be visible looking west down Flanagan Road, between multi-storey built to the south (left) of the road, the NIMT and a landscaped creek reserve to the north (right of v The ramp is of a height lower than foreground commercial buildings at 7-9 storey height (refer Section Error! Reference source not found.). The foreground buildings and streetscape are prominent, with the ramp a noticeable elevated road within the foreground view. Views beneat ramp over the NIMT and creek reserve are retained, with the ramp viewed slightly above the e horizon, comprising SH1. At night, vehicle headlights have some potential to spill onto adjacent properties from the top of ramp between Chainage 550-630 where the ramp curves. Otherwise, the ramp alignment is			



Figure 5-10: VP5 View looking northwest from 108 Flanagan Road



Figure 5-11: 3d render indivative of Project from VP5 (note: transmission towers, foreground town centre elemnts and landscape restoration to Hingaia stream reserve is missing from render)

Viewpoint 06				
Viewing location	Flanagan Homestead, 120 Flanagan Road			
Existing setting	The viewpoint (refer Figure 5-12) is adjacent a residential property, located at 120 Flanagar Road, east of the Project, which has historic significance and is proposed to be retained and reused within the Drury town centre development. This area is zoned as Metropolitan Centre with the future receptors' being visitors or workers of the Drury Town Centre. SH1 bridge traverses over SH22 in the middle ground. A motorway on-ramp is viewed to the north. Transmission towers and lines span high above the road, with towers visible behind SH1. Transport infrastructure is including traffic lights, a central median, road signage and lighting poles. Background views are limited to the tops of trees, due to the intervening motorway and topography.			
	The baseline conditions include approved plans including Drury Town Centre, su this viewpoint. The Drury Town Centre will comprise of dense multi-storey buildin Section <b>Error! Reference source not found.</b> ).			
Viewing context	Duration of view: static	Viewing angle	e: perpendicular	
Visual Sensitivity Level	LOW			
Viewer sensitivity		Landscape sensitivity		
Land use	Urban Centre	Landscape Type	LCT 1 – Urban Centre	
Viewing distance (m)	Foreground (approx. 80m from ramp)			
Viewer sensitivity level	Low	Absorptive ability	High	
Visual Modification Level				
Viewpoint discussion	As indicated in Figure 5-13 the viewpoint is within the land zoned Metropolitan Centre. The Flanagan Homestead is proposed to be retained at be a feature within the town centre. The Drury Access Ramp is in the background view of the viewpoint and will be obscured from this viewpoint due to intervening built form (the Drury Town Centre). The Drury Access Ramp will not be apparent from this viewpoint; and the house acquired for the planned development. The setting will be undergoing development for the Drury Centre, therefore metropolitan centre receptors are not expected to be present from this viewpoint during construction.			
Construction Visual Effects	NEGLIGIBLE			
	The <b>visual modification</b> is not exp Centre development is completed. construction.	bected to be experienced by a This results in a <b>negligible v</b>	any receptors, until the Drury isual effect during	
<b>Operational Visual Effects</b>	NEGLIGIBLE			
(at year 1 of operation)	The Project will be obscured from view by the future town centre development.			
	A negligible level of modificatio negligible visual effect during con	n, experienced by receptors on struction.	of low <b>sensitivity</b> , results in a	
Residual Visual Effects	NEGLIGIBLE			
(at years 10 of operation)	No change to view towards the Project.			



Figure 5-12: VP6 View looking northwest from 120 Flanagan Road



Figure 5-13: 3d render indivative of Project from VP6 (note: transmission towers and foreground town centre elemnts missing from render)

