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Richmond Road crossing Bells Creek, 1960

Richmond Road Upgrade:
Urban Design Concept and Landscape Character and Visual Impact Assessment

Revision 06

RRM7Y2T-STANA-NWW-UD-RPT-000001

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1.0
Introduction

1.0 Introduction

1.1 Project Overview

Transport for NSW (TfNSW) is proposing a new road design that involves the widening of the Richmond Road corridor from 150m north of the Yarramundi Drive intersection, Glendenning and extending to 200m beyond the Townson Road, Marsden Park intersection. Key features of the upgrade are:

- The widening of Richmond Road to six lanes (three lanes in each direction) between a new single lane flyover exit ramp from the Westlink M7 Motorway (M7) and Townson Road
- Dual right-turn lanes from Richmond Road to Rooty Hill Road North
- Dual right turn lanes from Richmond Road to the Westlink M7 Motorway (M7) entry ramp (southbound)
- Retaining the bridge structure over Bells Creek and/or integration of pedestrian facilities on the new bridge for the Richmond-bound carriageway
- A new single lane flyover exit ramp from the Westlink M7 Motorway (M7) to Richmond Road (Richmond-bound)
- Realignment of the Westlink M7 Motorway (M7) northbound exit ramp to better direct traffic to the proposed flyover (exit ramp from the Westlink M7 Motorway (M7) to Richmond Road) and at-grade access on Rooty Hill Road North.

1.2 Project Background

Richmond Road is located in Western Sydney, an area which is home to Australia's third largest economy. The local population is expected to grow from two to three million people over the next 20 years. The NSW Government is strategically planning for this growth by developing transport corridors to serve future residential and employment demands.

Richmond Road is a state arterial road, 28.9km in length, extending from Bligh Park in the north to Blacktown in the south. Richmond Road serves as a key route for mobility between Blacktown and Richmond, the Westlink M7 Motorway (M7) and sits within the North West Growth Area (NWGA).

1.3 Urban Design Scope

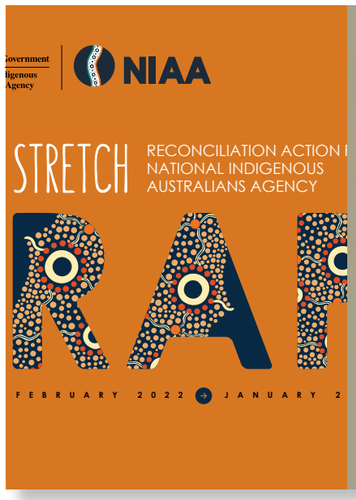
This report documents the urban design and landscape concept up to 80% concept design, existing landscape character and visual impact assessments (LCVIA) of the proposal, including:

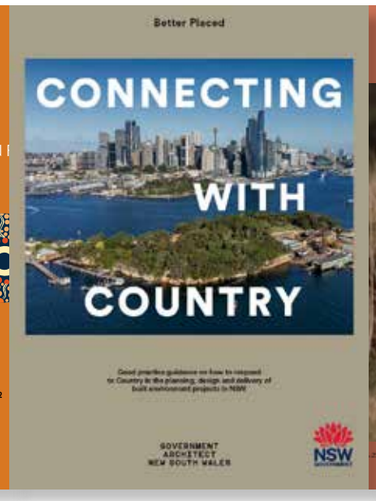
- To develop an understanding of place and to carry out an analysis of the built natural and community context.
- To develop urban design objectives in accordance with Beyond the Pavement 2020 so that the project is consistent with the broader TfNSW physical design objectives and performance requirements.
- To collaboratively develop design options and assist in their assessment.
- To collaboratively develop a concept urban design outcome addressing the design principles in Beyond the Pavement 2020.
- To develop urban design outcomes including Urban Art in consultation with the traditional owners of the parcel of land under the ownership of Blacktown Institute at the corner of Richmond Road and Rooty Hill Road North taking into consideration high cultural heritage value of the land.
- To carry out a landscape character and visual impact assessment commensurate with the scale and phase of the project the results of which are iteratively fed into the concept development process and environmental assessment.
- To further develop the project design, continuing to apply urban design objectives and principles and mitigating adverse impacts identified from the landscape character and visual impact assessments which were undertaken as part of the concept design phase.

1.4 Reference Documents

The proposal is guided by the overarching best practice urban design principles and project-specific documents, project-specific principles and guideline documents:

- Beyond the Pavement – Urban design policy, procedures and design principles, Transport for NSW, June 2023
- Guidelines for landscape character and visual impact assessment, Practice Note No. EIA-N04, Transport for NSW, June 2023
- Reconciliation Action Plan 2022-2025, October 2022
- Landscape design guideline- Design guideline to improve the quality, safety and cost effectiveness of green infrastructure in road corridors, Roads and Maritime, June 2023
- Bridge Aesthetics – Design guideline to improve the appearance of bridges in NSW, Centre for Urban Design, June 2023
- Water sensitive urban design guideline-Applying water sensitive urban design principles to NSW transport projects, Roads and Maritime, June 2023
- Designing with Country Discussion Paper, GANSW, 2020
- Connecting with Country – Good practice guidance on how to respond to Country in the planning, design and Delivery of the built environment projects in NSW, GANSW, 2023
- Practitioner's Guide to Movement and Place, GANSW, March 2023
- Vision for Country, Blacktown Native Institute, 2024. This document is discussed under Section 2.4 Cultural Heritage below.





2.0
Contextual Analysis

2.0 Contextual Analysis

2.1 Introduction

The following contextual analysis will be used to inform the urban design vision, approach and design strategy for the proposal. The analysis includes desktop studies, review of relevant planning frameworks, and site investigation. The chapter describes the site conditions and context relevant to the proposal scope.

2.2 Regional Context

The proposal lies on the unceded Traditional lands of the Dharug people.

The proposal is located approximately 35 kilometres north-west of Sydney CBD/Eora (Figure 1), within the Blacktown Local Government area (LGA). The proposal traverses multiple suburbs including Deans Park, Oakhurst and Hassle Grove south of the Westlink M7 Motorway (M7), and Colebee and Marsden Park north of the M7. The M7 provides a principal connection between metropolitan Sydney and into the south-west suburbs.

The proposal is approximately 7km (13 minute drive or a 20 minute bus commute) from Blacktown Railway Station, which serves the T1 North Shore and Western Line and the T5 Cumberland Line, and a 7km (13 minute drive or a 40 minute bus commute) from Schofields Station, also on the T1 and T5 railway lines.

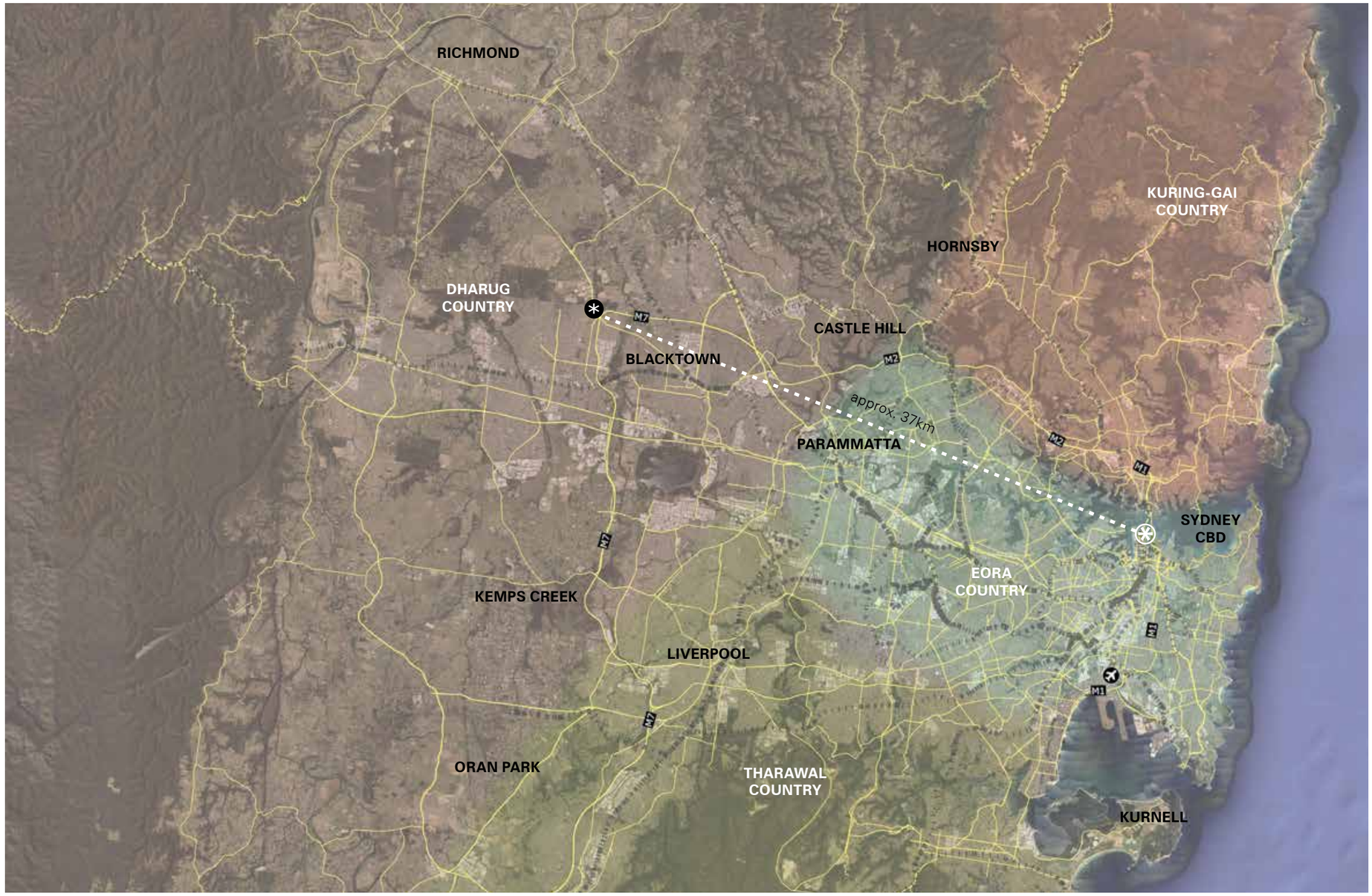


Figure 1 Richmond Road Upgrade regional context and representation of language, social and nation groups of Aboriginal Australia

2.3 Local Context

The proposal shares boundaries with multiple townships including: Deans Park, Oakhurst and Hassle Grove south of the M7 Motorway; and Colebee and Marsden Park to the north.

Around the proposal area is a variety of land uses including: medium to low density residential in the south and north; terrestrial and scenic biodiversity north of the Westlink M7 Motorway (M7); and light industrial around the home-maker centre (Figure 2). There are also significant open spaces and green corridors including: the Blacktown Native Institute (BNI), Langford Park, Colebee Neighbourhood Park, and Stonecutters Ridge Golf Club.

Areas of cultural significance include the Blacktown Native Institute (BNI), the Colebee and Nurragingy Land Grant, Plumpton Ridge and the BAIT-UL-HUD Mosque.

Lands north of Langford Drive and Alderton Drive sit within the Future Urban Growth Area (FUGA) and are undergoing rapid land development.

To the east of the proposal exists a fragmented riparian corridor with Bells Creek key waterway of the Richmond Road bridge crossing.

Considerations and opportunities:

- Respond to existing land uses through planting and material design and selection
- Enhance/ establish connections between fragmented open space and vegetation
- Ensure access to properties are maintained
- Provide/ enhance active transport connections between established and future communities

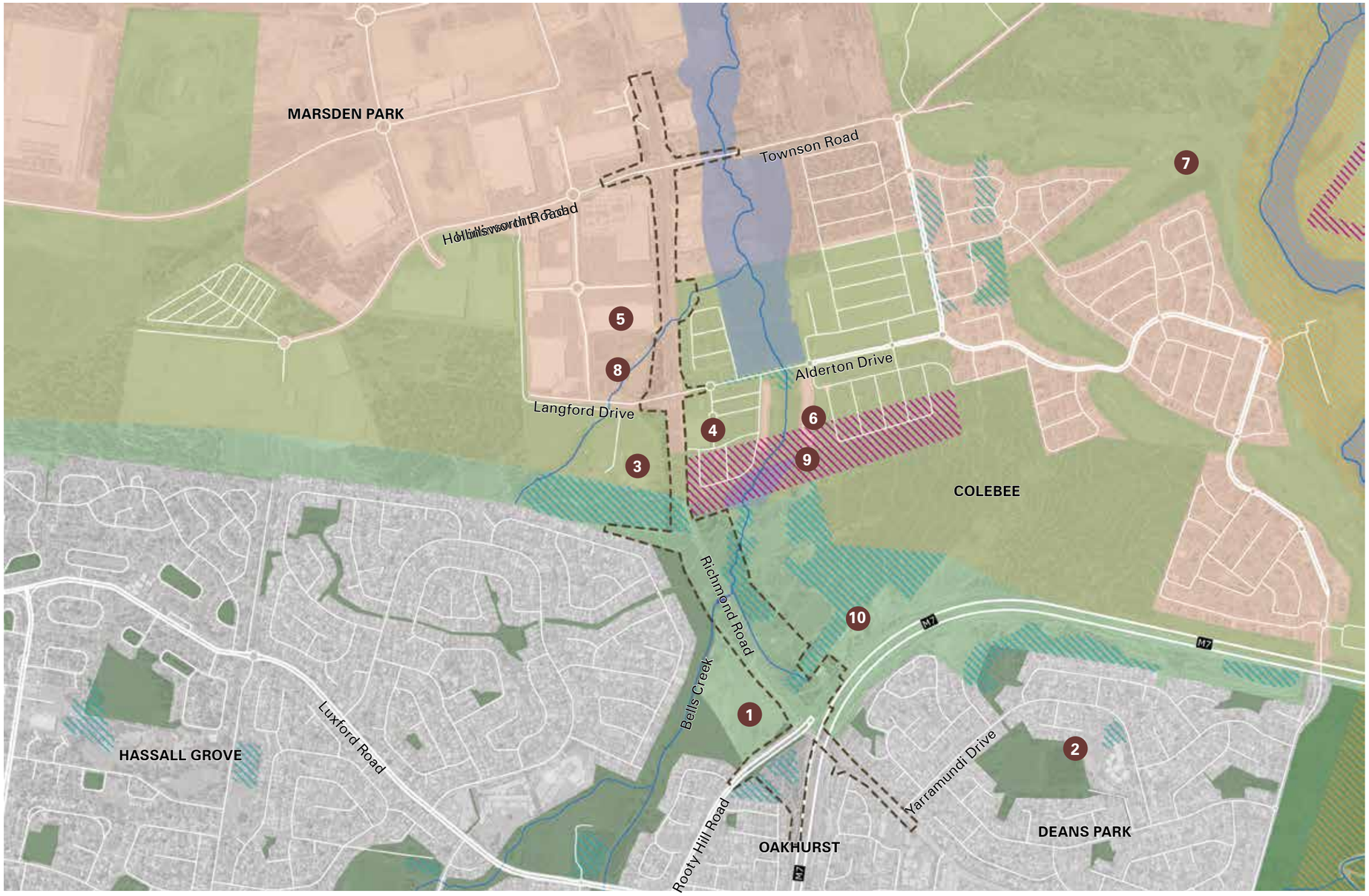


Figure 2 Local context

View from Westlink M7 Motorway (M7) exit onto Rooty Hill Road

View from Richmond Road adjacent to existing pedestrian bridge

View from Richmond Road before Greenway Village

View from Richmond Road adjacent to the home-maker centre

View from Richmond Road before Townson Road intersection

Views from Richmond Road looking to the Blacktown Native Institute

2.4 Cultural Heritage

The proposal lies on the traditional lands of the Dharug people. There are sites of signifiance that the Project touches, and that are important considerations for the design.

Colebee/Nurragingy land grant

The Colebee/Nurragingy land grant is a site of state heritage significance because of its combination of historical, social and cultural values. It marks the first land grant ever given to Aboriginal people in Australia and is linked to two pivotal Aboriginal figures of the early colonial era, Nurragingy and Colebee, who received the joint grant in 1816. The location of the land grant is important as it was selected by Aboriginal preference, situated on land that belonged to Nurragingy's clan. Settlement on and around the land grant flourished and by the 1820s it had become known as the "Black Town". Both the contemporary Aboriginal community and the wider Australian population hold this land grant in high regard as a landmark in the history of cross-cultural engagement within Australia. The land is no longer in Aboriginal ownership, nevertheless it symbolises the resilience and enduring connections to the land of Aboriginal people.

Blacktown Native Institution

At the intersection of Rooty Hill Road and Richmond Road is the state heritage listed Blacktown Native Institute (BNI), a former residential school for Aboriginal and Maori children that was operational between 1823 and 1829. The Statement of Significance notes that:

"The Blacktown Native Institution played a key role in the history of colonial assimilation policies and race relations. The site is notable for the range of associations it possesses with prominent colonial figures including: Governor Macquarie, Governor Brisbane, Samuel Marsden, William Walker and Sydney Burdekin….For Aboriginal people in particular, it represents a key historical site symbolising dispossession and child removal. The site is also important to the Sydney Maori community as an early tangible link with colonial history of trans-Tasman cultural relations and with the history of children removed by missionaries."

The site is currently a largely vacant lot of land. Surface remains are visible only in the area of the main Native Institution building. However, the site does have the potential to contain further archaeological relics and deposits. The Native Institution site remained in Aboriginal hands until the early twentieth century, passing to private, Council and State Government before returning to Aboriginal ownership in 2018. There have been various arts projects involving collaboration with Aboriginal artists and communities, including the installation of 'Flannel Flowers' by Sharyn Egan which today marks the site for passers-by, motorists and residents around the study area.

