

Figure 2-10 Long-section of the Rozelle Rail Yards - north-south - section 1

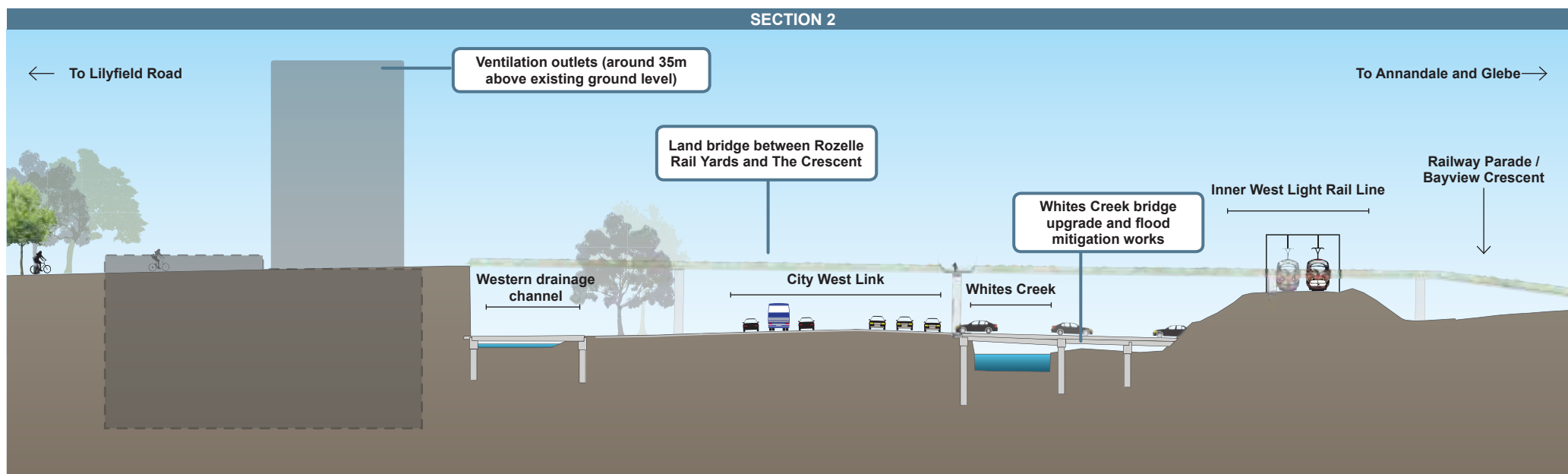
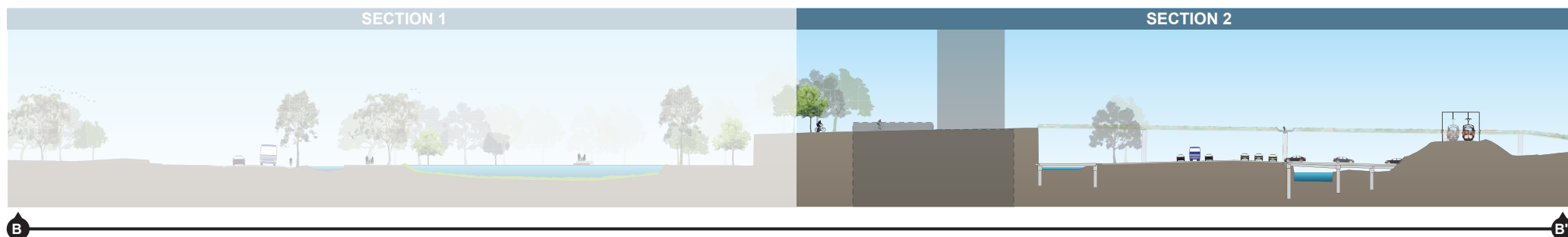
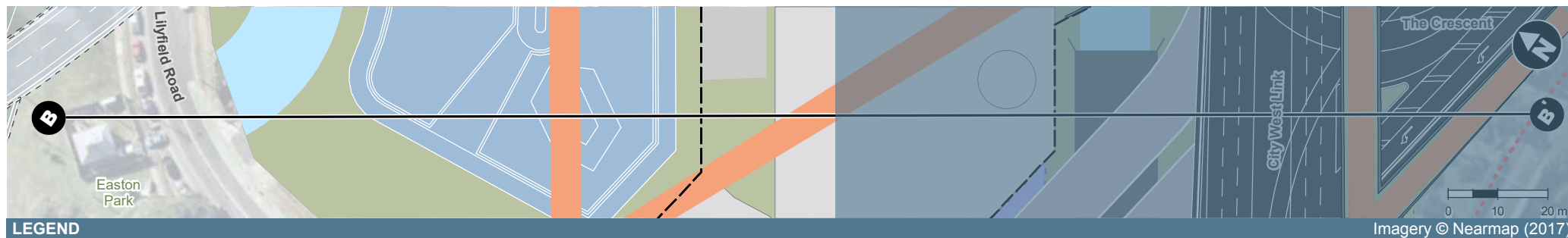