Viewpoint 07				
Viewing location	77-97 Brookfield Road, Drury			
Existing setting	The view (refer Figure 5-14) is representative of a residential property, located between 77 and 97 Brookfield Road, south of the Project. Transmission towers and lines span high above the road, with towers visible behind SH1. Transport infrastructure is including traffic lights, a central median, road signage and lightin poles. Background views are limited to the tops of trees, due to the intervening motorway and topography.		operty, located between 77 owers visible behind SH1. an, road signage and lighting ervening motorway and	
	The baseline conditions include a this viewpoint.	approved plans including Drury	Town Centre to the north of	
Viewing context	Duration of view: dynamic	Viewing angl	e: perpendicular	
Visual Sensitivity Level	HIGH	HIGH		
Viewer sensitivity		Landscape sensitivity		
Land use	Residential	Landscape Type	LCT 5 - Residential	
Viewing distance (m)	Foreground (approx. 80m from ramp)			
Viewer sensitivity level	Low	Absorptive ability	Low	
Visual Modification Level				
Viewpoint discussion	As indicated in Figure 5-15, the Drury Access Ramp is in the background view of the viewpoint at Brookfield Road. Topography as well at the proposed Drury Town Centre will be to the foreground, obscuring views of the Project. The Drury Access Ramp will not be apparent from this viewpoint; however, residents will experience a change in the setting due to planned development.			
Construction Visual Effects	s NEGLIGIBLE			
	Temporary site works for the ramp will be in the background view of VP8 and will be screened by the future town centre development.			
A <b>negligible level of modification</b> , experienced <b>negligible visual effect</b> during construction.		on, experienced by residents o onstruction.	f <b>high sensitivity</b> , results in a	
<b>Operational Visual Effects</b>	NEGLIGIBLE			
(at year 1 of operation)	The Project will be obscured from view by the future town centre development.			
	A negligible level of modificati a negligible visual effect during	<b>on</b> , experienced by residents of construction.	of high sensitivity, results in	
Residual Visual Effects	NEGLIGIBLE			
(at years 10 of operation)	No change to view towards the P	roject.		



Figure 5-14: VP7 Photo from viewpoint taken March 2021



Figure 5-15: 3d render indicative of Project from VP7

### 5.2 Summary of findings

The following section provides a summary of the LVIA during construction, operation and the resulting residual effects.

Table	5-1:	Summary	of	visual	effects
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Viewpoint	Description	Construction visual effects	Operational visual effects	Residual visual effects
Viewpoint 01 (VP2)	Motorists travelling south on Auckland Southern Motorway looking south towards Drury Interchange	Low	Very Low	Very Low
Viewpoint 02 (VP2)	Motorists travelling west on Great South Road looking towards Drury Interchange	Low	Low	Very Low
Viewpoint 03 (VP3)	Motorists travelling east on Great South Road looking towards Drury Interchange	Very Low	Low	Low
Viewpoint 04 (VP4)	Recreational users at Drury Sports Complex looking east towards Drury Interchange	Very Low	Negligible	Negligible
Viewpoint 05 (VP5)	Users of the future town centre looking west towards the Project	Negligible	Moderate	Low
Viewpoint 06 (VP6)	Users of the future town centre looking west towards the Project	Negligible	Negligible	Negligible
Viewpoint 07 (VP7)	Rural residential property looking towards proposed Metropolitan Centre land use.	Negligible	Negligible	Negligible

#### Landscape and Visual Effects

**Minor effects are experienced to the** Riparian Corridor (LCT 3) as the result of the Project alignment separating the creek and its proposed recreational uses from the town centre.

Less than minor landscape character effects to Urban Centre (LCT 1), and Residential (LCT 5). The Project is predominantly located in land zoned for transport use (Strategic Transport Corridor zone) and the surrounding character types are already influenced by transport infrastructure. The Project's influence is localised to a close proximity and therefore has a low to very low effect to these character areas which are more expansive. The other identified LCTs within the Study Area (Industrial (LCT 2) and Transport Corridor (LCT 4)), are not impacted by the project, due to these being highly modified landscapes and the Project consistent with larger road infrastructural elements within LCT 4.

Visual receptors within the Study Area are predominantly users of the transport corridors (road and train) as assessed in VP1-3. Residential receptors are limited to those at Brookfield Road (VP7) adjacent to the town centre development. Other current residential receptors are absorbed in the future Metropolitan Centre zone and therefore, these viewpoints (VP5-6) are representative of the future town centre receptors.

Temporary visual effects of construction are considered unavoidable to the local area of the Project. These effects will include earthworks, use of cranes and construction vehicles, installation of the elevated ramp, road and

pavement works, and construction of retaining walls. The selection of the plant and machinery used is expected to be appropriately managed through the construction management plan process.

The assessed viewpoints result in Less than Minor visual effects during construction.