Plumpton Ridge

To the east of the project is Plumpton Ridge. While no longer a strong visible feature in the landscape, this area is notable for the numerous archaeological artefacts found there, including stone tools used by First Nations people for many thousands of years.

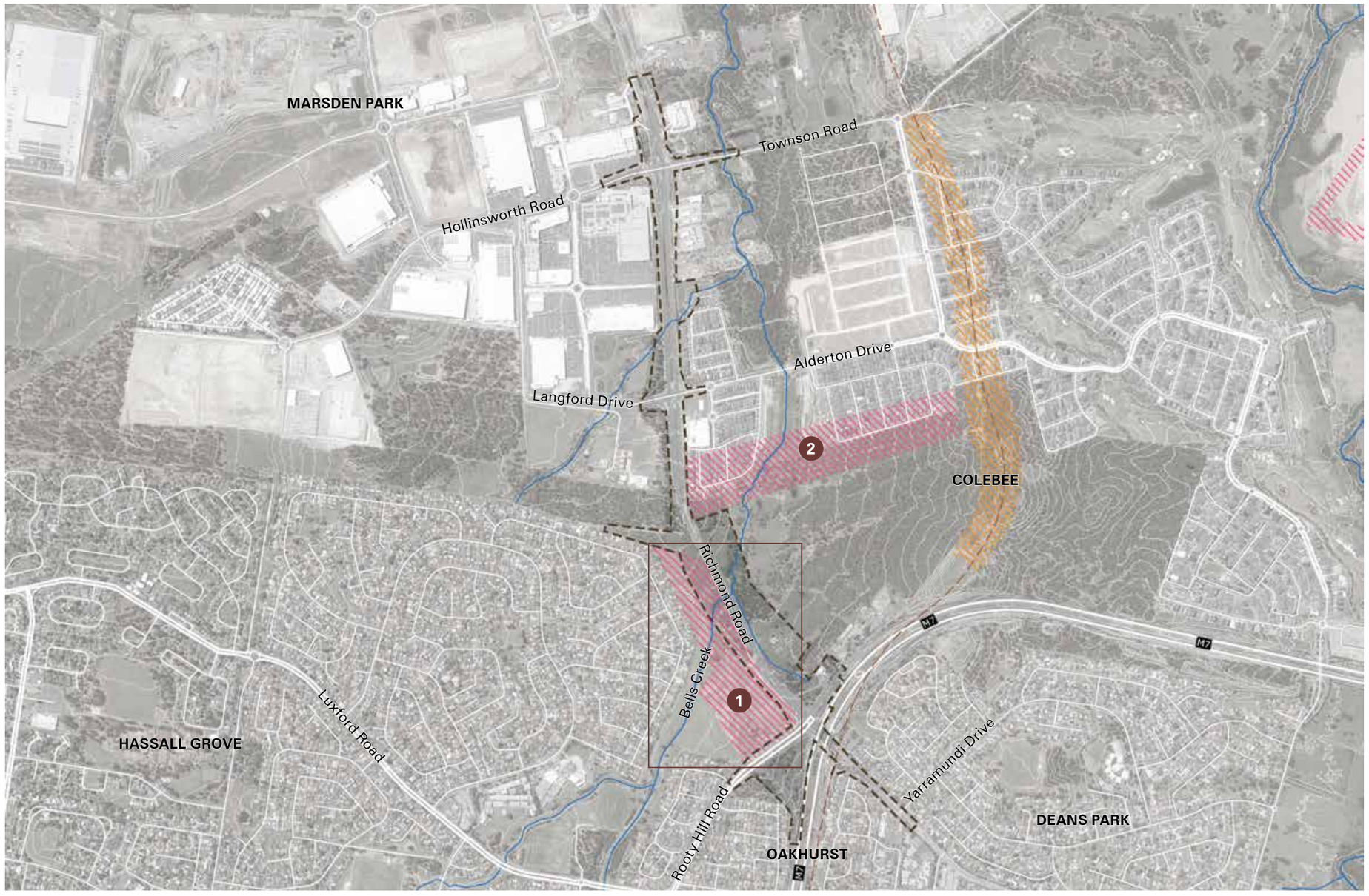
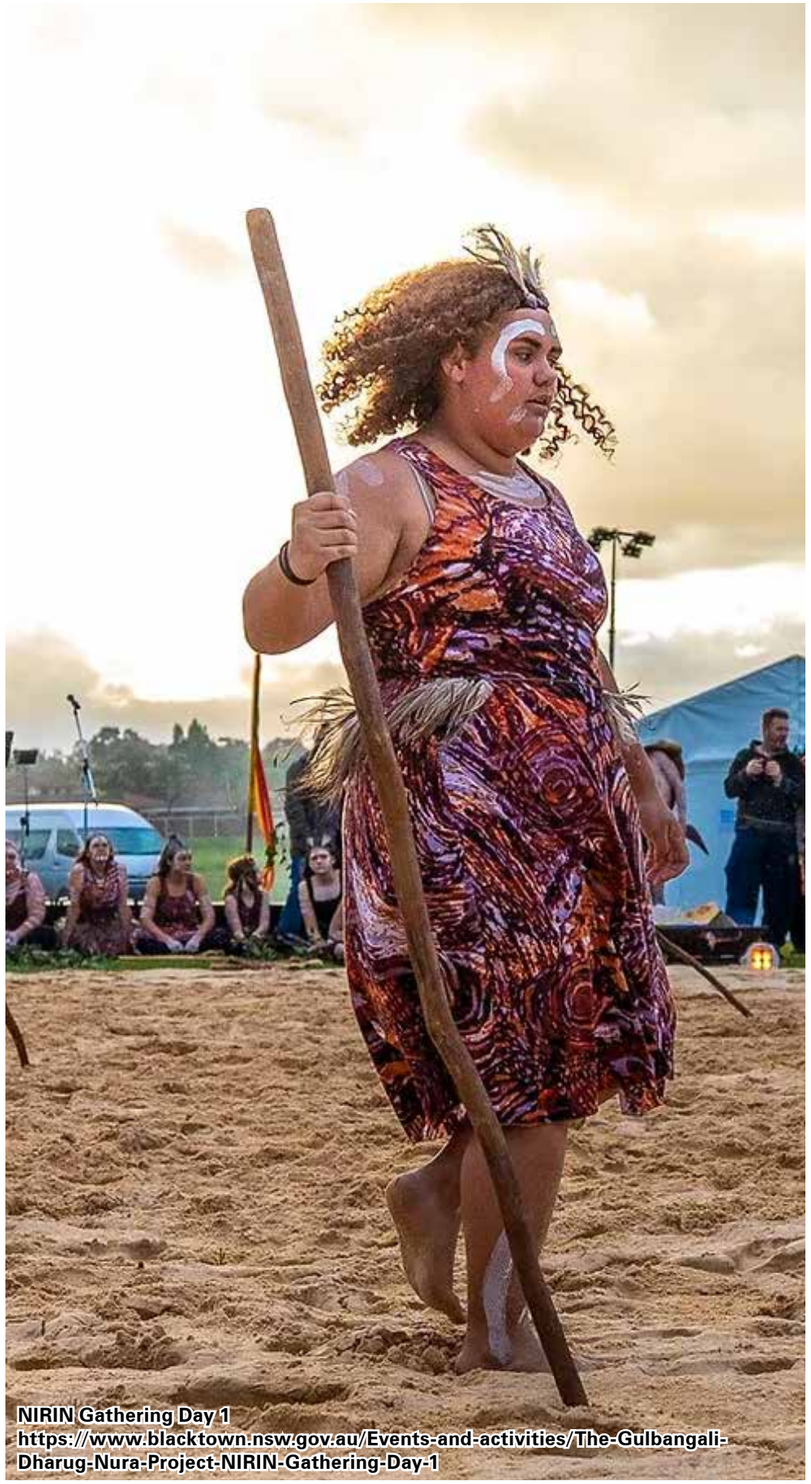


Figure 3 Cultural heritage - Blacktown Native Institute (BNI)

Considerations and opportunities

Considerations and opportunities include process as well as outcomes, noting that the Connecting with Country work being undertaken in parallel will inform the developing design of this project.

- Work collaboratively with First Nations stakeholders, responding to community aspirations for culturally significant sites
- Draw on Connecting with Country engagement for themes, narratives and potential locations for cultural interpretation, both in the landscape and for new structures (notably the bridge).
- Create or highlight visual and physical connections between culturally significant sites (and to the wider landscape), to acknowledge the continuing presence and resilience of Aboriginal culture.
- Albeit the Colebee/Nurragingy site is fragmented and overlaid with different land use zonings, optimise retention of native / riparian vegetation that remains, together with habitat for native fauna
- Acknowledging Dharug aspirations for the BNI site,
- Maintain access to and within the BNI site, protecting the most significant area/s for ongoing visits and ceremony Possibilities of a Dharug Cultural Centre built on the
- Locate a new car park entry off Rooty Hill Road towards the south-west corner
- Explore the potential, and any associated planning pathways, for mounding to the south-east corner, to mitigate the impact of road widening
- Select plants, materials, and colours reflecting the local topography and vegetation communities including Dharug woodlands. Seek input from Aboriginal stakeholders to confirm or refine the palette, for example referencing bush tucker plants.



NIRIN Gathering Day 1
https://www.blacktown.nsw.gov.au/Events-and-activities/The-Gulbangali-Dharug-Nura-Project-NIRIN-Gathering-Day-1

Colebee/Nurruagingy Land Grant, State Heritage Inventory, 2010

Sharyn Egan, Flannel Flowers
https://www.mca.com.au/c3west/blacktown-native-institution-project-2018/

2.5 Vegetation Communities and Local Fauna

Vegetation within the project consists of remnant vegetation communities and introduced vegetation (both native and exotic) associated with rural and residential land uses

The remnant native vegetation consists of three Threatened Ecological Communities (refer figure 4):

1– **Cumberland Shale Plains Woodland** (critically endangered)- characterised with an open tree canopy, a shrub and/or small tree layer and a ground cover with grasses and herbs. Dominant canopy trees include: Grey Box (*Eucalyptus moluccana*) and Forest Red Gum (*E. tereticornis*), with Narrow-leaved Ironbark (*E.crebra*), Spotted Gum (*Corymbia maculata*). Typically occurring on heavy clay soils, this community is well adapted to drought and fire and today less than 6% of the Woodlands remain fragmented across Western Sydney.

2– **Castleraegh Ironbark Forest** (endangered) - ranges from open forest to low woodland, with a canopy dominated by Broad-leaved Ironbark (*Eucalyptus fibrosa*) and Paperbark (*Melaleuca decora*). This Endangered Ecological Community (EEC) occurs in Western Sydney and the extent of its' remnants has been reduced to 1011 hectres. This community has a very restricted natural distribution, relying on clay soils derived from the deposits of ancient river systems.

3– **River-flat Eucalyptus Forest** (Endangered) - consists of a tall open tree layer, scattered shrubs and ground cover. While the composition of the tree stratum varies considerably, the most widespread and abundant dominant trees include *Eucalyptus tereticornis* (forest red gum), *Eucalyptus amplifolia* (Cabbage Gum), Angophora floribunda (rough-barked apple) and *A. subvelutina* (Broad-leaved Apple). The remaining area is represents approximately 30% of its' original distribution and plays an important role in maintain river ecosystems and riverbank stability.

Introduced native/exotic species are found along the east and west fringes of Richmond Road at the front of residential properties, the Home-maker centre, the Village Green shopping mall and along median strips.

Local Fauna

Fauna within and around the project area predominately consists of Kangaroos, particularly Eastern Grey Kangaroos and wallabies. They have been frequently sighted around the BNI site and crossing Richmond Road.

Considerations and opportunities:

- Retain and strengthen native vegetation where possible
- Restore critically and endangered ecological communities and assist with biodiversity protection and recovery
- Planting to consider bushfire resilience strategies (species selection, location and density)
- Caring for Country, highlighted through Connecting with Country engagement, includes a focus on enhancing the biodiversity of the site and the surrounds
- Establishing a Fauna crossing around Bells Creek to deter kangaroos from Richmond Road

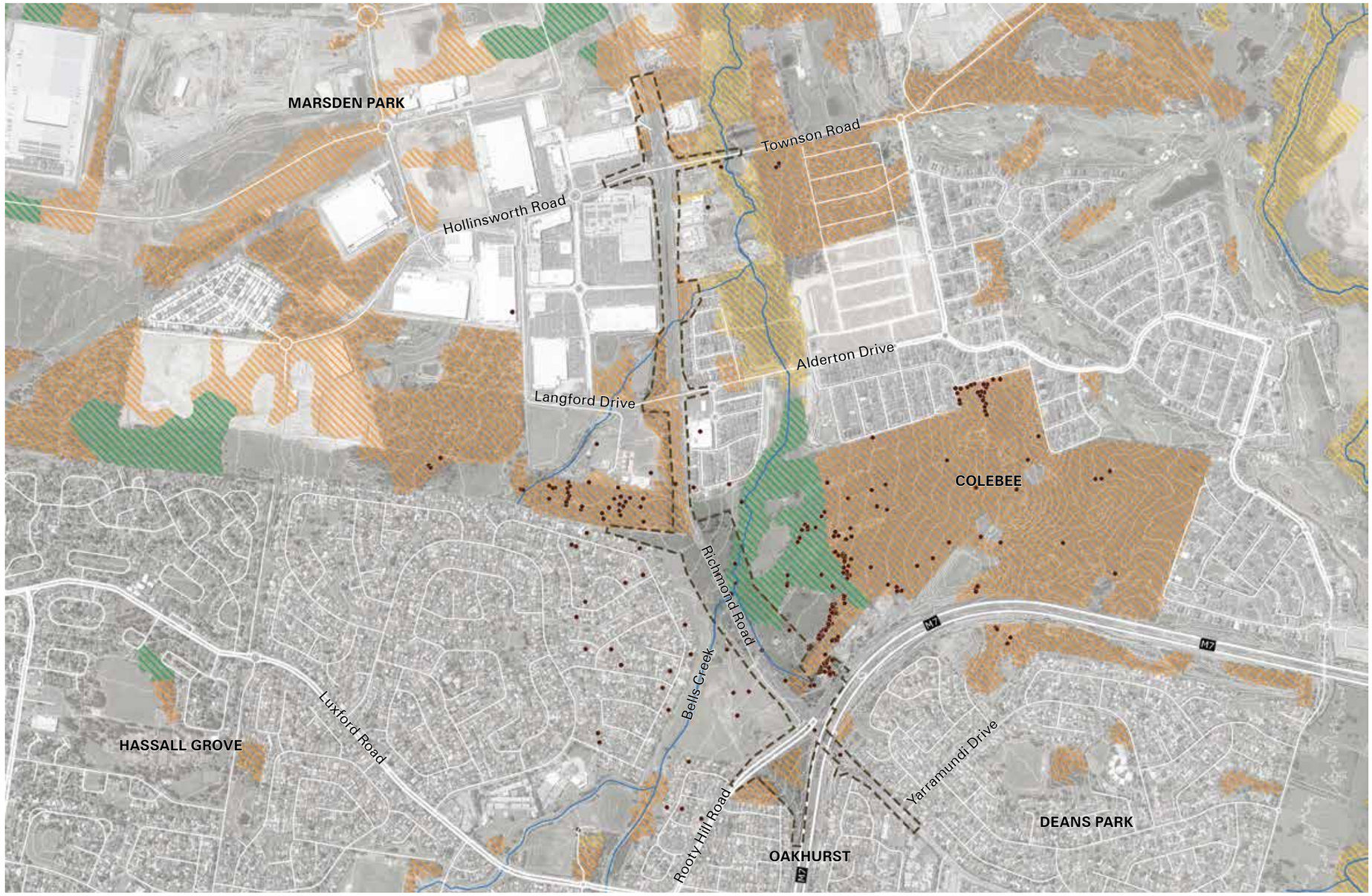


Figure 4 Vegetation communities and local fauna

CUMBERLAND SHALE PLAINS WOODLAND




CASTLEREAGH IRONBARK FOREST




RIVER FLAT EUCALYPTUS FOREST




2.6 Land form, Hydrology and Views

The topography of the proposal scope is relatively flat with water running north away from the Westlink M7 Motorway (M7).

The landforms from Rooty Hill Road to Bells Creek undulates on a downward slope and slopes back up towards the industrial area, creating the creek line that intersects beneath Richmond Road.

The proposal is within the Bells Creek catchment, with the main arm crossing Richmond Road about 450 metres north of the Richmond Road and Rooty Hill intersection.

While Richmond Road has generally been constructed at grade, where it runs between the M7 Motorway overpass and Alderton Drive it is on a 1-2m high earth embankment in the immediate vicinity of its crossing of Bells Creek. The crossing of Bells Creek comprises an 18 m long two-span reinforced concrete bridge.

Richmond Road also is a designated as a regional flood evacuation route in the Hawkesbury Nepean Flood Plan 2015.

The low-lying landforms enables wide, opens views across the floodplain surrounding Bells Creek, taking in the rural grasslands with scattered trees.