Figure 2-11 Long-section of the Rozelle Rail Yards - north-south - section 2

2.4.4 Iron Cove Link and surrounds

Key urban design and landscape features proposed around the Iron Cove Link are shown in the Iron Cove Link master plan at **Figure 2-12** and include:

- New exit and entry tunnel portals and a ventilation facility at the eastern abutment of Iron Cove Bridge are proposed as well as the realignment, widening and resurfacing of the southern carriageway of Victoria Road. To meet the urban design aim of integrating the built form into the surrounding environment, tunnel, entry and exit portals would be designed as recessive components within the landscape
- The Iron Cove Link ventilation facility (located between Springside and Moodie streets) and electricity substation (located between Callan and Springside streets) would also be designed to become recessive elements, with facades that allow them to blend with surrounding built form. The ventilation outlet would be 20 metres in height (above existing ground level) and would be located within the Victoria Road carriageway near Terry Street to ensure it is furthest away from surrounding land uses
- Land on the southern side of Victoria Road not required for permanent operational infrastructure following construction provides the opportunity to create new open space and active transport connections for the community, which connect with King George Park to the west and the local street network. This land would be landscaped and developed in accordance with the UDLP that would be prepared for the project in consultation with the local community
- To enhance the connection of spaces, the tunnel entry and exit portals would terminate to the west of the Terry and Toelle streets alignment maintaining the pedestrian connection across Victoria Road. A new pedestrian footpath and separated cycleway would be provided between Springside Street and Byrnes Street, connecting to The Bay Run on the western side of Victoria Road
- To enhance green links, the southern side of Victoria Road would feature street tree plantings and a vegetated verge that separates the vehicle movements of Victoria Road from the pedestrian and cycle paths. The area above the portals would be planted with street trees to provide canopy cover
- Water sensitive urban design (WSUD) is proposed to be integrated into the design to utilise the topography along Victoria Road and the residual spaces to harvest and polish water runoff. A bioretention swale would be constructed within King George Park on Manning Street within land currently utilised for informal car parking
- The project would assist in future urban renewal along sections of Victoria Road. It is outside the current scope of works however, the forecast reduction in traffic along sections of Victoria Road, resulting from the Iron Cove Link presents a number of opportunities, including a revitalised 'street' for businesses, locals and visitors.