At year 1 of operation, visual effects for receptors near to the Project, from the Drury Town Centre or railway station (VP5) are considered to experience **Minor** visual effects. The elevated road will contribute to a highly modified view, in conjunction with the rail corridor, multi-storey buildings and road upgrades (Flanagan Road). Visual effects from viewpoints 1-4 are considered **Less than Mino**r. The introduction of the elevated ramp results in Low to Very Low visual effects, given the Project is located within an existing transport corridor and is of a scale and appearance commensurate with the Drury Interchange, elevated road and highway ramps. Negligible visual effects are experienced from those viewpoints where the town centre development obscures views towards the Project.

Landscape planting is proposed to the embankments beneath the ramp, either side of SH22 and to the south side of Flanagan Road. This will provide some landscape amenity to those localised views, however, will not diminish the prominence of the elevated ramp. The development of Drury Town Centre includes landscape restoration of Hingaia Stream including development of a reserve along the stream and to the area between Flanagan Road and SH22 (east of Drury Interchange). These landscape works will introduce improved landscape amenity, with planted trees having the potential to soften the appearance of the Drury access ramp, subsequently reducing the visual effect for VP2 and VP5. The residual visual effects are **Less than Minor** for other viewpoints, at year 10 of operation.

## **6 RECOMMENDATIONS**

The Project has been determined to have minor to less than minor effects on visual amenity at all viewpoints.

The purpose of mitigation is to avoid, reduce or where possible remedy or offset any significant adverse effects on the environment arising from the proposed development. This section provides recommendations for mitigation and management measures to reduce potential visual effects as a result of the Project during construction and operation. It is intended as a guide to assist in the design development of the Project.

Table 5- outlines the following mitigation measures that would be implemented to manage any landscape and visual amenity effects, in line with *Bridging the gap – Urban Design Guidelines* (NZTA Waka Kotahi, 2013).

Table 5-2: Visua	I amenity	mitigation	measures
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Issue or risk	Mitigation measure	Phase for implementation
Visual clutter	Where feasible and reasonable, the elements within construction sites would be located appropriately to minimise visual effects, for example materials and machinery would not be visible above temporary screens.	Construction
Loss of vegetation	Existing trees adjacent to the works will be retained and protected where possible to screen construction sites, minimising clearing where possible.	Construction
Prominence of transport infrastructure (elevated road)	Installation of street trees to Flanagan Road to screen or soften views of the Project from receptors, once matured in 5-10 years. This would provide increased landscape amenity to the proposed SUP.	Construction
Perceived severance effects associated with loss of visual connection to creek corridor	The design of embankments to the base of the access ramp and adjoining road should be sloped to allow vegetation cover. Subsequent landscape planting will help soften and screen views towards the road infrastructure, setting it into the surrounding landscape.	Design
Perceived severance effect to creek corridor and light spill	Landscape design to include large trees and shrubs to soften appearance of structure within creek corridor, and to embankments to the east side of the ramp to assist in screening vehicle headlights towards the development.	Design
Physical severance from the town centre to the Hingaia stream open space	Clear and non-circuitous pedestrian connections between the town centre and Hingaia stream open space corridor are to be incorporated into the design to allow safe access and retain visual connections between the two areas.	Design
Prominence of transport infrastructure and loss of landscape character or cultural connections	Design of access ramp safety barrier/parapet for reduced visual prominence. This may include feature panels to safety barriers should be considered to assist with the reduction of bulk in collaboration with mana whenua.	Design
Visual clutter	The external surface of the bridge should be free of drainage pipes or services.	Design
Prominence of transport infrastructure (piers)	The finish to ramp piers should be commensurate with the urban design setting and consider anti-graffiti finishes.	Design
Pedestrian and cyclist experience	The treatment of the soffit, piers and abutments should provide a safe, convenient and attractive environment, through use of architectural treatments and feature lighting.	Design

Issue or risk	Mitigation measure	Phase for implementation
Visual clutter	Where possible, group any new signage to reduce visual clutter.	Operation
Light spill	Access ramp lighting design and placement is to avoid light spill to adjacent development and Hingaia Stream through differing and directional lighting.	Operation

## 7 CONCLUSION

This report has been prepared to provide an assessment of landscape and visual amenity effects of the Project.