Considerations and opportunities:

- Planting of appropriate species to assist in erosion prevention and mitigate potential flooding from Bells Creek
- The design of swales and drainage structures should respond to strategies around passive irrigation techniques and WSUD principles
- Earthworks/ batters graded to fit into natural landforms as much as possible
- Maintain/ enhance scenic views across Bells Creek floodplain
- Caring for Country, highlighted through Connecting with Country engagement, includes a focus on revegetation particularly around Bells Creek to mitigate erosion

Figure 5 Landforms and Views

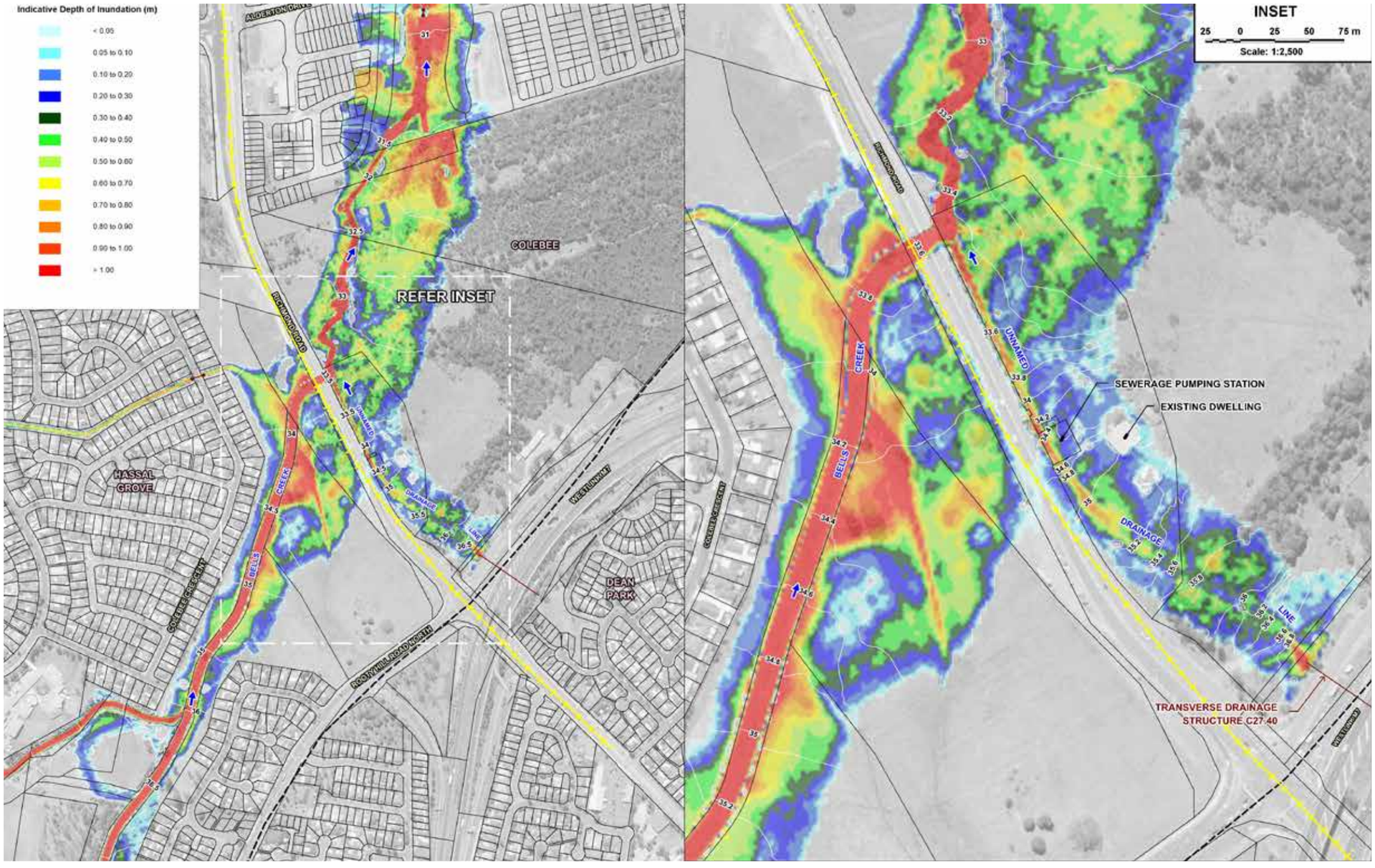


Figure 6 Flood map, Lyall & Associates Westlink M7 to Alderton Drive Flooding Investigation, 2023

2.7 Land Zoning

The land adjacent to the proposal is zoned for low density residential, medium density residential, transport infrastructure and light industrial. These areas, and the road corridor itself, sever what would have been large extents of native vegetation, including riparian vegetation associated with the waterway systems.

North of the M7 there is a parcel of land with heritage significance (nominated as environmental management in Blacktown Local Environmental Plan 2015), which is the site of the Blacktown Native Institute (BNI).

Land north-west of the Townson Road intersection is zoned for light industrial/commercial land (home-maker centre) with IKEA, Costco Wholesale and Supercheap Auto Marsden Park.

Opposite the home-maker centre is the Greenway Village shopping mall, which includes Choice Pharmacy Colebee, Woolworths, and Colebee Family Medical Centre.

Considerations and opportunities:

- Consider visual and character impact of nearby land uses
- Consider future land uses/ zoning
- Acknowledge the historical and cultural importance of areas of remnant vegetation and retain / strengthen these, including seeking to reconnect green and blue networks

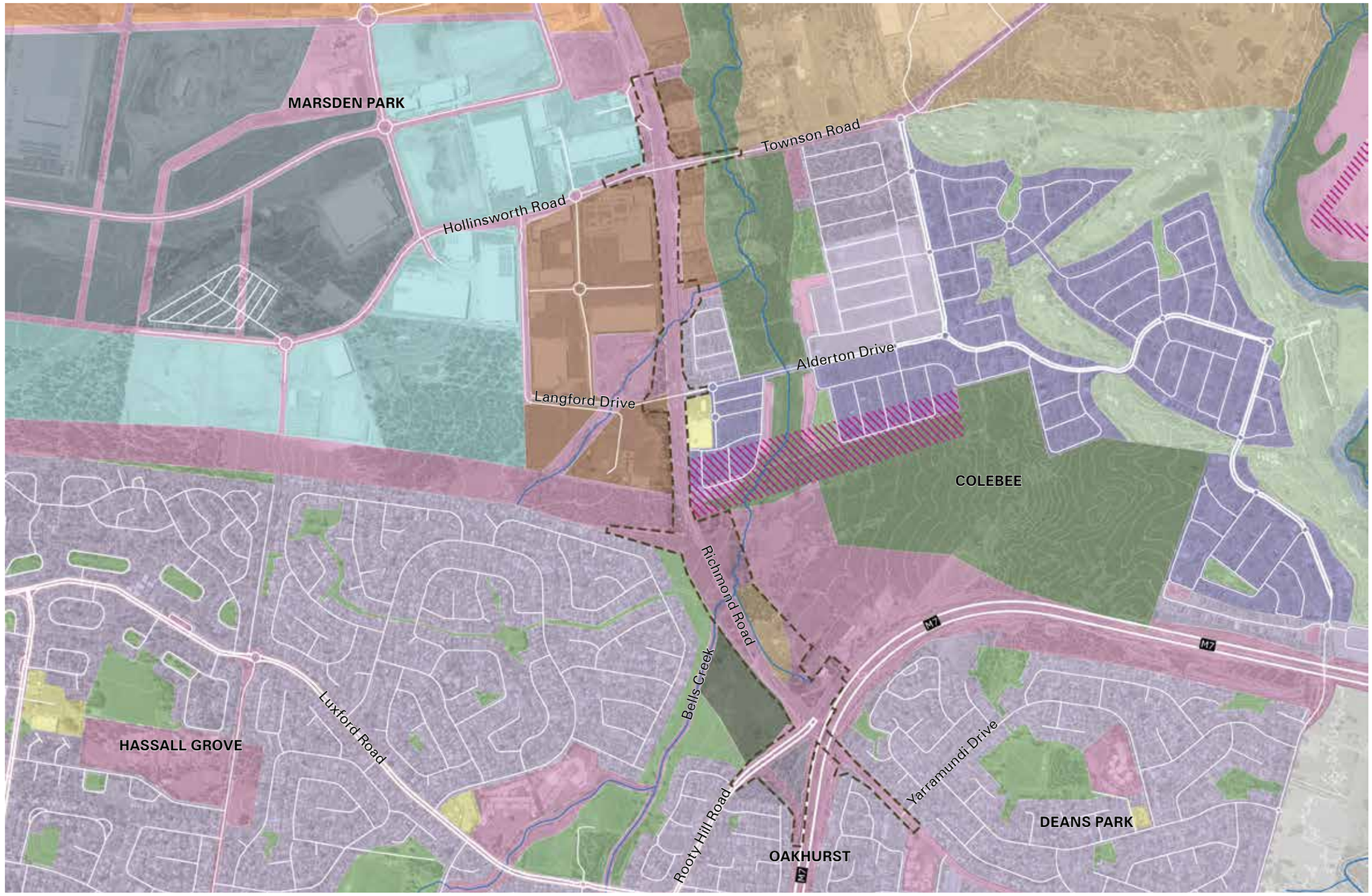


Figure 7 Land zoning

2.8 Transport Access and Movement

Vehicles

The M7 is a significant highway connecting metropolitan Sydney with the north-west and south-west priority growth areas, experiencing large volumes of traffic, particularly during peak hours. Richmond Road is a primary access route to the north-western suburbs in Sydney and experiences large amounts of congestion where it meets the Rooty Hill Road intersection.

Bus Services

Public bus services 751 and 747 operate along Richmond Road, connecting the local community to Blacktown and the Hills area. There are seven bus stops located within the project scope; two at the intersection of Yarramundi Drive, two within close proximity of the Greenway Village, two at the intersection of Townson Road, and one on Hollinsworth Road. All bus stops are signposted with a bus lane running along the length of the project.

Active Transport

There is some existing cycleway infrastructure running along the western fringe of Richmond Road, nominated as a shared path for pedestrians and cyclists. There is also an existing cycleway and pedestrian connection on the The Westlink M7 Motorway (M7) shoulder that links active commuters to Western Sydney Parklands and Sydney's east.

Southbound from Greenway Village there are no formalised pedestrian paths, with the majority of pedestrian movement on the opposite side of Richmond Road.

Considerations and opportunities:

- Improve pedestrian and cycling connections across and ensure connections to existing routes
- Maintain safe and direct pedestrian access to bus stops and destinations
- Maintain access to and within the BNI site, protecting the most significant area/s for ongoing visits and ceremony
- Locate a new car park entry off Rooty Hill Road towards the south-west corner

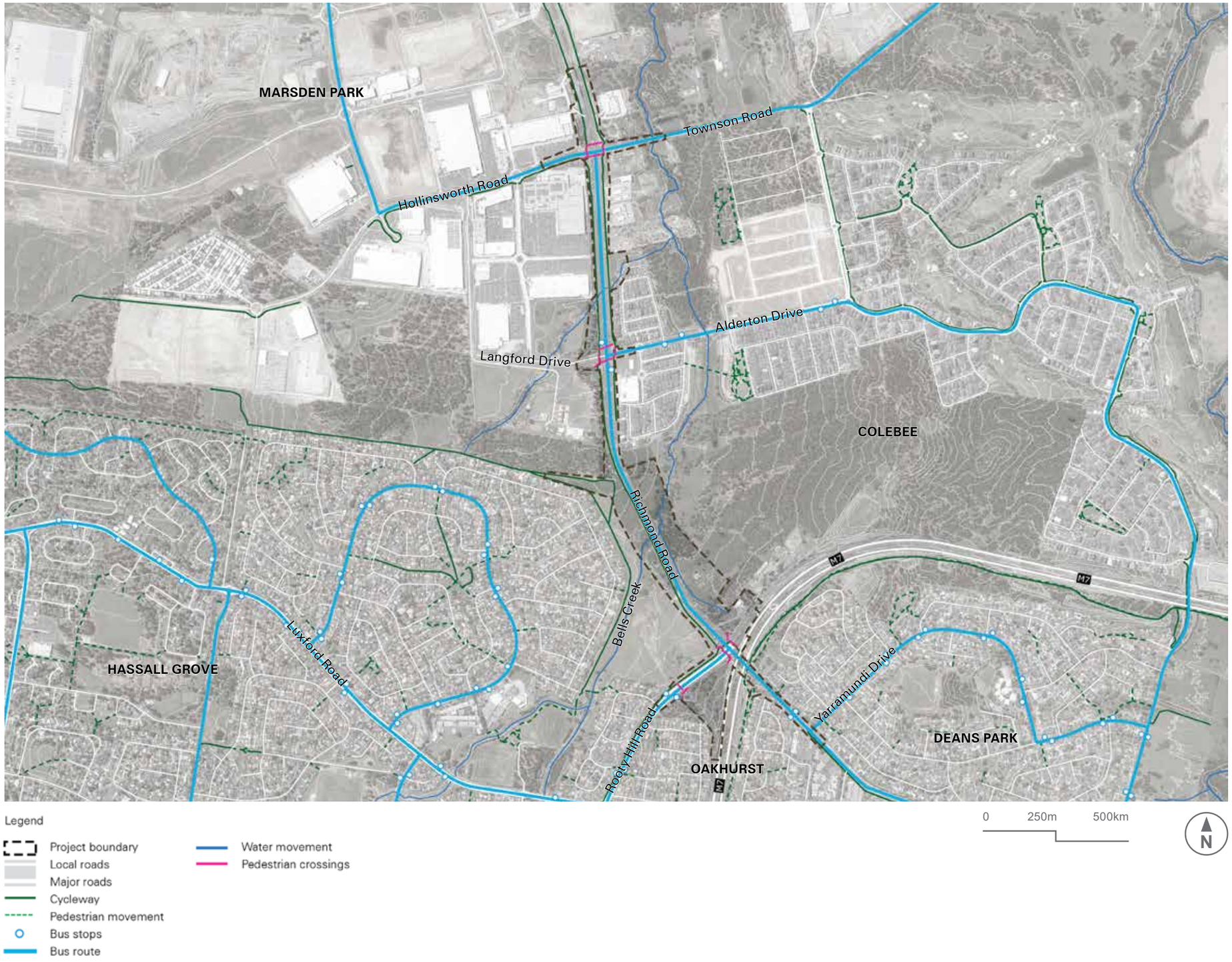


Figure 8 Transport access and movement

Bus stop on eastern side of Richmond Rd, near Greenway Village

Bus stop eastern side of Richmond Rd, adjacent Hollinsworth Rd

Bus stop western side of Richmond Rd, adjacent Langford Drive

Bus stop on western side Rooty Hill Rd N, adjacent BNI site

Bus stop on eastern side Rooty Hill Rd North, adjacent fenced vegetated area

Bus stops along eastern & western side of Richmond Rd, ajdacent Yarramundi Drive

3.0
Urban Design Approach

3.0 Urban Design Approach

3.1 Introduction

The project objectives, as identified by TfNSW, are:

- Reduce transport cost by improving travel times and reducing congestion.
- Support economic growth and productivity by providing road capacity for projected freight and general traffic volumes.
- Improve road safety
- Improve quality of service, sustainability and liveability.
- Minimise impacts on the environment.

The role of urban design on transport projects is to support the overall project objectives while leveraging the project to the benefit of its context. Here the starting point has been to consider connectivity and amenity for all road users, cyclists and pedestrians; and at the same time to optimise landscape regeneration of the natural environment along the Bells Creek catchment, and respectful integration with nearby sites of cultural and heritage significance.

3.2 Urban Design Objectives and Principles

The objectives and principles were developed to both guide the concept design and as a tool to evaluate the design outcomes, to help the project respond to the visual, physical, cultural and operational context it sits within.

3.2.1 Objective 1

Achieve a project that fits sensitively within the existing site qualities and characteristics

Principles:

- Reduce the impacts of the proposal to the existing vegetation and natural landforms as much as possible
- Enhance and reinstate existing vegetation communities to integrate the project with the existing setting
- Maintain and enhance landscape views for road users by retaining open vistas along the Bells Creek flood plain
- Mitigate the visual impact of large new infrastructure from outside the project corridor, through landscape design, clean and elegant lines to structures and architectural treatments that together complement their setting
- Design earthworks to reflect the existing natural topography of the setting as much as possible.

3.2.2 Objective 2

Protect and enhance existing ecological systems

Principles:

- Contribute to the biodiversity and habitat of the area through planting design and selection
- Revitalise and re-vegetate the planted banks of Bells Creek to maintain its natural ecosystem
- Create a low maintenance landscape using predominantly endemic plant species suited to their specific conditions
- Minimise the construction footprint by reducing the amount of cut and fill, with limited impact to existing land forms, water flow and vegetation
- Retained vegetation as much as possible by reducing the construction footprint.

3.2.3 Objective 3

Respect and integrate local Aboriginal narratives and themes through Designing with Country design principles

Principles:

- Creating a strong sense of place drawing on the narratives of local Aboriginal people and integrating them into the design response
- Ensure minimal impact on areas of heritage significance and the Blacktown Native Institute Project sites
- Integrate knowledge on the 'Connection to Country' stories, with emphasis on the landscape Bells Creek and Blacktown Native Institute Project relationship
- Ensure that views from the project and the experience it brings to the drivers, pedestrians and cyclists reinforces the interpretation of any heritage items
- Use significant plant species, identified by local Aboriginal groups, in the design
- Identify potential opportunities for art integration to express connection to Country, whether integrated within the project structures or as an interaction with the Blacktown Native Institute Project and/or through cultural plantings, to be in consultation with the appropriate stakeholders
- Identify key landmarks and cultural views to ensure their protection or enhancement.

3.2.4 Objective 4

Achieve a high-quality design outcome that improves the experience for motorists, cyclists, pedestrians and the local community

Principles:

- Design the form of structures that sit above grade in the view plane from surrounding properties or circulation areas to relate to and enhance the surrounding context
- Design structures (walls, columns, beams, screens, abutments) to be designed in a unified design approach utilising common elements between all structures across the alignment
- Apply the use of oxides and textures to structures/bridges to help recede the built form into the surrounding landscape.
- Design the edges and undersides of structures visible at close range to be visually interesting and integrated with the overall expression of structure.

3.2.5 Objective 5

To provide safe and convenient pedestrian and cyclist connectivity along and across the road corridor

Principles:

- Retain and enhance the accessibility and connectivity of surrounding communities for all users including pedestrians, cyclists, public transport users
- Provide connectivity along the Bells Creek flood plain with adjoining existing and future residential and commercial developments.

3.2.6 Objective 6

Achieve a high level of sustainability for the project within all aspects of design

Principles:

- Incorporate strategies like Water Sensitive Urban Design (WSUD) including passive irrigation
- Reduce impacts of the urban heat island effect such as increasing planting/ reducing hard surfaces where possible
- Adopt a native plant palette which responds to the local climate and environmental conditions
- Help protect natural environments by minimising the construction footprint and carefully locating structures
- Use low carbon and durable materials
- Include opportunities for 'Dark Sky' lighting within the context of the project.

Richmond Road crossing Bells Creek, 1960

3.3 Urban Design Strategy

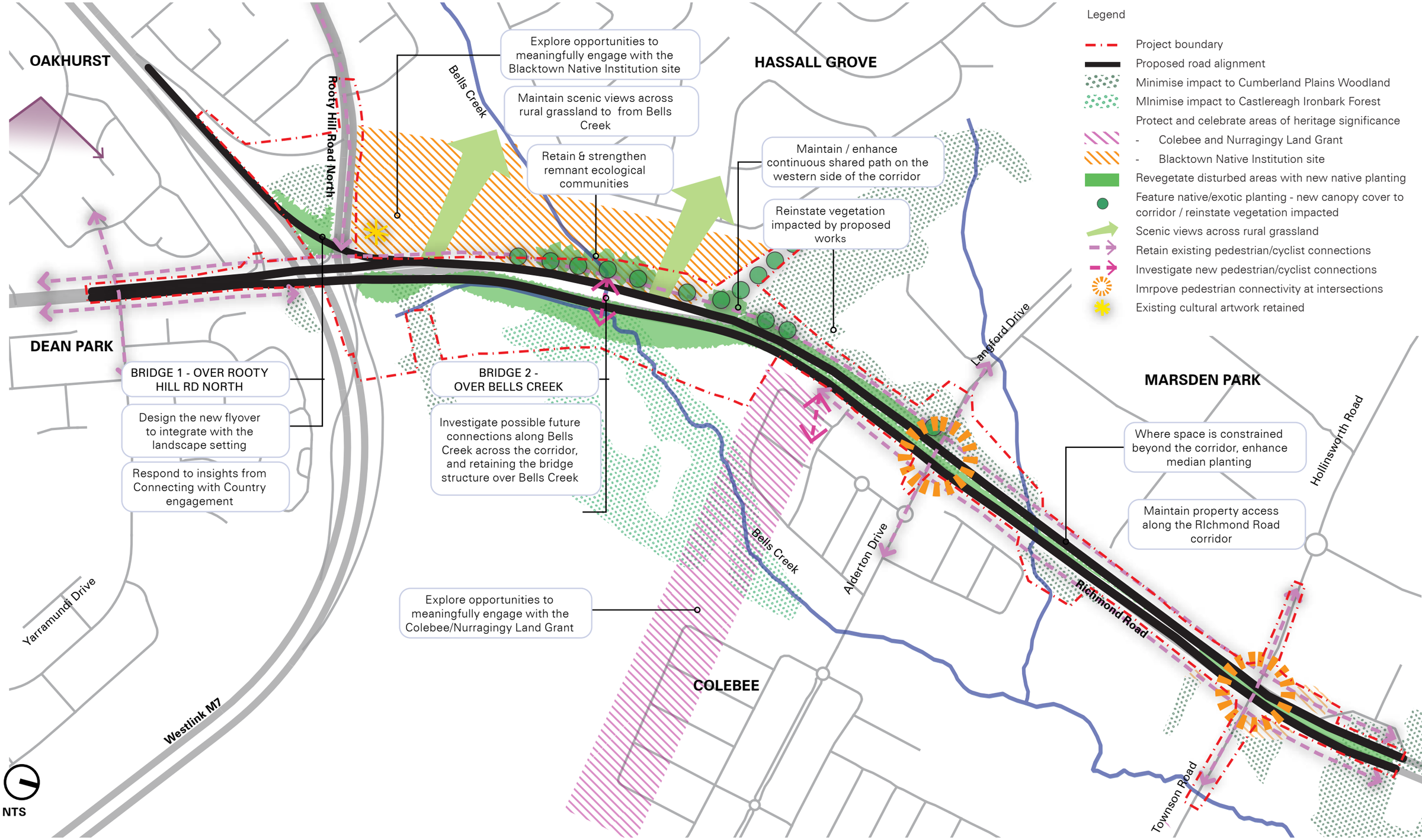


Figure 9 Urban design strategy diagram

Note: EVC = ecological vegetation class

Early in the project indicative plans and sections were developed to represent the urban design principles as applied to the road corridor, to assist the various project disciplines in developing the horizontal and vertical alignment. Postive outcomes arising from this process included:

- Reduction of impacts on the existing vegetation and natural landforms
- Contribution to the biodiversity and habitat of the area through planting design and selection
- Rentention and enhancement to accessibility and community connectivity, for all users including pedestrians, cyclists and public transport users
- Integration of Water Sensitive Urban Design (WSUD) strategies including passive irrigation.

Figure 10 Indicative initial concept for the road and landscape layout, showing the potential for soft landscaping, including on medians and verges

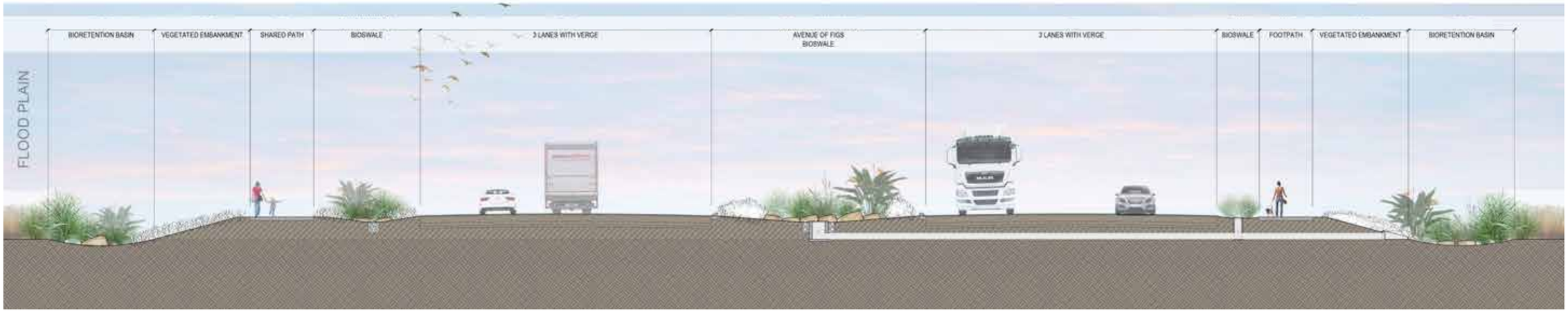


Figure 11 Indicative initial concept cross section for the road and landscape layout, highlighting integration of soft landscape to physically and perceptually break down the expanse of the widened corridor

4.0
Concept Design

4.0 Concept Design

This section of the report gives an overview of the proposed urban design concept. It first summarises the key moves of the project, showing how they relate to relevant objectives and principles outlined in Section 3 of the report. It then illustrates the integrated alignment, structures and landscape as a set of 1:1000 urban design plan diagrams and selected sections, and includes more detail around Bridge 1 (the flyover) and the proposed planting palette.

4.1 Design response to objectives and principles

4.1.1 Landform, views and vistas

Objective: Achieve a project that fits sensitively within the existing site qualities and characteristics	
Principle	**Design response**
Reduce the impacts of the proposal to the existing vegetation and natural landforms as much as possible	The project has sought to minimise changes to the landform and to 'sit' within the topography. For example the new bridges for north-bound traffic and the shared path on Richmond Road are set at the same horizontal alignment as the surrounding carriageway rather than ramping up to cross Bells Creek.
Enhance and reinstate existing vegetation communities to integrate the project with the existing setting	Vegetation along the eastern side of the alignment is retained, and where it has been lost on the western side it has been supplemented with additional planting, particularly for riparian communities around Bells Creek including threatened ecological species.
Maintain and enhance landscape views for road users by retaining open vistas along the Bells Creek flood plain	The landscape concept alternates open views across the rural area and flood plain with new planting that partially screens the project and frames those views for road users.
Mitigate the visual impact of large new infrastructure from outside the project corridor, through landscape design, clean and elegant lines to structures and architectural treatments that together complement their setting	The new flyover bridge has been designed with large spans and single piers, thereby limiting impact on the ground plane. It is a strong but simple element that avoids unnecessary complexity and visual clutter, and is complementary to the nearby M7 structures. Landscape planting is also used to soften its appearance.
Design earthworks to reflect the existing natural topography of the setting as much as possible.	The new flyover lands on embankment at the southern end. This reduces the need for built structure (abutments) and has been designed to tie into the already sloping topography.

4.1.2 Structures

Objective: Achieve a high-quality design outcome that improves the experience for motorists, cyclists, pedestrians and the local community	
Principle	**Design response**
Design the form of structures that sit above grade in the view plane from surrounding properties or circulation areas to relate to and enhance the surrounding context	The new flyover will be visible on approach along main roads, the shared path, from within the Blacktown Native Institution site and across public reserves, as well as from the rear of more distant residential properties. The design is simple and elegant, with the haunched superstructure relating to its curve in plan.
Apply the use of oxides and textures to structures/bridges to help recess the built form into the surrounding landscape.	This principle was introduced at the beginning of the project with the emphasis on reducing the visual impact of the bridge. Currently the bridge design is for a simple streamlined appearance using concrete without oxides. which is considered to meet the intent of the principle.
Design the edges and undersides of structures visible at close range to be visually interesting and integrated with the overall expression of structure.	This is in part a consideration for future design stages, for example if Connecting with Country consultation identifies the potential for cultural interpretation on the bridge. To date the design combining a single pier and a haunched superstructure is considered to provide a structure that is visually interesting without being intrusive.

4.1.3 Landscape

Objective: Protect and enhance existing ecological systems	
Principle	**Design response**
Contribute to the biodiversity and habitat of the area through planting design and selection	The planting palette includes native and endemic species, including ecologically threatened species, that will contribute to biodiversity and habitat.
Revitalise and re-vegetate the planted banks of Bells Creek to maintain its natural ecosystem	The landscape concept design retains and/or reinstates riparian planting to Bells Creek. It also includes riparian planting to the large swale that runs parallel to and on the eastern side of Richmond Road
Create a low maintenance land-scape using predominantly endemic plant species suited to their specific conditions	The planting palette comprises mainly low maintenance plants that are suited to the local conditions. It has been prepared drawing on Council's preferred species and is intended to be refined through consultation with local Aboriginal stakeholders in future project stages.

4.1.4 Sustainability

Objective: Achieve a high level of sustainability for the project within all aspects of design	
Principle	**Design response**
Incorporate Water Sensitive Urban Design (WSUD) including passive irrigation	The design includes species with low water needs, new shade trees and a large planted swale to assist with natural filtration.
Reduce impacts of the urban heat island effect such as increasing planting/ reducing hard surfaces where possible	The design features extensive areas of additional canopy / shade trees and of understorey planting and groundcover. The proposed tree planting will provide additional shade to the shared path, improving amenity for pedestrians and cyclists. Some soft surface has been lost, with the grassed medians narrowed for extra traffic lanes, but the medians are proposed to be replanted with native grasses that are low maintenance and hardy.
Adopt a native plant palette which responds to the local climate and environmental conditions	The planting palette includes native and endemic species, including ecologically threatened species, that will contribute to biodiversity and habitat. They are typically low maintenance and have low water needs once established.
Help protect natural environments by minimising the construction foot-print and carefully locating structures	The flyover has been carefully designed though an optioneering process to minimse its footprint. It lands on abutment to the north, within the Richmond Road corridor, atop vertical walls. This means that the road section including travel lanes and shared path has been kept as tight as possible.

4.1.5 Heritage and Country

Objective: Respect and integrate local Aboriginal narratives and themes through Designing with Country design principles	
Principle	**Design response**
Create a strong sense of place drawing on the narratives of local Aboriginal people and integrating them into the design response	The Connecting with Country process has identified key themes in relation to both specific sites and the wider landscape. These are: natural links with the water systems; creating a connected community; safe and appropriate access to the site including for Elders; enhancing critically endangered vegetation; supporting habitat and fauna movements; and acknowledging the sites of trauma in and around the project area.
Integrate 'Connecting with Country' stories, with emphasis on the landscape of Bells Creek, Colebee Nurragingy and Blacktown Native Institution sites	These themes are to be taken forward to future design stages. It is important to note that Aboriginal stakeholders emphasised the importance of ceremony and healing Country.
Ensure minimal impact on areas of heritage significance	The project is adjacent to, and will have visual and noise impacts on the Blacktown Native Institution site, a site of cultural and heritage significance on the NSW heritage register. While the design has sought to minimise these impacts, first through the alignment and footprint, and then proposing landscape screening where possible, space within the project boundary is constrained. Further consultation with Aboriginal stakeholders to explore opportunities within the site, beyond this project, is recommended
Ensure that views from the project, and the experience this brings to drivers, pedestrians and cyclists, reinforce heritage interpretation	The proposed flyover will provide new elevated views for road users, across the wider landscape and also the significant Blacktown Native Institution site. At grade, on the shared path, pedestrians and cyclists also have views into the site. The potential for interpretive signage remains as a future opportunity.
Use significant plant species identified by local Aboriginal groups in the design	The planting palette includes a wide range of native and endemic plant species from which to choose, including some named by Aboriginal stakeholders. The final species selection would be based on further consultation with local Aboriginal people.
Identify potential opportunities for art integration to express connection to Country, whether integrated within the project structures and landscape or through cultural plantings, to be in consultation with the appropriate Aboriginal stake-holders	A separate Connecting with Country report describes the consultation to date with Aboriginal stakeholders including high-level themes and narratives to be considered in the design. These have not yet been integrated and validated by knowledge holders but are to be carried forward as a framework for the developing design. The consultation has identified the importance of the landscape and cultural plantings, particularly as part of a holistic ecosystem of reciprocal care for Country. The landscape design accordingly includes and locates plant species to support this.
Identify key landmarks and cultural views to ensure their protection or enhancement.	The LCVIA includes views towards and over cultural sites, and dis-cusses impacts and mitigation to protect them. The landscape concept is also to frame views outward from the Richmond Road corridor.