The level of effects resulting from the Project has been assessed in accordance with Te Tangi a te Manu – Landscape Assessment Guidelines (NZ Institute of Landscape Architects, 2022) and The Guidance for Landscape and Visual Impact Assessment (GLVIA, 2013). Landscape and visual effects are the combination of the magnitude of change experience from the baseline conditions, and the sensitivity of a landscape or view.

The Project lies within a Study Area highly influenced by existing rail and road networks, as well as proposed abundance of built form to the Drury Town Centre. There are limited highly visual sensitive uses and these are already influenced by transport and urban infrastructure, or part of the changed land use to support the future Drury town centre; subsequently are considered to have the capacity to absorb the changes proposed by the Project.

Potential adverse effects of the Project are:

- Minor landscape effects to the Riparian Corridor (LCT 3).
- Minor visual effects assessed from Drury town centre/railway station.
- Less than minor adverse effects from the majority of assessed viewpoints representative of views by motorists, recreational users, future town centre users during construction and at year 1 of operation.

These effects can be managed or mitigated by:

- Construction management plan including limiting removal of existing vegetation where feasible;
- Increased landscape amenity/intervening vegetation between sensitive receptors and Project; and
- Consideration to the design finishes of the access ramp to reduce its visual prominence.

## 8 **REFERENCE LIST**

- Auckland Council: Dury-Opaheke Structure Plan, 2019 Precinct Appendix 25
- Auckland Council: Private Plan Change 48, Operative 16 December 2022
- Auckland Council: Information requirements for the assessment of landscape and visual effects, September 2017
- Australian Institute of Landscape Architects (Queensland chapter); Guidance Note for Landscape and Visual Assessment, June 2018
- B&A Urban & Environmental for Kiwi Property; Drury Centre Private Plan Change Request Urban Design Assessment, 12/12/2019
- CIVITAS for Kiwi Property, Drury Metropolitan Centre 2048 Master Plan Report: A new town for Auckland, 28/06/2019
- Institution of Lighting Professionals; Guidance Notes for the Reduction of Obtrusive Light, GN01:2011
- Landscape Institute and Institute of Environmental Management & Assessment (IEMA, UK); The Guidance for Landscape and Visual Impact Assessment (GLVIA), Third Edition (2013)
- New Zealand Transport Agency (NZTA) Waka Kotahi, Bridge manual SP/M/022 3rd edition, May 2016
- NZTA Waka Kotahi, Bridging the gap Urban Design Guidelines, May 2013
- NZTA Waka Kotahi, Landscape and Visual Assessment Guidelines, October 2013
- New Zealand Institute of Landscape Architects (NZILA); Aoteraroa New Zealand Landscape Assessment Guidelines – Te Tangi a te Manu, Version 01 2022
- NZILA, Best Practice Note 10.1: Landscape Assessment and Sustainable Management', 2 November 2013

## **APPENDIX A – Kiwi Property Drury off ramp**

## APPENDIX B – DRURY METROPOLITAN CENTRE 2048 MASTER PLAN

# 4.3 Land Use & Parcel Plan

Legend

Mixed Use

Road

Mixed Housing Suburban

Terraced Housing & Apartment

Open Space - Greek Reserve

Open Space - Public Park

Open Space - Green Lane

Open Space - Plaza

The master plan envisages a predominantly mixed use Town Heart with dedicated open spaces, plazas, and pedestrian greenways. Mixed use is also dominant in the Homemaker precinct, and the remainder of the site is Terrace Housing and Apartment with limited Mixed housing Urban.

These land uses are organized by the following design principles and assumptions:

- TOD: Mixed use designations caters to a variety and flexibility of uses that creates and reinforces a vibrant TOD metropolitan centre. Residential designations complement and supports the viability of Mixed use centre but needs to be within a walkable catchment to it and the transportation hub.
- Openspaces: Plazas, parks, creeks, and green lane designations are located within mixed use and residential areas to create significant public realm identity for each precinct.
- Topography: Mixed use designations are located along the existing ridge and homestead summit to incorporate that topography to create the Town Heart. Openspace areas are designated in locations that incorporate existing watercourses. Other openspace areas are in locations of varied topography associated with residential land uses.
- Access, active frontages, and interfaces: All parcel designations have at least one road frontage.
   And the landuses are organized so that adjacent parcels have complementary interfaces such as mixed use with residential, and residential with openspace.
- Parcel dimensions: To allow appropriate dimensionality for residential and specialty retail sleeving of large format retail within the Town Heart the minimum parcel depth is approx. S8m.
   For residential parcels, the minimum depth is 50m to allow for varied typologies. Residential sleeving parcels with single-loaded apartments are 30m min.