View of "Lloydhurst" homestead and the Blacktown Native Institution site

4.2 Concept plans

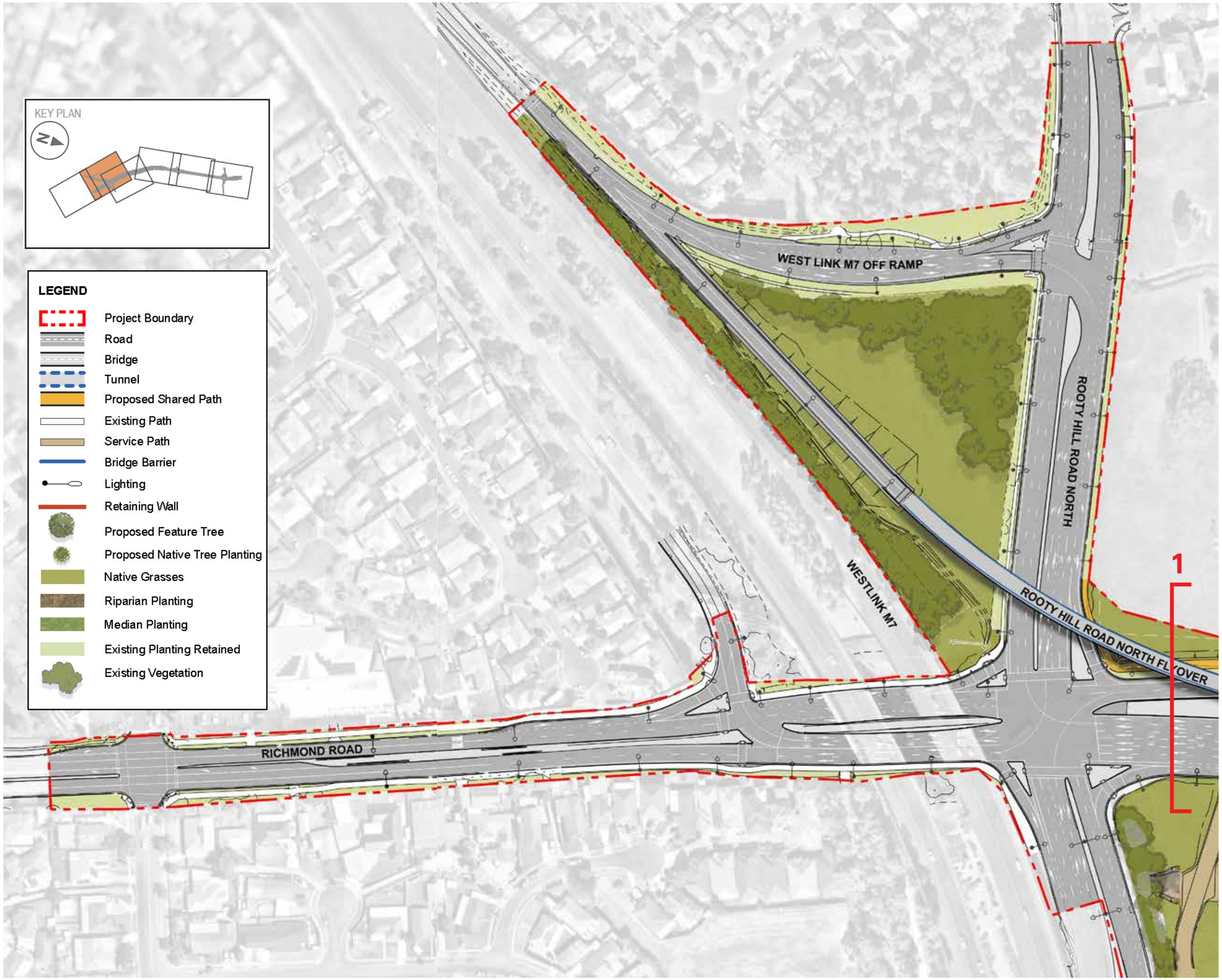


Figure 12 Urban design concept plan sheet 1 SCALE 1:2000

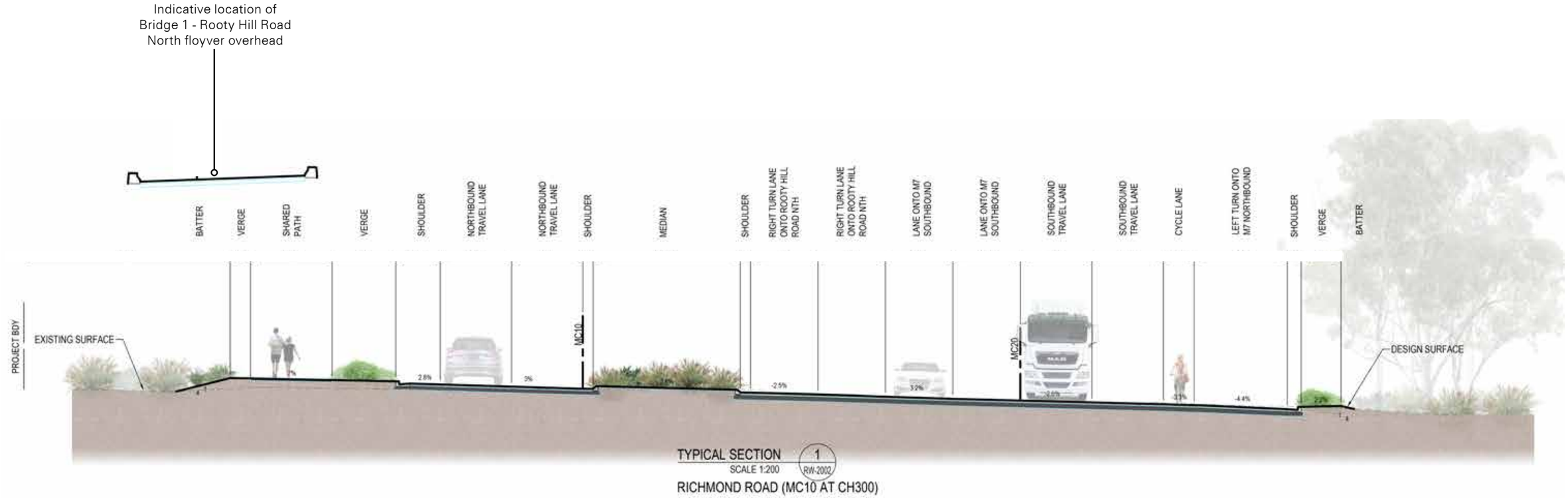


Figure 13 Cross section 1 through Richmond Road at CH300, looking north: near the intersection with Rooty Hill Road north, where Bridge 1 (flyover) sweeps across the shared path alongside the Blacktown Native Institution site

Figure 14 Urban design concept plan sheet 6

Figure 15 Urban design concept plan sheet2

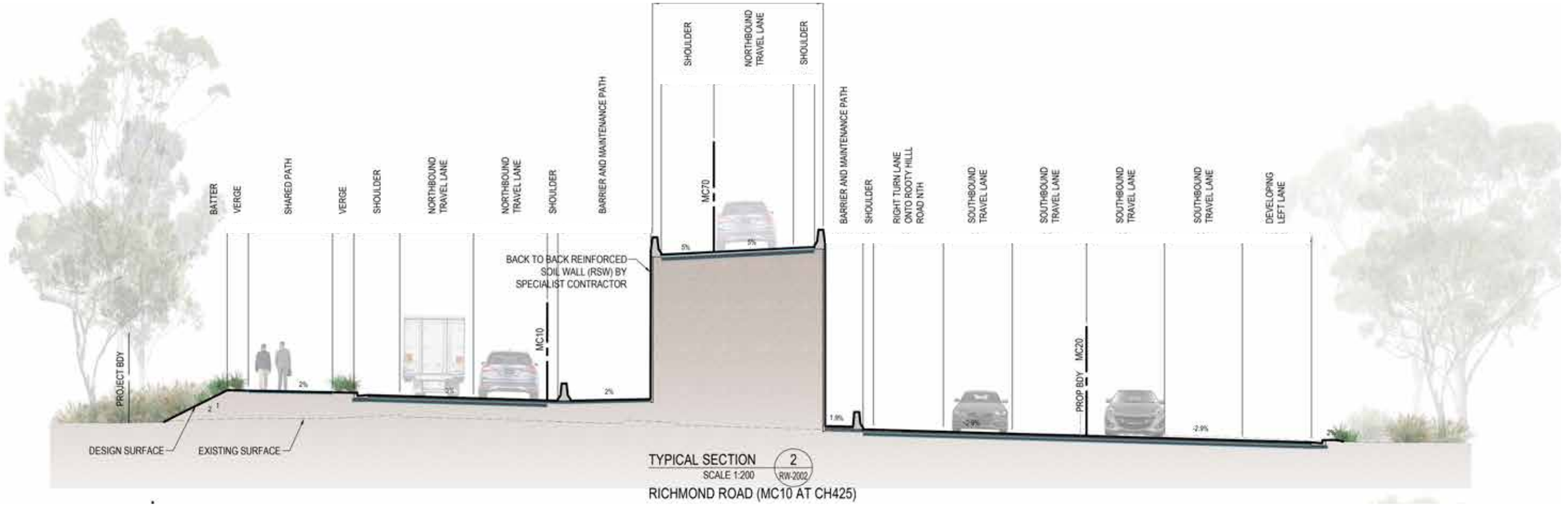
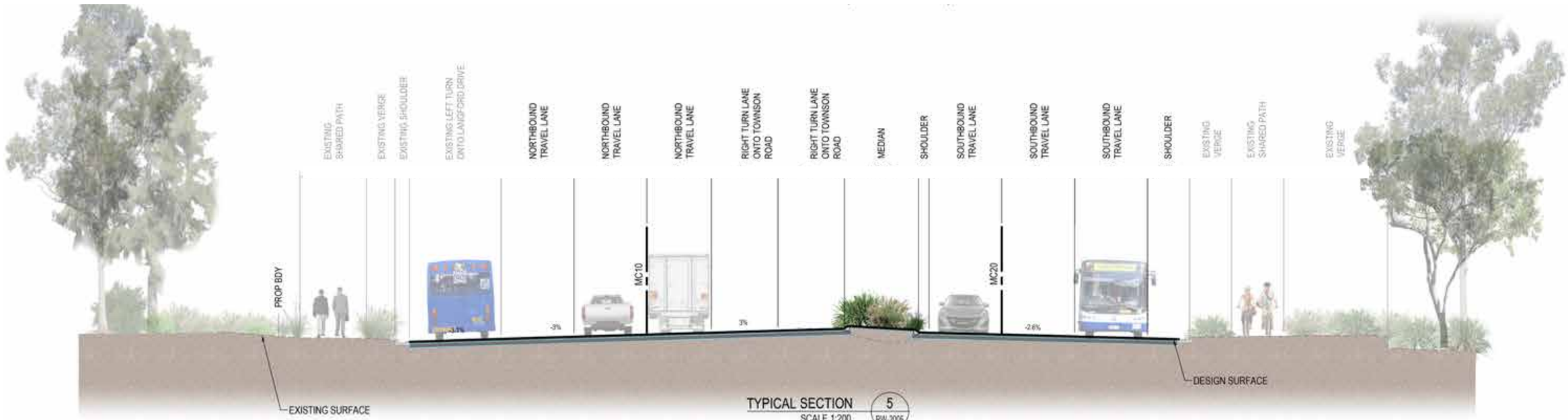


Figure 16 Cross section 2 through Richmond Road at CH425, looking north: where Bridge 1 (flyover) is descending to join northbound traffic on Richmond Road on vertical retaining walls

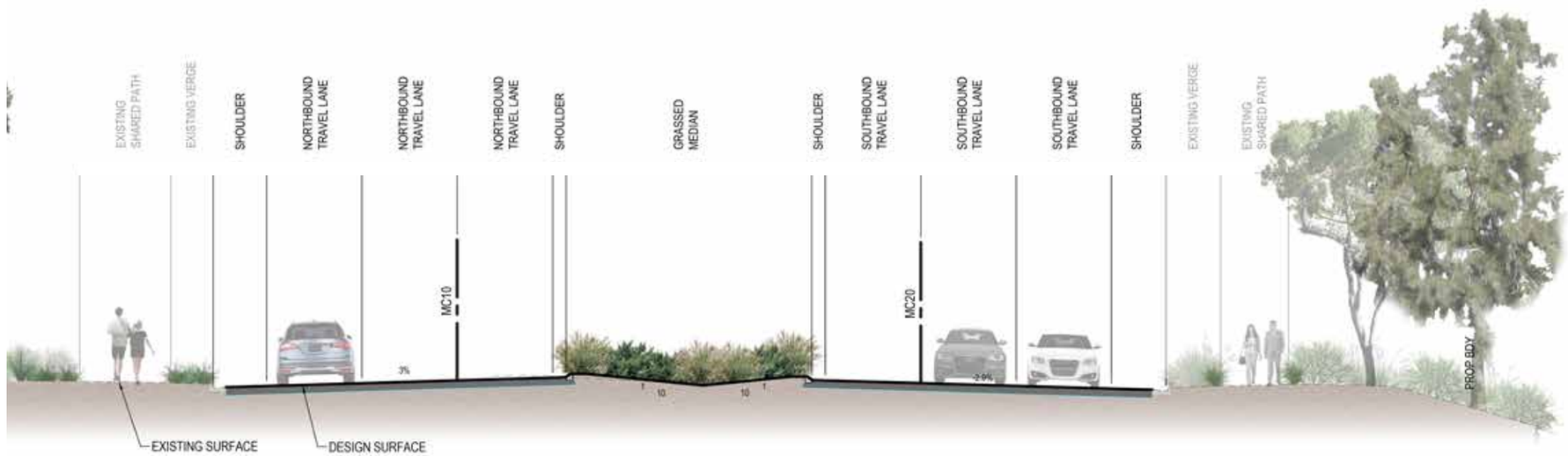
Figure 17 Urban design concept plan sheet 3

Figure 18 Urban design concept plan sheet 4



TYPICAL SECTION 5
SCALE 1:200 RW-2005
RICHMOND ROAD (MC10 AT CH1300)

Figure 19 Cross section 3 through Richmond Road at CH1300, looking north: near the intersection with Alderton Drive, with shared paths both sides of the corridor, the median is planted and where the edge vegetation is retained



TYPICAL SECTION 6
SCALE 1:200 RW-2005
RICHMOND ROAD (MC10 AT CH1700)

Figure 20 Cross section 4 through Richmond Road at CH1720, looking north: where the existing vegetation edging the corridor is starting to give way to industrial land uses, and where the wide median is planted with suitable riparian native grasses

Figure 21 Urban design concept plan sheet 5

4.3 Bridge design

4.3.1 Bridge 1 – Bridge from the M7 northbound to Richmond Road

This bridge carries traffic off the M7 onto Richmond Road, travelling east then north. A bridge options assessment was carried out for the new flyover, with the selected option being a four-span continuous balanced cantilever bridge with an overall deck length of 250 metres. The spans are 50, 75, 75 and 50 metres. The overall width of the bridge is around 8.4 metres between external traffic barriers, with a clear carriageway width of 7.3 metres consisting of a single 3.8 metre wide traffic lane, 2.5 metre wide inside shoulder, and 1.0 metre wide outside shoulder.

The bridge features a haunched superstructure atop single piers which are tapered and have a rounded edge. In the built context, the assessment acknowledged that the haunching gives a different profile to the flat M7 overbridge nearby (a super T girder structure over Richmond Road). Nevertheless the benefits of the large spans achieved, and the clean simple lines of the overall appearance, were considered to provide an elegant and appropriate design outcome. The piers are located to minimise interruptions to the journey for road and shared path users, and the design of the abutments to minimise landscape impacts.

There is a beneficial opportunity for Aboriginal cultural / heritage interpretation on the bridge that could visually strengthen the presence of the Blacktown Native Institution site. This is signalled through the Connecting with Country consultation as a consideration to take forward in design development.

4.3.2 Bridge 2 - Richmond Road northbound over Bells Creek

This bridge carries both road traffic and shared path users. The structure is a concrete Super T girders, a simply supported span with an overall deck length of around 29 metres and a width of 17.83 metres between external traffic barriers. There is a 4.0 metre shared path, three 3.5 metre northbound traffic lanes, a 2.0 metre offside shoulder, and a 0.5 metre nearside shoulder. A central barrier separates the carriageway and shared path with pedestrian/cyclist handrails along the edge of the shared path.

From an urban design perspective, the single span was supported to provide a clear crossing across Bells Creek. The structural depth has been designed to maintain the appearance of the flat topography and continuity of the journey experience. The spill through abutment and bridge undercroft are recommended to have rock scour protection with pocket planting for improved aesthetics, plant and wildlife habitat values, scour resistance of the creek bank and reduced flow velocities of the creek bank.

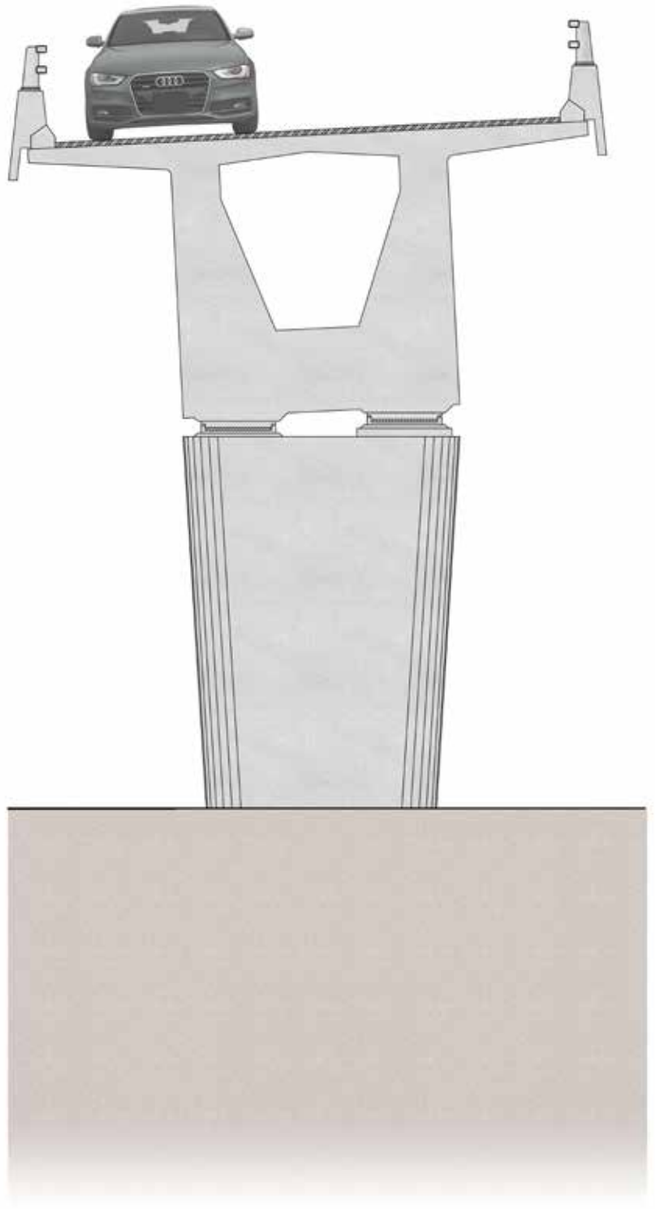
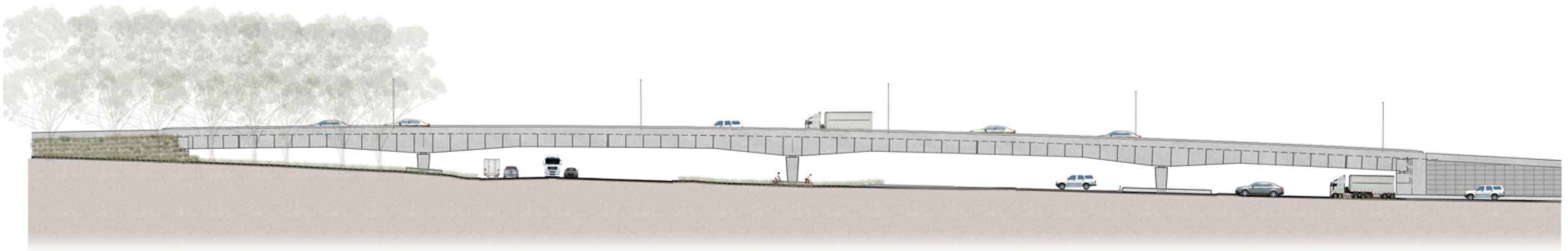
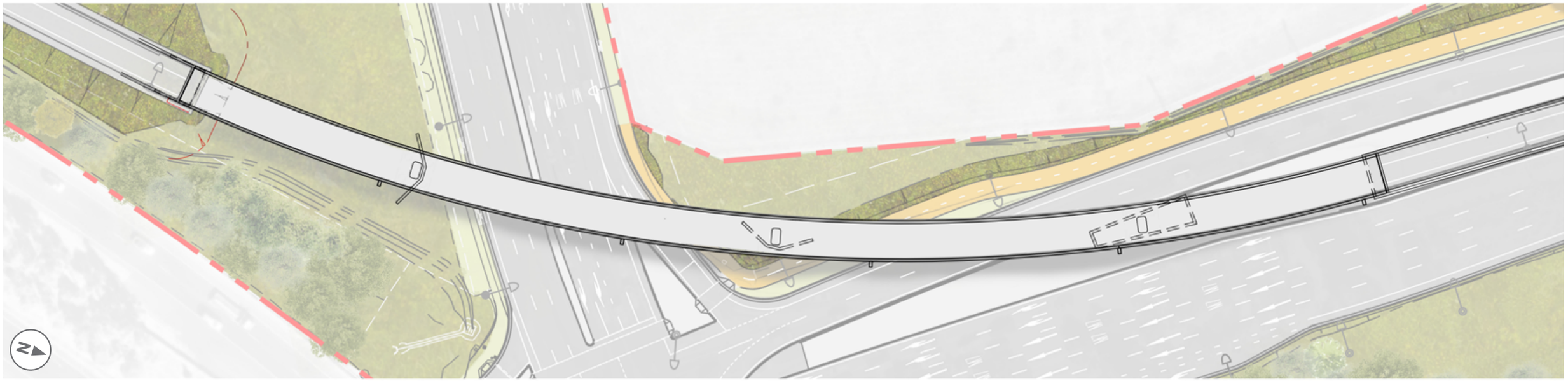