CIVITAS | KIWI PROPERTY



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# 4.9 Building Heights

A range of building heights are established to meet a number of interrelated objectives that reinforces the urban design principles. These objectives are:

- To ensure adequate solar access adjacent streets and open spaces;
- To shape an appropriate human scale to the urban form of the adjoining public streets and public realm open spaces and character precincts;
- To create vertical landmark elements in visually significant locations, such as at gateways, to aid in placemaking and wayfinding;
- To enable an appropriate mix of densities, built form typologies, and market products, and;
- To ensure there is flexibility when considering the topography as an integral part of the centre's overall built form.

These objectives result in a Master Plan that creates a predominantly mid-rise built form, with heights in the various character precincts as listed below and illustrated by the following diagram:

- Town Heart: Generally has a maximum height of 6 storeys.
- Station Plaza: Generally has a maximum height of 8 storeys.
- Homemaker Precinct:
- Generally has 4-6 storeys sleeving the 1-2 storey LFR.
- East/Southeast Residential Neighbourhoods: Generally has a maximum height of 6 storeys.
- Waihoehoe Precinct: Generally has a maximum height of 6 storeys.
- Gateways and Landmarks: Up to total of 10-storeys in limited locations within the Town Heart and Station Plaza Precincts.



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# 3.3.2 Combined Developers' Master Plan

LEGEND

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Proposed

In tandem with the UDF study, the concept was shared with surrounding developers/landowners to start dialogue to ensure integration of roads, district wide open space network, and alignment of land use configurations and expectations. At the time of publishing, the follow lists the current status of the dialogue:

- Combined concept plan is at draft status as of April 2019.
- Fulton Hogan future design iterations will align their Pitt Road with Kiwi's.
- · All roads should facilitate east-west connectivity to enable direct movement to/from the centre's amenities and Drury Rail Station.
- · Provides a working indication of the scale and intensity of East Drury urbanisation that the metropolitan centre is at the center of.



Figure 14: Fast Drury Master Plan Diagram (April 2019) 0 20 50 100m ()

CIVITAS | KIWI PROPERTY

## **APPENDIX C - ASSESSMENT METHODOLOGY**

## The study method

The level of visual effect resulting from the Project has been assessed against the following components:

- Visual sensitivity made up of the following:
  - Viewer sensitivity: the sensitivity of the viewer to the development/change and distance from the viewpoint; and
- Landscape sensitivity: the ability of the landscape setting to absorb the development/change.
  - Scale of modification: how well the development/change contrasts or blends with the surrounding land use based on varying levels of visual prominence.

Establishing the level of visual effect involves assigning levels of visual sensitivity and modification such as high, medium, low or very low. A determination matrix is then used to assign an overall level of visual effect. Figure 1 illustrates the key steps for the methodology of the assessment.



#### Figure 1 LVIA study method

## **Visual sensitivity**

Visual sensitivity is composed of two parts: viewer sensitivity and landscape sensitivity.

#### Viewer sensitivity

Viewer sensitivity is a measure of how critically a change to the existing landscape setting would be regarded based on the use of the area and distance from where it is viewed.

Various landscape settings have differing indexes to the relative importance the viewer places on them. For example, individuals would view changes to the visual setting of their residence more critically than changes to the visual setting in which they travel or work. As such, levels of viewer sensitivity are based on land use because this largely defines a viewer's expectation of what they would typically expect within a particular setting. This approach is consistent with the visual management system (*Landscape Aesthetics – A Handbook for Scenery Management*, United States Department of Agriculture& Forest Service, 1995).

The viewer sensitivity levels relating to existing land use zones within the study area are outlined in Table 1.

The next critical component to rating the viewer sensitivity is the distance of the Project from the identified land use area. As illustrated in **Error! Reference source not found.**, there are three viewing distances to consider:

- Foreground (0 500 metres);
- Middleground (501 2000 metres); and
- Background (> 2000 metres).

As outlined in Appendix D, as the distance increases from the land use area the field of view decreases causing the visibility of the Project components to diminish or be absorbed in the landscape setting. Consequently, as distance from the viewer to the Project increases, the level of viewer sensitivity reduces.

	DISTANCE FR	OM THE PRO	IECT		
LAND USE (Sensitivity of the viewing location)	FOREGROUN	FOREGROUND		UND	BACKGROUND
(Sensitivity of the viewing location)	0 – 200 m	201 – 500 m	501 – 1000 m	1001 – 2000 m	> 2000 m
Residential / Accommodation	Н	Н	Н	М	L
Parks and reserves	Н	н	н	М	L
Health care facilities	н	н	М	М	L
Educational facilities	н	М	М	L	L
Community facilities	н	М	М	L	L
Shared use paths	М	М	М	L	VL
Commercial	М	М	L	L	VL
Arterial road	L	L	L	VL	VL
Local road	L	L	VL	VL	VL
Industrial areas	VL	VL	VL	VL	VL
Legend - H = High, M = Medium, L = Low, VL – Very Low					

#### Table 1 Viewer sensitivity determination matrix

## Landscape Sensitivity

To understand the sensitivity of a landscape and its ability to absorb change, landscape character types (LCTs) need to be identified and defined. Identifying the LCTs of an area provides the basis for understanding the features that are important, and how different types of development would sit within a particular landscape.

LCTs are defined based on physical characteristics such as:

- topography;
- vegetation;
- drainage patterns;
- geology; and
- Iand use patterns.

Once the LCTs are defined, an assessment of how well these landscape types are able to accommodate or absorb change such as a development is undertaken.

The key factors considered in determining a LCTs absorptive capability are:

- topographic variation;
- presence of and patterning of vegetation and density; and
- human modification such as presence of built from and/or extensive clearly resulting in a highly altered landscape.

In areas of elevated topography with no or lowland vegetation, open, unobstructed views towards a proposed development is highly likely. The ability for the setting to absorb the development and/or screen views using vegetation for example would be hard to achieve. Consequently, the ability to absorb the development in this scenario would be very low.

In areas where there are bands of dense vegetation in the surrounding landscape or the presence of built form that inhibit views towards the proposed development, the setting would have a greater capacity to absorb change compared to a cleared, expansive landscape or no structures.

Areas that contain signs of human modification such as farming land and industrial areas are typically not considered as high-quality landscape settings compared to natural landscapes such as mountain ranges. As such, the higher level of human modification the greater capacity the landscape has to absorbing change.

The absorptive capability levels relating to landscape sensitivity are outlined in Table 2.

	Table 2 Lands	scape abso	rptive ca	pability level
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Landscape absorptive capability level	Description
Very Low	The extent of alteration would result in the landscape losing significant natural landscape features, its character and/or sense of place.
	Open, expansive and bare landscapes.
	Elevated, bare and/or groundcover vegetation.
	The viewer is highly sensitive to changes in their immediate surroundings such as residents or 'natural' areas such as National Parks.
Low	The extent of alteration would result in the landscape partially losing some natural or designed landscape features, its character and/or sense of place.
	Open, expansive and moderately vegetated landscapes including canopy trees.
	Elevated and vegetation landscape including canopy trees.
	The viewer is moderately sensitive to changes in their immediate surroundings such as users of regional and local reserves.
Moderate	Modified landscapes with an abundance of built form and limited natural characteristics.
	Built-up landscapes typically interspersed with canopy trees.

	The viewer is aware of the change but not overly sensitive to changes in their immediate surroundings such as users of commercial areas.
High	Highly modified and/or degraded landscapes with limited to no natural characteristics. Undulating or elevated topography with dense tree cover. The viewer is not critical/sensitive to changes in their immediate surroundings such as industrial areas.

## Assigning a level of visual sensitivity

The visual sensitivity is a result of combining the viewer sensitivity level with the landscape absorptive capability level using the visual sensitivity determination matrix illustrated in Table 3.

#### Table 3 Visual sensitivity determination matrix



#### Visual modification

Visual modification is not easily predicted objectively, and interpretation and professional judgment is applied. A clear picture of the modification is determined from a combination of the degree of change to the view due to the Project including the extent of the area over which changes would be visible, the period of exposure to the view and reversibility.