Figure 22 Bridge 1 cross-section, scale 1:100 showing tapered, curved pier shape



ELEVATION

Figure 23 Bridge 1 elevation showing haunched superstructure



PLAN

Figure 24 Bridge 1 plan showing pier locations

4.4 Landscape design

The landscape concept seeks to acknowledge the pre-European landscape and also some of the subsequent layers of history of the project area. The design includes swathes of native planting as well as some exotic tree species. It re-establishes the endangered endemic Nepean River Gums within the riparian areas around Bells Creek and includes species of Eucalypts with the planting palette that have been recommended in the VIsion for Country Report prepared by COLA Studio for the Dharug Strategic Management Group who own and manage the Blacktown Native Institution site. The canopy trees are interspersed with lower 'meadow' planting whilst responding to the constrained conditions of the Project corridor, placing the trees in structured rows to both optimise canopy cover and enable views of the flood plain, and between areas of remnant native vegetation.

Species selection responds to the local plant communities: Cumberland Shale Plains Woodland, Castlereagh Iron-bark Forest and the River-flat Eucalypt Forest. Planting mixes contain predominantly trees, reflecting the character for each plant community. All trees are to be planted (rather than seeded) in order to control their locations, ensuring that they will achieve clear zone and safety clearance requirements. In the central western part of the alignment adjoining the Blacktown Native Institute site which is primarily agricultural land, a general species mix has been selected to allow for a regenerative flood plain re-foresting in this area.

The seeding mix has also been developed to re-introduce the seed stock into the soil within the flood plain and then throughout the downstream creek catchment in general. There are two types:

- The Riparian Plant Mix contains native grasses and wetland species that can also grow in varied wet and dry environments. This seed mix is used within the central medians and all new drainage channels / basins.
- The Native Grass Seed Mix contains endemic native grass and sedge species where mowing/maintenance may be required for verges, fauna fence access, or where sightlines and vegetation safety clearances must be maintained, and to allow views. This mix contains sedges that are able to withstand infrequent mowing and where where moist patches or standing water occur.

The table following includes the broad planting palette from which the final species can be selected.

Botanical Name	Common Name
Cumberland Shale Plains Woodland	
Trees	
Angophora bakeri	Narrow-leaved Apple
Angophora floribunda	Rough-barked Apple
Acacia binervia	Coast Myall
Acacia decurrens	Black Wattle
Corymbia maculata	Spotted Gum
Eucalyptus eugenioides	Stringybark*
Eucalyptus tereticornis	Forest Red Gum*
Eucalyptus moluccana	Grey Box
Shrubs	
Acacia pubescens	Downy Wattle
Acacia falcata	Hickory Wattle
Acacia parramattensis	Parramatta Wattle
Bursaria spinosa	Sweet Bursaria
Daviesia ulicifolia	Gorse Bitter Pea
Dodonaea triquetra	Large-leaf Hop-bush
Dillwynia tenuifolia	
Grevillea juniperina subsp. Juniperina	Juniper-lead Grevillea
Indigofera australis	Austral Indigo
Kunzea ambigua	Tick Bush
Melaleuca decora	White Feather Honey Myrtle
Ozothamnus diosmifolius	Rice Flower
Persoonia nutans	Narrow-leaved Geebung
pimelea spicata	Spiked Rice-flower
Pultenaea parviflora	Sydney Bush Pea
Pultenaea villosa	Bronze Bush-pea

Grasses and Groundcovers	
Aristida vagans	Threeawn Speargrass
Cynanchum elegans	White-flowered Wax Plant
Dianella caerulea	Blue Flax Lily
Dichelachne micrantha	Shorthair Plumegrass
Juncus usitatus	Common Rush
Lomandra longifolia	Spiny-headed mat-rush
Microlaena stipoides	Weeping Grass
Poa labillardierei var. labillardierei	Common Tussock-grass
Themeda triandra	Kangaroo Grass
Wahlenbergia gracilis	Tufted Bluebell

Cumberland Shale Plains Woodland Community

Angaphora floribunda

* denotes eucalypt species highlighted in COLA Studios *Vision for Country Report (2023)* in collaboration with the Dharug Strategic Management Group.

Castlereagh Ironbark Forest	
Trees	
Acacia binervia	Coast myall
Acacia falcata	Black She-oak
Angophora bakeri	Narrow-leaved Apple
Eucalyptus capitellata	Brown Stringybark
Eucalyptus fibrosa	Red Ironbark
Eucalyptus moluccana	Grey Box
Syncarpia glomulifera	Turpentine
Shrubs	
Billardiera scandens	Hairy Apple Berry
Bursaria spinosa	Sweet Bursaria
Cassinia arcuata	Sifton Bush
Einadia nutans	Climbing Saltbush
Kunzea ambigua	Tick bush
Leptospermum trinervium	Flaky-barked Tea-tree
Leucopogon juniperinus	Prickly Beard-heath
Melaleuca nodosa	Prickly-leaved Paperbark
Ozothamnus diosmifolius	Rice flower
Persoonia nutans	Nodding geebung
Pultenaea villosa	Hairy Bush-pea
Grasses and Grouhndcovers	
Aristida vagans	Threeawn Speargrass
Austrodanthonia setacea	Smallflower Wallaby Grass
Cheilanthes sieberi subsp. sieberi	Mulga Fern
Dianella revoluta	Blue Flax-Lily
Dichelachne micrantha	Shorthair Plumegrass
Goodenia hederacea subsp. hederacea	Ivy Goodenia
Lomandra longifolia	Spiny-headed mat-rush
River-flat Eucalyptus Forest	
Trees	
Allocasuarina littoralis	Black She-oak
Angophora floribunda†	Rough-barked Apple
Angophora subvelutina	Broad-leaved Apple
Casuarina cunninghamiana	River Oak/ River She-oak
Eucalyptus bauerianat	Blue Box
Eucalyptus benthamiit	Camden White Gum
Eucalyptus longifoliat	Woollybutt
Eucalyptus melliodora	Yellow Box
Shrubs	
Acacia decurrens	Black Wattle
Acacia longifolia	Sydney Golden Wattle
Breynia oblongifolia	Coffee Bush
Bursaria spinosa	Sweet Bursaria
Einadia hastata	Berry Saltbush
Goodenia ovata	Hop Goodenia
Melaleuca nodosa	Tea Tree
Phyllanthus gunnii	Scrubby Spurge
Syzygium smithii	Lilly Pilly
Grasses	
Aristida ramosa	Purple Wiregrass
Dichelachne micrantha	Shorthair Plumegrass
Echinopogon caespitosus	Tufted Hedgehog-grass
Oplismenus aemulus	Creeping Shade Grass
Poa ensiformis	Purple-sheathed Tussock-grass
Dianella caerulea	Blue Flax Lily
Geranium solanderi	Native Geranium
Hydrocotyle peduncularis	Native Pennywort
Wahlenbergia gracilis	Australian/ Sprawling Bluebell
Eucalyptus saligna	Sydney Blue Gum
Eucalyptus tereticornis *	Forest Red Gum
Grevillea robusta	Silky Oak
Lophostemon confertus	Brush Box


Melaleuca nodosa


Einadia hastata

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5.0
Landscape Character & Visual Impact

5.0 Landscape Character and Visual Impact

5.1 Methodology

The methodology for this landscape character and visual impact assessment (LCVIA) has been guided by the Guideline for landscape character and visual impact assessment: Environmental impact assessment practice note E1A-N04 (TfNSW, 2020) (the Practice Note).

The Practice Note is a well-developed and widely used visual impact assessment methodology for transport infrastructure projects in NSW. The LCVIA has two main purposes:

- To inform the development of the concept design so the project can avoid and minimise impacts on the places through which it passes
- To inform Transport, Local Government Areas (LGAs), other agencies and the community about the landscape character and visual impacts of the project and what avoidance, management and mitigation strategies have been embedded and would be implemented if the project was approved.

As per the process defined in the Practice Note, the landscape character impact and visual impact of the project are separately assessed. The method to measure impact in each case is based on the combination of the sensitivity of the existing area or view to change and the magnitude (scale, contrast, quality, distance) of the project on that area or view. Both assessments use the matrix below to evaluate the overall impact, taking into account the combination of sensitivity and magnitude.

Landscape Character Impact

Landscape character assessment considers the impact of a project on an area's sense of place deriving from all built, natural and cultural aspects, whether rural, suburban or urban. 'Landscape' in this sense encompasses all those aspects. Landscape character impact is therefore about the 'fit' of the project within its context. Where appropriate, the context includes the future character.

Two factors are used to determine the impacts on any landscape character zone:

Sensitivity

'Sensitivity' for landscape character assessment considers the landscape's inherent capacity to absorb change. For example, an unmodified ecological area would be more sensitive to change than an area that is characterised by built infrastructure such as a road or industrial area. The assessment is informed by background research, including the quality of the landscape, its cultural and historical importance to the community, scenic quality and the overall composition of the place.

Magnitude

'Magnitude' refers to the proposal: its scale, form and material composition of elements and their location or setting. For example, an elevated structure would have a higher magnitude than a low-scale intervention like an at-grade road through the same landscape. The magnitude impact rating also considers whether the proposal has a positive or negative impact on the landscape character zone: for example, the project may provide positive outcomes for its immediate surroundings such as open space, enhancement of vegetation, or improved connectivity.

Visual Impact

Visual impact is concerned with what people see, and how the project might change views and outlook, whether the viewpoints are from public spaces (streets, parks, rail corridors, shared paths for example) or from private spaces (homes, gardens). Visibility is also influenced by distance and direction of view. Representative viewpoints are taken from within the visual catchment. As with the landscape character.

Two factors are used to determine the visual impact from any viewpoint:

Sensitivity

'Sensitivity' here refers to the quality of the view and how sensitive that view or character is to the proposed change. It is measured by assessing a combination of factors including the composition of the view, its capacity to absorb change, and potentially also by duration (length of exposure) and frequency from key viewpoints.

Magnitude

'Magnitude' refers to the nature and scale of the project, but here this is in relation to the viewer. It is measured as the degree of change the particular view undergoes as a result of the proposed project. It includes physical character, size and scale considerations, proximity, the frequency and duration of views, and also night-time as well as day-time conditions.

Sensitivity	Magnitude: High	Magnitude: Moderate	Magnitude: Low	Magnitude: Negligible
High	High	High-Moderate	Moderate	Negligible
Moderate	High-Moderate	Moderate	Moderate-low	Negligible
Low	Moderate	Moderate-low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Figure 25 Landscape character and visual impact rating matrix, Guidline for landscape Character and Visual Impact Assessment, 2023

5.2 Landscape Character Impact Assessment

5.2.1 Landscape character zones

The project area has been divided into six Landscape Character Zones (LCZs), as shown in Figure X. LCZs have been determined, as per the Guideline, on factors including landform, hydrology, vegetation, views and vistas, land use patterns, and the scale and form of built development, including structures. Each has a different set and/or combination of factors that result in a distinct character and particular sensitivity to change. As per the Guideline, the assessment is based in the following considerations:

- The less modified the landscape, the greater the consequence of introducing new development – and the more modification from the project, the greater the impact on such areas
- Where wide and/or distant locating views across the landscape are present, these are important aspects of scenic quality
- Areas of coherent character are likely to be more sensitive to change than those that are varied.

The six identified Landscape Character Zones are:

- LCZ 1A – Residential A
- LCZ 1B – Residential B
- LCZ 2 – M7 Motorway
- LCZ 3 – Semi-open grassland
- LCZ 4 – Open rural grassland
- LCZ 5 – Enclosed Native Bushland
- LCZ 6 – Industrial/ commercial

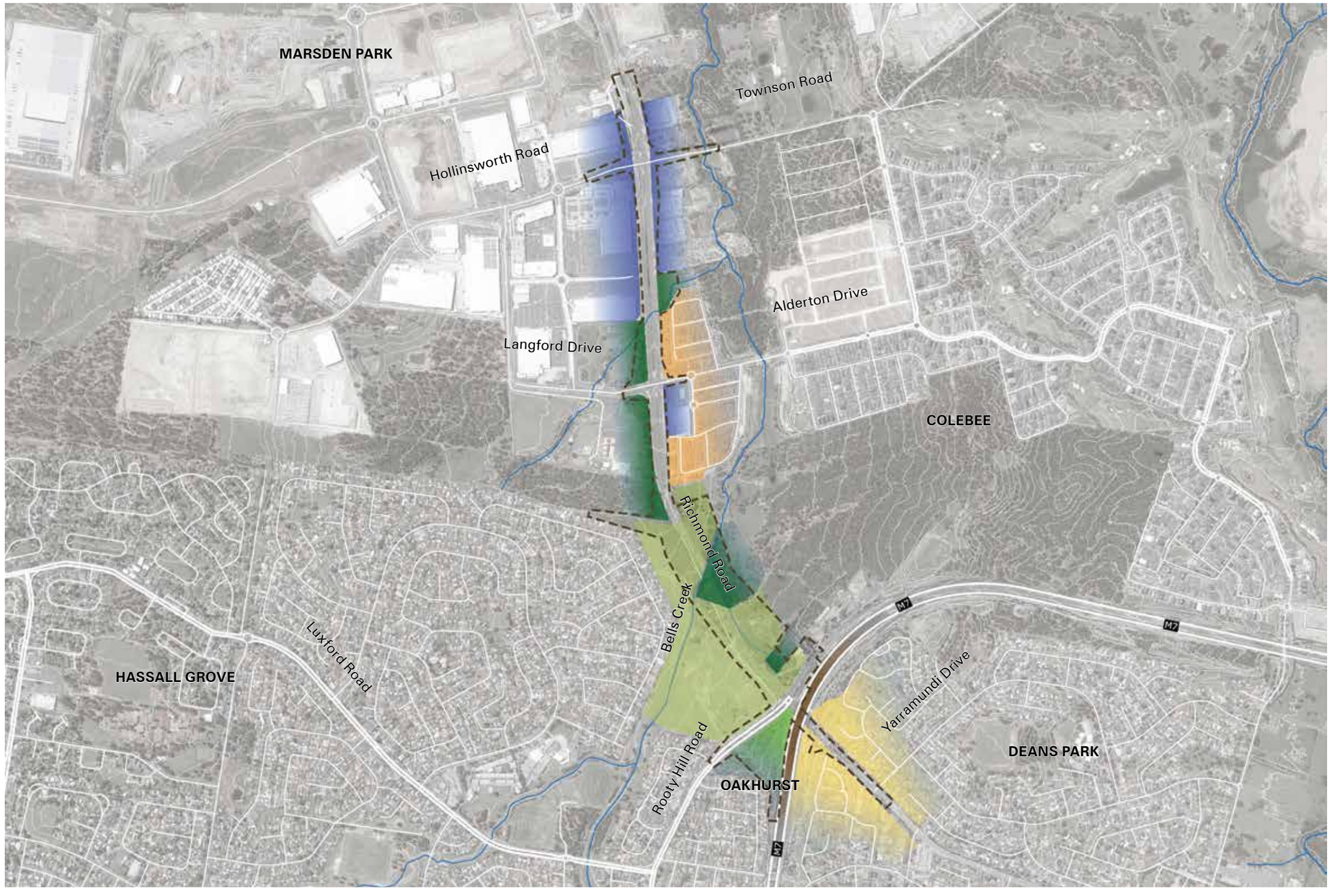


Figure 26 Landscape Character Zones

5.2.2 Landscape Character Zone 1A – Residential A

Description

This character zone includes the residential area to the south of the project area along Richmond Road. The scale is low, with typically single-storey houses screened by high (1.5 - 1.8m) rear fences of various colours and designs that present a 'closed' edge to the footpaths along Richmond Road. Within the rear gardens a mix of native and exotic species creates a pattern of intermittent vegetation of varying heights, seen above the fences.