The assessment of visual modification is based on the Project design outlined in Section Error! Reference source not found.

The assessment of visual modification does not include an evaluation of the merit of the aesthetic quality of the design. It is recognised that that assessment of aesthetic quality is highly subjective, therefore an assumption has been made that the changes are adverse. Table 2.4 outlines the four categories of modification used for determining the degree of visual modification potentially resulting from the Project.

The key considerations in determining the level of visual modification as outlined in Table 4 include:

- Size and scale;
  - The scale of the change in the view with respect to the loss or addition of features in the view, and changes to the composition including the proportion of the view occupied by the Project components;
  - The degree of contrast or integration of the Project components in the landscape setting with the existing or remaining elements including form, mass, line, height, colour, texture and materiality; and
  - The nature of the view towards the Project components in terms of duration of the view.
- Geographical extent;
- The angle of the view in relation to sensitive land use;
- The distance of the viewpoint from the Project component(s); and
- The extent of the area over which the changes would be visible.

#### Table 4 Criteria for determining the visual modification level

MODIFICATION LEVEL	DESCRIPTION
Very High	The proposal is highly visible and intrusive in regard to the size, scale and geographical extent, and would disrupt views currently experienced from sensitive land use areas and/or strongly contrasts with the existing landscape setting which has limited capacity for change.
High	The proposal is highly visible and intrusive in regard to the size, scale and geographical extent, and would disrupt views currently experienced from sensitive land use areas and/or strongly contrasts with the existing landscape setting which has limited capacity for change.
Moderate-high	The proposal is noticeable in regard to the size, scale and geographical extent and/or a noticeable compositional change to the existing landscape setting.
Moderate	The proposal partially intrudes in regard to the size, scale and geographical extent or somewhat obstructs current views from sensitive land use areas and/or a noticeable compositional change to the existing landscape setting in which there is moderate capacity for change.
Low-moderate	The proposal is barely perceptible, however presents some contrast to the existing landscape setting.
Low	The proposal is barely perceptible resulting in minor deterioration to the view currently experienced from sensitive land use areas; and/or results in a small change to the existing landscape setting in which change is possible without harm.
Very low	There is minimal compositional contrast and a high level of integration of form, line, shape, pattern, colour or texture values between the proposal and the environment in which it sits. In this situation, the proposal may be noticeable, but does not markedly contrast with the existing landscape setting.
Not apparent	There are no views of the proposal components and as such, there is no effect.

### Assigning a level of effect

The visual effect therefore is a result of combining the visual sensitivity level with the degree of visual modification using the visual effect determination matrix illustrated in Table 5.

The consequence of the application of the matrix is that (except where the Project cannot be seen) the Project would have some adverse effect, whether low, moderate or high, depending on the level of visual modification and viewer sensitivity from the location at which the Project can be viewed.

#### Table 5 Effect determination matrix

Visual Sensitivity Level of Effect Н М L ٧L VH VH н Μ L Degree of modification\* VL - Very low н Н н Μ L More than L = Lowminor мн н н Μ L LM = Low-moderate м н Μ L VL M = Moderate Minor LM Μ Μ L VL MH = Moderate-high H = HighL Μ L L VL Less than VH = Very High minor ٧L VL VL L VL Level of Visual effect\*

\*Adverse, Neutral or Positive

## **Consideration of night lighting effects**

There is little guidance locally on the assessment of night-time visual effect. Therefore, the methodology applied to this report is drawn from the United Kingdom. The Institute of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light (2020) includes four categories or zones with which to describe the lit situation of the landscape. These environmental zones are supported by design guidance for the reduction of light pollution which can then inform proposed mitigation techniques.

A night-time visual assessment has not been undertaken within this assessment.

## **APPENDIX D – VISUAL PROMINENCE RATIONALE**

## VISUAL PROMINENCE RATIONALE

The visual prominence of a development can be determined by understanding the extent to which an object is part of a viewer's static field of view.

The measurement of the field of view is based upon the parameters of human vision outlined below. These provide a basis for assessing and interpreting the visual prominence of a development by comparing the extent to which the development will intrude into the central field of vision (both horizontally and vertically).