The narrow area between the road and property boundaries contains concrete shared paths on both sides, flanked by narrow turf verges. There is also a large amount of road infrastructure: power poles, overhead electrical wires and multiple traffic signs, including large directional signage, are intrusive. The topography of this zone is largely flat across the road corridor and within the property boundaries.

Sensitivity

The sensitivity within this zone is considered **low** due to the highly modified and visually cluttered road environment, high fences of varying materiality and condition and lack of consistent vegetation.

Magnitude

This LCZ marks the limit of works. It is largely unaffected by the proposal, as the road widening and new structures are focused north of the M7 which bounds the character zone. Existing mature planting edging the Westlink 7 on ramp is retained, as is the location of the cycleway and signalised pedestrian crossings. The magnitude here is **negligible.**

Impact

The overall landscape character impact for LCZ 1 is **negligible.**

LCZ 1A - Richmond Road - looking north-west

LCZ 1A - Richmond Road - looking south-east

LCZ 1A - Richmond Road - looking north-west

5.2.3 Landscape Character Zone 1B – Residential B

Description

This character zone includes the residential area further north within the project area along Richmond Road. Similarly to LCZ 1A the houses are typically single-storey and screened by high (1.5 - 1.8m) fences. However, the setbacks of the fences from the road are wider and there is more mature vegetation screening them and the houses from the road. Notwithstanding the extent of solid fencing, the overall spatial character is more open than closed, as larger trees are spaced intermittently and there are large areas of clear skyline above the houses. As well as the mature trees, there is a dense understorey of low and medium shrubs against the fenceline, set behind a footpath with a grass verge separating it from the road. The topography of this zone is flat across the road corridor and within the property boundaries.

Sensitivity

The sensitivity within this zone is considered **moderate** due to the established landscape buffer between the road and property boundary, and the general absence of vertical and overhead infrastructure associated with the road corridor.

Magnitude

The project in this location includes widening of Richmond Road with an additional lane in each direction, and an upgrade to the intersection with Alderton Drive. The median is proposed to be narrowed to accommodate a right turn lane for southbound traffic. The median is currently set to lawn, and will be planted with endemic grasses (maximum 1 metre high). Given that the changes remain at grade and in keeping with the existing form and scale of the corridor, the magnitude is **low**.

Impact

The combined landscape character impact is **moderate-low**.

LCZ 1B - Richmond Road - looking south

LCZ 1B - Richmond Road - looking north

LCZ 1B - Richmond Road - looking north

5.2.4 Landscape Character Zone 2 – M7 Motorway

Description

The M7 Motorway character zone is characterised by the motorway infrastructure, that is, a divided carriageway of three lanes in either direction, and two overbridges within a clearly defined road corridor. The infrastructure is large in the vertical as well as the horizontal scale. Vegetated batters rising to meet to the bridge infrastructure on the eastern side integrate the built form to some extent within the landform and help visually soften the hardscape. Overall however, the concrete retaining walls, piles and straight girders of the bridges, and the large extent of surface paving, are the dominant features of this zone.

Sensitivity

The sensitivity within this zone is considered **low** due to the highly modified environment characterised by large-scale motorway infrastructure.

Magnitude

The proposal introduces a flyover bridge that connects the M7 northbound to Richmond Road north-west bound. The bridge runs between the elevated Westlink M7 through lanes and its off ramp to Rooty Hill Road North. It will be concealed from view on the main corridor by a Hebel noise wall that edges the M7. This LCZ comprises road infrastructure in its entirety, and the project is serving the same purpose and is of a scale consistent with what is existing. Notwithstanding the cumulative impacts of new infrastructure, for all these reasons the magnitude is **low.**

Impact

The overall landscape character impact for LCZ 2 is **low**.

LCZ 2 - Richmond Road - looking north-east towards retianing wall

LCZ 2 - Richmond Road - under M7 Motorway

LCZ 2 - Richmond Road - looking north-easttowards vegetated batter

5.2.5 Landscape Character Zone 3 – Semi Open Grassland

Description

This zone is wedge-shaped, characterised by large areas of pasture grasses through the middle, with tree cover and well-established native vegetation at the edges. From within the LCZ there are views north over Rooty Hill Road to the Blacktown Native Institution site and more distantly towards the residential subdivision. The view east is blocked by noise walls along the M7 northbound carriageway, atop a vegetated slope. There is a sense of enclosure.

Sensitivity

The sensitivity of this area is considered **high.** While modified to some extent, it is spatially contained and retains strong and consistent stands of mature native trees and shrubs.

Magnitude

This LCZ will have the new flyover bridge running through it. The bridge has a haunched superstructure, with piers widely spaced at 50 metres and 75 metres to straddle Rooty Hill Road North and the shared path and northbound lanes on Richmond Road. The project landscape concept is for native grassland to supplement the existing character, including a high proportion of flannel flowers. However this does not offset the different and larger scale, form and materiality of the new structure. The magnitude remains **high.**

Impact

The overall landscape character impact for LCZ 3 is **high.**

LCZ 3 - off ramp to Rooty Hill Road - looking north-east

LCZ 3 - Rooty Hill Road - looking east towards M7

LCZ 3 - Rooty Hill Road - looking south

5.2.6 Landscape Character Zone 4 – Open Rural Grassland

Description

This pocket of land contains a mix of rural pasture, and areas of native grasses and scattered mature, native trees in a loose, irregular arrangement. East of the Richmond Road corridor there is a semi-enclosed spatial quality. The topography slopes up towards the M7 Motorway, which can be glimpsed through the trees but which sits well below the canopies on the skyline. West of the corridor the land is more open, and includes views to and across the site of the former Blacktown Native Institution, a site of heritage and cultural significance which makes up a large proportion of the LCZ.

Sensitivity

This area has been modified from its original natural setting, but has a consistent character with cleared land and some remnant mature trees. It includes a site of significant heritage and cultural significance, with an open character and views from within the site to native forest areas, and distant hills on the skyline. The sensitivity of this area is considered **high**.

Magnitude

The project changes this LCZ with:

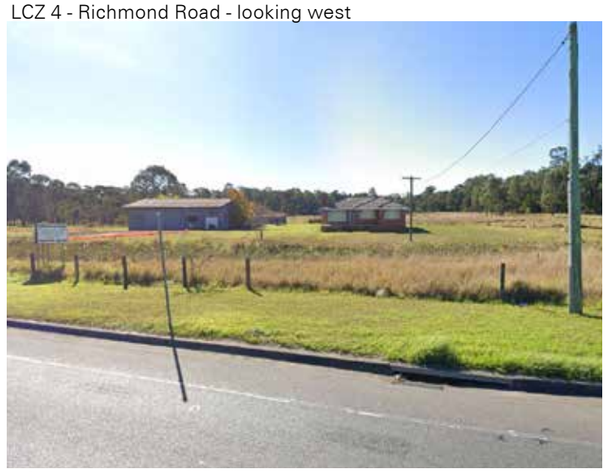
- Widening and realignment of the road corridor towards the west, varying from around 5 metres to 28 metres including some encroachment on the Blacktown Native Institution site west
- A change from two lanes in each direction to two lanes northbound, four lanes southbound (two through and two right turning lanes), and the new flyover bridge, with vertical walls and abutments, joining northbound traffic
- Relocation of the shared path towards the west, as the existing shared path is proposed to be demolished for the new northbound lane
- Diversion of the existing swale east of the corridor
- Extensive new planting to the western side of the corridor, to mitigate the removal of existing vegetation
- New riparian planting in the median to replace the existing paved or mown grass medians.

The magnitude of these changes considered together is **high**.

Impact

The overall landscape character impact for LCZ 4 is **high**.

LCZ 4 - Richmond Road - looking west



LCZ 4 - Richmond Road - looking north-east

LCZ 4 - Richmond Road - looking west

5.2.7 Landscape Character Zone 5 – Enclosed Native Bushland

Description

This character zone encompasses the areas that comprise dense native vegetation associated with Bells Creek and its tributaries. The land is flat or slightly undulating as it descends towards the waterway. A mix of riparian species lines the creek corridor, with Casuarina dominating, together with some clusters of Eucalypts. There are a number of Threatened Ecological Communities. There is a sense of enclosure, with the vegetation acting as a visual buffer to areas beyond.

Sensitivity

The sensitivity of this LCZ is considered **high** due to the generally unmodified environment, including the riparian vegetation and tall tree canopy, and the continuing presence of ecological species that belong to the area. It is sensitive to change, from potential loss of planting density and discontinuity of canopy as well as from the introduction of built form amongst vegetation.

Magnitude

The project impacts this LCZ with:

- Road widening resulting in the removal of roadside vegetation, in particular large trees between the shared path and the road, near the boundary of the Blacktown Native Institution site
- New bridge over Bells Creek to carry the widened road: for pedestrians and cyclists on the shared path, and for two lanes of northbound traffic
- New planting to a wide swathe alongside the western edge of the road corridor
- New riparian planting in the median to replace the existing paved or mown grass medians.
- At Alderton Drive, the project cuts into the densely vegetated corner of the existing intersection.

While the project introduces changes to the LCZ, these are typically at-grade. Tree removal is contained to those immediately alongside the corridor and there is extensive new planting including riparian species to the western side of the corridor, to mitigate the loss of existing vegetation around the creek. The new bridge in this area is not distinguishable from the rest of the road. On balance the magnitude is **moderate**.

Impact

The overall landscape character impact for LCZ 5 is **high-moderate.**

LCZ 5 - Richmond Road - looking east

LCZ 5 - Richmond Road - looking east

LCZ 5 - Richmond Road - looking east

5.2.8 Landscape Character Zone 6 – Industrial/ Commercial

Description

Commercial land uses dominate this character zone, with large, simple orthogonal 'big box' building types accommodating businesses including Ikea, Bunnings, Home Consortium and service stations. The buildings are typically set in, and surrounded by, large areas of hardstand used for car parking, storage, and internal roads. There is little if any relationship to or overlooking of the road. The landform generally slopes in a west-east direction with batters gently rising up from the road corridor towards the built form of the western side and dropping down along the east. Some properties have a decorative landscaped strip along the front boundary, with a mix of native and exotic species, generally confined to lower shrubs or formal hedging with intermittent tree planting.

Sensitivity

The sensitivity of this area is considered **low** due to the large-scale, internalised building types, large areas of hard stand, and relatively sparse and lower-scale vegetation, which together can readily absorb a measure of change.

Magnitude

This character zone is at the northern limit of works for the project. Here the proposed new work essentially ties back in to the current alignment and lane arrangements, largely within the existing corridor width. The median has been narrowed to accommodate right- turning lanes and there are new left-turn slip lanes which in some cases include new pedestrian crossings. The median is proposed to be planted with native grasses instead of the existing mown grass. Established vegetation either side of the corridor is retained. The magnitude of the project in this LCZ is **low.**

Impact

The overall landscape character impact for LCZ 6 is **low**.

LCZ 6 - Richmond Road - looking south-west


LCZ 6 - Richmond Road - looking north-west


LCZ 6 - Richmond Road - looking east

5.3 Visual Impact Assessment

A number of viewpoints around the site were considered for the assessment. Those selected are shown in Figure X. They have been agreed with TfNSW as representative of the locations that are likely to have a visual impact. Each is illustrated with 'before' (prior to construction) and 'after' views, with the 'after' view consisting of a photomontage based on 2D drawing information provided by the engineers. The 'after' view shows the project as a high level concept only. Median planting is at 12 months after construction, while proposed new trees are shown after 5 years.

The viewpoints are:

- Viewpoint 1 – junction of Richmond Road and Rooty Hill Road north, looking south-west
- Viewpoint 2 – corner of Romley Crescent and Rooty Hill Road North, looking north-east
- Viewpoint 3 – Rooty Hill Road North in front of the Blacktown Native Institution site, looking north-east
- Viewpoint 4 – view along Richmond Road just north of the M7, looking north towards Bells Creek bridge crossing
- Viewpoint 5 – from the rear property boundary of 131 Colebee Crescent, looking east across the Blacktown Native Institution site
- Viewpoint 6 – view along Richmond Road at the Bells Creek bridge crossing, looking north
- Viewpoint 7 – view from between Nos. 79 and 81 Colebee Crescent, at the culvert, looking east
- Viewpoint 8 – corner of Alderton Drive and Richmond Road intersection, looking south

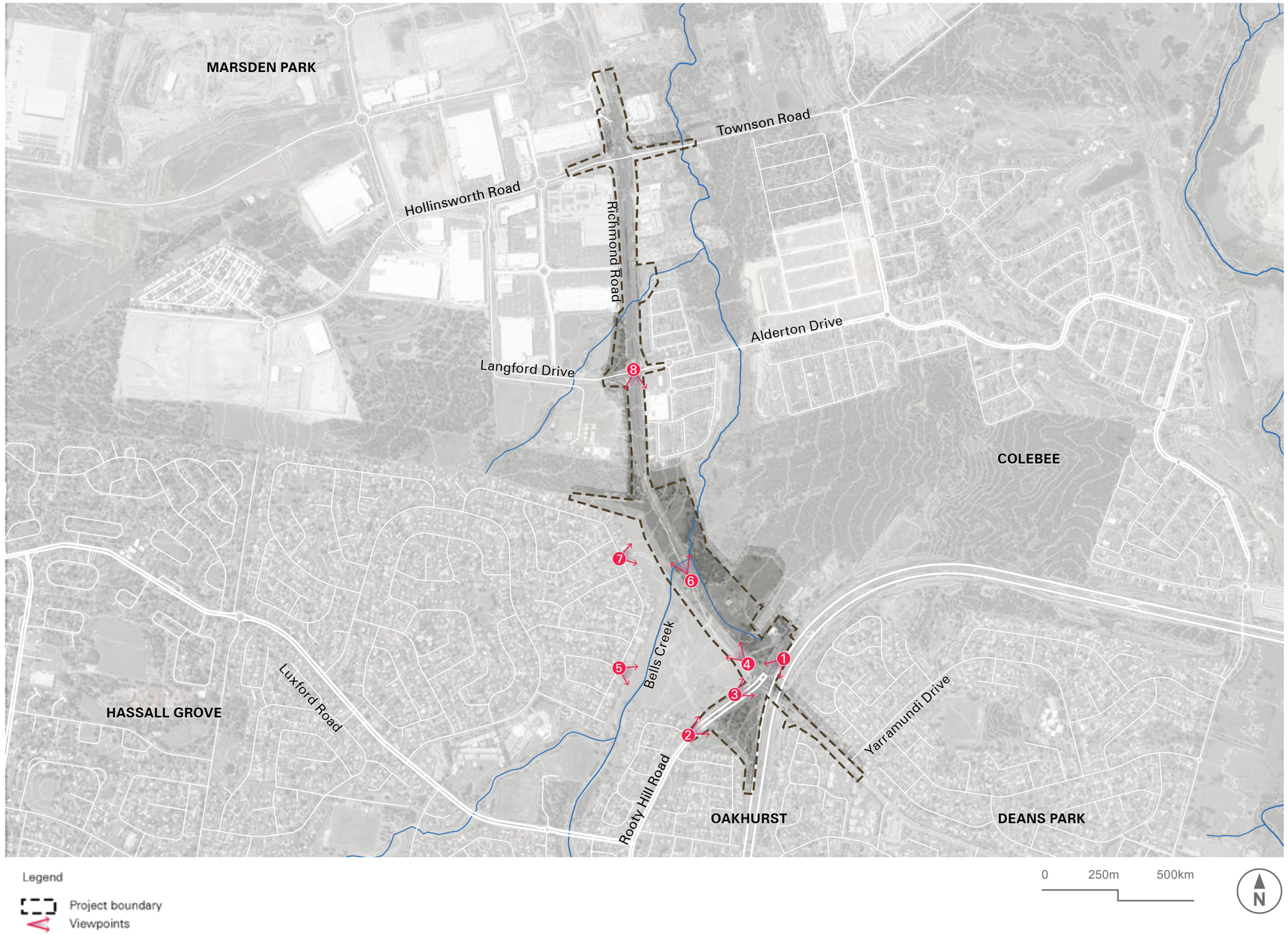


Figure 27 Visual impact assessment viewpoints

5.3.1 Viewpoint 1

Location

Junction of Richmond Road and Rooty Hill Road north, looking south-west

Description

This view is at the intersection of Richmond Road with Rooty Hill Road, looking towards the proposed new bridge connecting the M7 to Richmond Road. The view is composed of road infrastructure in the foreground and middle ground, with some canopy trees visible on the skyline. Road surface takes up a significant portion of the view.