These horizontal and vertical fields of view are also interlinked to the viewing distance from the development. The methodology is based on the reduction of the visibility of a development in the distance as the field of view reduces (i.e. the increase in distance between a given viewpoint and the development).

## Horizontal line of sight

It is generally accepted that the central field of vision for the human eye covers a horizontal angle of approximately 50 degrees to 60 degrees. Within this angle, both eyes observe an object simultaneously creating a degree of overlap, which is the central field of view (refer to Figure A.1). Within the central field of vision, the viewed image is sharp, colours are separately defined and depth perception occurs.

The visual prominence of a development will vary according to the proportion a development occupies the central field of vision.



#### Figure A.1 Horizontal line of sight

Table A.1 outlines the potential visual prominence of a development, dependant upon on how much of the horizontal central field of vision that it occupies.

Degrees of Field of View occupied	Potential visual prominence – horizontal field of view
Less than 5°	Insignificant - Low visual prominence The development would not be highly visible in the view, unless it contrasts strongly with the background.
5° – 30°	Potentially Noticeable – Moderate visual prominence The development may be noticeable. The degree that it intrudes on the view would be dependent on how well it integrates with the landscape setting.
Greater than 30°	Potentially Dominant - High visual prominence The development would be highly noticeable.

Table A.1 Potential visual prominence based on degrees of horizontal field of view occupied

### Vertical line of sight

As for the horizontal line of sight, there is also a vertical central field of view. If we assume that the horizon is 0° then the eye clearly defines colour, field of view and has image sharpness for an angle of approximately 25° upwards and 30° downwards. However, in reality, the typical line of sight for a standing person at ground level is approximately 10° below the horizon line (Refer to Figure A.2).





Objects that occupy a small proportion of the vertical field of view (less than 5°) are visible but not dominant, particularly when they occur within landscapes that have been modified by human activity.

Table A.2 demonstrates the potential visual prominence of a development, dependant upon on how much of the vertical central field of vision that it occupies.

Degrees of Field of View occupied	Potential visual prominence – vertical field of view
Less than 0.5°	Insignificant - Low visual prominence A small thin line in the landscape and is no longer an easily recognisable element.
0.5° – 2.5°	Potentially Noticeable - Moderate visual prominence The development may be noticeable. The degree that it intrudes on the view would increase as distance reduces and be dependent on how well it integrates with the landscape setting.
Greater than 2.5°	Potentially Dominant - High visual prominence The development would be highly noticeable, although the degree of visual intrusion would depend on the landscape setting and the width / thickness of the object.

Table A.2 Potential visual prominence based on degrees of vertical field of view occupied

### Visual prominence in relation to distance and field of view

These horizontal and vertical fields of view are also interlinked to the viewing distance from the development. The viewing distances, foreground, middleground and background, (refer to Table A.3) have been established based on previous field studies undertaken by Aurecon. The distances also relate to the distances for the land use types in the viewer sensitivity assessment methodology.

Distance from a viewer	Potential visual prominence
> 2.0km (background)	Insignificant The visibility of the development would progressively diminish over greater distances of 2km with no visibility beyond 5km due to atmospheric conditions.
Between 0.5km & 2.0km (middleground)	Potentially Noticeable The development would be noticeable, reducing with distance. The degree that it intrudes on the view would be dependent on topography and the vegetation within the landscape setting and how well it integrates with the surrounding land-uses.
< 0.5km (foreground)	Potentially Dominant The development would be highly noticeable, although the degree of visual intrusion would depend on the landscape setting (where not screened by vegetation or buildings) and the width / thickness of the object.

Table A.3 Potential visual prominence based on distance from a viewer

Figure A.3 illustratively demonstrates how the viewshed of a horizontal object is determined by its height and not so much by its width based on the viewing distance from a development. As a viewer moves further away from a horizontal object the width may still be apparent, however the vertical dimension reduces to insignificance.



Background - beyond 2.0 km from the proposed development

#### Figure A.3 The reduction in visibility of the horizontal line of sight based on increase in distance from a viewpoint

The same approach can be applied to the vertical field of view. As a viewer moves further away from a vertical object the height may still be apparent, however the vertical dimension reduces to insignificance (refer to Figure A.4).





Figure A.4 The reduction in visibility of the vertical line of sight based on increase in distance from a viewpoint



## **Drury Access Ramp Project**

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