Sensitivity

This view is experienced by road users, both in moving vehicles if traffic is flowing and also at a standstill if waiting at the traffic lights. The duration of view therefore varies from some seconds to several minutes. As the approach is 'head on', directly towards the intersection, the project will also be fully visible in the foreground. This is a major intersection and is heavily trafficked, particularly during the morning and afternoon peak. It includes traffic movements along Richmond Road, and vehicles that have exited the M7 to the south. It is therefore experienced by a large number of viewers, but whose focus is on the immediate road environment. The composition of the view is divided horizontally into road and road infrastructure in the foreground, with wide open sky across the background. Considering the combination of these factors, the sensitivity is **low.**

Magnitude

The project alters this view with a proposed new bridge, a large elevated structure straddling the intersection. The bridge will dominate the foreground, introducing a strong horizontal datum that partially obscures the skyline. The bridge design is for haunched girders atop solid piers: it is not a slender structure (by comparison, the proposed superstructure is deeper than the nearby existing bridge across Richmond Road, seen at the left of the view). The magnitude is considered to be **high.**

Impact

The overall visual impact is **moderate.**

Existing view 1 -M7 off ramp, looking south west

Proposed view 1 -M7 off ramp, looking south west

Key plan

5.3.2 Viewpoint 2

Location

Corner of Romley Crescent and Rooty Hill Road North, looking north-east

Description

This view is along Rooty Hill Road North, towards the project in the middle distance. The view is composed of the carriageway (three lanes in each direction), single-storey dwellings on the western side of the roadway, and a fenced reserve to the east with large mature eucalypts behind. Road furniture includes light poles, overhead gantry and directional signage.

Sensitivity

The view is experienced by road users, pedestrians and on-road cyclists. Rooty Hill Road is a major connector road and is dominated by traffic including large trucks and service vehicles. The large stand of mature trees along the south-east side of the road frame and somewhat offset the wide road corridor. Tree canopy is visible in the background, beyond the intersection, but is less immediately apparent than the road infrastructure including the large signage elements. The sensitivity is considered to be **low.**

Magnitude

The project is visible in the middle distance from this viewpoint. The proposed new bridge extends across most of the view, on axis from the viewer. However, the structure is relatively low within the overall view composition, sitting just below the canopy trees that define the skyline in the background. The strong element of the large trees to the south-east is unchanged. Overall, the scale and character of the change is framed by and complementary to the existing setting. The magnitude on balance is **low.**

Impact

The overall visual impact for Viewpoint 2 is **low.**

Existing view 2 -Corner Romley Cresent and Rooty Hill Road North, looking north east

Proposed view 2 -Corner Romley Cresent and Rooty Hill Road North, looking north east

Key plan

5.3.3 Viewpoint 3

Location

Rooty Hill Road North in front of the Blacktown Native Institution site, looking north-east

Description

This view is further along Rooty Hill Road North than Viewpoint 2, towards the corner with Richmond Road and looking across the intersection towards the north-east. The view is composed of wide carriageway (travelling north: a left-turn slip lane, two through lanes and two right-turn lanes; on the other side of the median, three lanes travelling south), with the existing M7 overbridge seen obliquely in the foreground. There is a backdrop of tall tree canopy behind the M7 bridge, against the skyline. Apart from the trees, vegetation is limited and at ground level.

Sensitivity

The view is experienced by road users, pedestrians and cyclists travelling on this major connector road. Road infrastructure makes up most the view, with lighting, signage, paving and the large M7 overbridge dominant. Traffic includes large trucks and service vehicles as well as cars. Overall there is a sense of visual clutter. While there are many and frequent viewers in this location, the composition of the view is dominated by the foreground infrastructure. The sensitivity is therefore considered to be **low.**

Magnitude

The project is visible in the foreground as a large horizontal element that extends across most of the view, on axis from the viewer. It obscures some of the existing M7 infrastructure and the canopy trees in the background. The magnitude in this location is **high.**

Impact

The overall visual impact for Viewpoint 3 is **moderate.**

Existing view 3 - Rooty Hill Road North in front of Blacktown Native Institute Project site, looking east

Key plan

Proposed view 3 - Rooty Hill Road North in front of Blacktown Native Institute Project site, looking east

5.3.4 Viewpoint 4

Location

View along Richmond Road just north of the M7, looking north towards Bells Creek bridge crossing

Description

This view is from the road, travelling north with the Blacktown Native Institution site on the left and the edge of a pocket of industrial land on the right. This view is composed of a mixture of road infrastructure (three lanes in each direction) and an industrial building (foreground), and both cleared and forested landscape (mid-range and in the background). The skyline is defined by the tree canopy, including along the edge of Richmond Road.

Sensitivity

The view is experienced by road users, and also by pedestrians and cyclists on the shared path along Richmond Road. For road users, with a posted speed limit of 70kmh, the view is oblique and relatively fleeting. For path users, the view is longer in duration (due to slower speeds) but potentially slightly buffered by the northbound travel lane. Given that road infrastructure dominates and the overall view composition is mixed rather than consistent, the sensitivity is considered to be **low.**

Magnitude

The project in this location is a bridge that follows the alignment of Richmond Road, from the foreground into the middle distance. It introduces an elevated structure to what is currently an at-grade roadway, with additional traffic lanes and a realigned shared path. The overall composition of the view is altered by the widening itself – with a larger area of hard surface – and by closing down the outlook and obscuring some of the roadside and background tree canopy on the western side of the corridor. The magnitude is **high.**

Impact

The overall visual impact combining sensitivity and magnitude assessments is **moderate.**

Existing view 4 - Richmond Road, looking north towards Bells Creek bridge crossing

Proposed view 4 - Richmond Road, looking north towards Bells Creek bridge crossing

Key plan

5.3.5 Viewpoint 5

Location

From the rear property boundary of 131 Colebee Crescent, looking east towards and across the Blacktown Native Institution site

Description

This view is of mostly cleared land, with some scattered eucalypts in the foreground, and native forest trees in the background on the other side of Richmond Road in the middle distance. Bells Creek runs across the front of the view, visible as a line of low grasses along its banks. The main characteristic of this viewpoint is its open, flat character with the strong green of remnant native forest planting as a backdrop.

Sensitivity

This view is from the rear of private properties along Colebee Crescent. Tall back fences limit the view of these residents from ground level and garden areas, although views may be available from upper floor windows. The view is also available to members of the public, being within the open space network that connects to Mittigar Reserve (to the south) with the reserve around Bells Creek. The background view includes the Westlink M7 overbridge, visible at the intersection of Richmond Road and Rooty Hill Road. Tall vehicles on Richmond Road can also be seen. Across the creek, the Blacktown Native Institution (BNI) site is a site of cultural and heritage significance on the NSW State Heritage Register, and is owned and regularly used by Dharug people for ceremony, cultural practice, education and as a place for gathering. The sensitivity is **high.**

Magnitude

The project is towards the backdrop of this viewpoint, some 350m from the viewer. The proposed new bridge is set below the treeline but does obscure some of the vegetation. Its scale and form are not inconsistent with the M7 overbridge, and glimpses of the backdrop are retained under the parapet and between the piers. The 'proposed' view shown is an indicative impression of the new bridge including the solid component of the structure, the off-ramp portion. This is proposed to be partially screened, and the structure softened by planting of native shrubs and trees towards the northern end of the BNI site where the overpass meets the abutment. This combined with the distance from the view make the magnitude of the project in this location **moderate.**

It is important to note however that increased visual (and noise) impacts from within the BNI site are an additional consideration. A closer viewpoint would trigger a magnitude of high, and potentially require additional landscape treatment and / or screening within the site as mitigation. This is appropriate to investigate in future stages of the project, subject to consultation with the Dharug owners of the BNI site to access and assess the impacts.

Impact

The overall visual impact is **high-moderate.**

Existing view 5 - Rear property bounday of 131 Colebee Cresent, looking east

Proposed view 5 - Rear property bounday of 131 Colebee Cresent, looking east

Key plan

5.3.6 Viewpoint 6

Location

View along Richmond Road at the Bells Creek bridge crossing, looking north

Description

This view is shared by people in vehicles, and pedestrians and cyclists on the shared path. Here the road is enclosed on the east with established tall and dense riparian planting, and on the west with intermittent groups of trees and shrubs. The street vista is long and interrupted towards the north.

Sensitivity

Richmond Road is busily trafficked by car users, cyclists and pedestrians. This is a 'long view' where road and path users experience the landscape on approach and where this viewpoint is therefore also representative of part of the journey, and of the outlook for recreational cyclists and pedestrians. While the native riparian vegetation is highly visible and a strong feature of the landscape, on the west the outlook is more varied. On balance, the sensitivity for this viewpoint is **moderate.**

Magnitude

This viewpoint shows where the new flyover bridge lands on Richmond Road to join the right (inner) lane of northbound traffic. The project widens and realigns the road corridor towards the west, with southbound traffic using the existing carriageway and northbound traffic lanes on the new alignment, which has resulted in the removal of all the trees visible on the left in the accompanying 'existing view' image. The shared path is now closer to the vehicle lanes than at present where it is separated by a wide grassed verge. The proposal is for an avenue of tall trees, with understorey planting, along the western edge to replace the vegetation removed by the project. The new median is wide and will be planted with native grasses to break up the wide expanse of paving and visually narrow and soften the hardscape. The proposed landscape treatment (at maturity) will help create a view composition similar to what is existing, giving a magnitude of **moderate.**

Impact

The overall visual impact is **moderate.**

Existing view 6 - Richmond Road Bells Creek bridge crossing, looking north

Proposed view 6 - Richmond Road Bells Creek bridge crossing, looking north

Key plan

5.3.7 Viewpoint 7

Location

View from between Nos. 79 and 81 Colebee Crescent, at the culvert, looking east

Description

Houses along Colebee Cresent back on to public open space around Bells Creek. A stormwater culvert runs underneath the road and into the open space, through a grassed channel. This view is taken from the rear property line between Nos. 79 and 81 Colebee Crescent, and is over the open space towards Richmond Road, which is partially screened by individual or small groups of trees. There is a backdrop of dense native vegetation behind the road, which defines the skyline. The outlook is open and green.

Sensitivity

This is not a heavily used area by the public but is part of the open space network. Residents' back fences obscure it from their gardens or ground level rooms. In this location most houses are single storey so more elevated views are not currently available. As with Viewpoint 5, this view is defined by its open, green outlook, with the brighter mown grass strongly contrasting with the darker colour of the native forest vegetation. The sensitivity, because of this consistency across the wide view, is **moderate.**

Magnitude

The project is in the background of this viewpoint, about 300m from the viewer. No elevated structures are visible from this location and the proposed widening, being at grade, is not readily apparent. New planting proposed adjacent to Richmond Road, when mature, will further screen the road and road traffic. The view remains strongly defined by its 'green' character, both the dense backdrop and the open grass areas. The magnitude is **negligible.**

Impact

The overall visual impact is **negligible.**

Existing view 7 - Colebee Cresent culvert crossing between No. 79 and 81, looking east

Key plan

Proposed view 7 - Colebee Cresent culvert crossing between No. 79 and 81, looking east

5.3.8 Viewpoint 8

Location

View from the corner of Alderton Drive and Richmond Road intersection, looking south

Description

This viewpoint shows the proposed upgraded configuration of Richmond Road, with the right-turn lane into Langford Drive shifted slightly west to accommodate an additional through-lane. The viewpoint also shows the narrowed median, as a result of the additional lane, and the proposed planting of low native grasses as ground cover to replace the existing mown grass.

Sensitivity

Road infrastructure dominates the foreground of this view. Industrial and services land uses front the eastern side of Richmond Road into the distance, behind grass verges, footpath and some vegetation in the front setbacks. On the west side a row of tall established native trees is a strong visual element. The tree canopy dominates the occasional buildings among it, including two-three storey dwellings at the edge of the residential neighbourhood. The view is at a busy intersection and is seen by people in vehicles, cyclists and pedestrians. The large scale and mixed quality of the elements that comprise the view mean its sensitivity is **low.**

Magnitude

The project in this location retains the overall width of the carriageway but narrows the median to accommodate an additional right-turning lane. The median is proposed to be planted with low native grasses instead of what is currently mown grass, by way of offsetting the reduction of unpaved area. The grasses, being higher (up to 1 metre), are intended to soften and enhance the appearance of the planted median. The magnitude is l**ow.**

Impact

The overall visual impact is **low.**

Existing view 8 - Alderton Drive / Langford Drive and Richmond Raod intersection, looking south

Key plan

Proposed view 8 - Alderton Drive / Langford Drive and Richmond Raod intersection, looking south

5.4 Summary of outcomes

5.4.1 Landscape character impact

Across the seven landscape character zones the impact of the project varies from high to negligible, with more falling into the lower range. One LCZ is considered to have moderate-high impacts, and for two LCZs the impact is high.

Table 5.1 Landscape Character Impact Assessment – summary

Landscape Character Zone	Sensitivity	Magnitude	Impact
LCZ 1A – Residential A	Low	Negligible	Negligible
LCZ 1B – Residential B	Moderate	Low	Moderate-low
LCZ 2 – M7 Motorway	Low	Low	Low
LCZ 3 – Semi-open grassland	High	High	**High**
LCZ 4 – Open rural grassland	High	High	**High**
LCZ 5 – Enclosed native bushland	High	Moderate	High-moderate
LCZ 6 – Industrial/ commercial	Low	Low	Low

5.4.2 Visual impact

Of the eight viewpoints selected, two have a low impact rating, two moderate-low, three moderate and one negligible.

Table 5.2 Visual Impact Assessment – summary

Viewpoint	Sensitivity	Magnitude	Impact
Viewpoint 1 – junction of Richmond Road and Rooty Hill Road north, looking south-west	Low	High	Moderate
Viewpoint 2 – corner of Romley Crescent and Rooty Hill Road North, looking north-east	Low	Low	Low
Viewpoint 3 – Rooty Hill Road North in front of the Blacktown Native Institution site, looking north-east	Low	High	Moderate
Viewpoint 4 – view along Richmond Road just north of the M7, looking north towards Bells Creek bridge crossing	Low	High	Moderate
Viewpoint 5 – from the rear property boundary of 131 Colebee Crescent, looking east across the Blacktown Native Institution site	High	Moderate	High-moderate
Viewpoint 6 – view along Richmond Road at the Bells Creek bridge crossing, looking north	Moderate	Moderate	Moderate
Viewpoint 7 – view from between Nos. 79 and 81 Colebee Crescent, at the culvert, looking east	Moderate	Negligible	Negligible
Viewpoint 8 – corner of Alderton Drive and Richmond Road intersection, looking south	Low	Low	Low

5.4.3 Mitigation achieved through the design process

Bridge design

- Bridge 1: A multi-criteria assessment was prepared to determine the most suitable type of structure for the new flyover from the M7 to Richmond Road. Materials considered include concrete and steel construction, and structural options included a simple horizontal profile versus a haunched superstructure. The project proposes a balanced cantilever, haunched bridge. While this differs from the design of the other M7 bridges in close proximity, it has the widest spans of the options considered (50, 75,75, 50 metres) which results in clear views under the deck. The wider spans and the elegant curved profile are considered to contribute positively to the overall design quality of the project and to mitigate the visual impact of the flyover.
- Bridge 2: This bridge carries the shared path and the northbound traffic lanes on Richmond Road over Bells Creek. It has been designed for a seamless travel experience, without a change to the horizontal alignment. This means that it 'reads' as a continuous element at grade in the landscape rather than as a structural addition.

Landscape design

There are two ways in which the landscape design has responded to character and visual impacts: screening, and median planting.

- It uses screening to visually moderate the impact of the new bridge abutments when seen across the open spaces around Bells Creek. As there is no space to plant directly in front of the structure, the planting is located along the edge of the Richmond Road corridor. Conversely, where the landscape character is open and there are identified locating views, the planting layout seeks to retain and focus those views, to reinforce the character and sense of place.
- The area available for planting on medians has reduced to accommodate extra traffic lanes. To offset this, native grasses with more height and volume than the existing mown grass are proposed. This helps reduce the apparent extent of hard paving and mitigate the visual impact of the widening.

5.4.4 Further mitigation recommended

Bridge design

Further mitigation measures would reduce some of the above described impacts of the large new bridge on landscape character and views towards the project:

- Designing the curvature of the bridge with small enough segments to achieve a smooth curved profile rather than a faceted profile, to achieve the elegant form envisioned for the structure
- High quality design and finish to the bridge abutment walls, particularly where they face the BNI site, and ongoing engagement with Aboriginal stakeholders around the potential for cultural interpretation

Landscape design

The Blacktown Native Institution site is of state significance and has deep cultural meaning for Dharug people as a site of past trauma and ongoing healing and connection. It is impacted physically, visually and experientially by the project.

The area available for screen planting to the BNI site varies in width. Most of the proposed new landscape treatment happens north of the site boundary, which leaves the south-east corner more exposed to the visual and noise impacts of the project including the new bridge. Mitigation in the form of landscape treatment to that corner, within the BNI site, should be considered through ongoing Connecting with Country consultation with the Dharug landowners and stakeholders.

5.4.5 Conclusion

Overall, the urban and landscape design is considered to satisfactorily respond to the landscape character, and to have addressed the visual impacts, of the project in its setting. In particular, the alignment and pier locations of the new bridge flyover have balanced structural requirements (including the need for a somewhat deeper superstructure than the family of M7 bridges) with optimising openness at ground level for road users, cyclists and pedestrians. Retention of vegetation along the eastern side of the road corridor, particularly remnant native riparian species around Bells Creek, is a positive, as is supplementary and new planting on the western side to mitigate the loss of existing trees.

The key adverse findings relate to the three landscape character zones at the southern end of the project. These are as a result of the permanent introduction of the approximately 300 metre long new bridge, which is in strong contrast to the generally unstructured existing character. The proximity of the bridge to the culturally significant Blacktown Native Institution site which forms a large part of LCZ3 is a particularly concerning consideration for future stages of the project. Design development would benefit from continued engagement with local Aboriginal stakeholders to ensure an appropriate response to Country that can mitigate the impacts on the character as well as on outward views from the BNI site impacted by the new flyover bridge. If space is insufficient within the project boundary, there should be further discussions and engagement on the potential to respond within the BNI site itself.

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