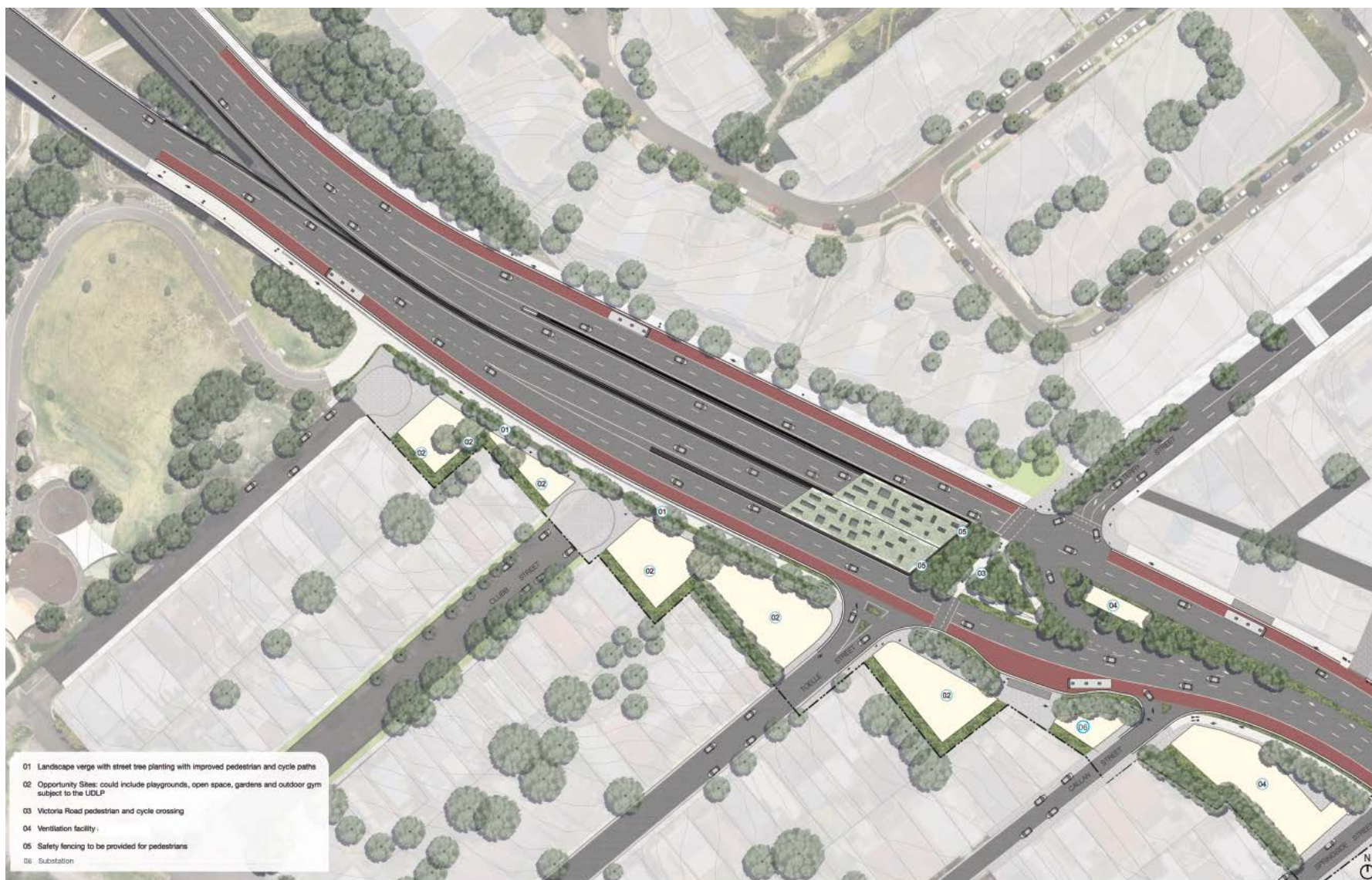


Figure 2-12 Iron Cove Link Master Plan

2.4.5 St Peters interchange

A UDLP has been prepared for the St Peters interchange as part of the New M5 project. **Figure 2-13** provides an overview of the master plan for the interchange developed as part of this work. However, the New M5 UDLP does not include the Campbell Road motorway operations complex (MOC5) which comprises the new ventilation facility, which would be delivered by the M4-M5 Link project. These elements would be subject to a separate UDLP and would be delivered to be consistent with the New M5 UDLP (Hassell, 2016) and the conditions of approval for the New M5 project.

The M4-M5 Link would include a ventilation facility above the portals in the northwest corner of the site. The ventilation facility has been designed to minimise land take from the St Peters interchange open space areas (which will be built as part of the New M5 project). The ventilation outlets would be 22 metres above existing ground level and the facility would also include structures to accommodate worker amenities, parking, and an electricity substation.

The design for the St Peters interchange as outlined in the New M5 UDLP provides extensive vegetation that would soften the scale of the proposed infrastructure. It also provides enhanced pedestrian and cyclist linkages into existing networks that would promote links to green open space within the wider precinct.

Roads and Maritime, as proponent for the New M5 EIS, has responsibility for the design of a land bridge connecting Sydney Park to the St Peters interchange. Delivery of the land bridge would occur upon completion of the M4-M5 Link.

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Figure 2-13 St Peters interchange master plan

3 Assessment methodology

3.1 Overview

The landscape and visual impact assessment has been undertaken in accordance with the Roads and Maritime *Environmental Impact Assessment Practice Note – Guidelines for Landscape Character and Visual Impact Assessment* (2013) (EIAG). This method is widely accepted by NSW Government authorities and is relevant to this project in that it addresses changes to corridor infrastructure within an urban setting.

The EIAG distinguishes between landscape character impact and visual impact as:

‘... landscape character assessment – the assessment of impact on the aggregate of an area’s built, natural and cultural character or sense of place, and

visual impact assessment – the assessment of impact on views.

Landscape character and visual assessment are equally important. Landscape character assessment helps determine the overall impact of a project on an area’s character and sense of place. Visual impact assessment helps define the day-to-day effects of a project on people’s views.’

In accordance with these guidelines, key steps in the landscape character and visual impact assessment include:

- Analysis of the landscape and visual context, including:
 - Review and summary of relevant policy and planning documents, specifically in regard to existing and future character and context
 - Definition of Landscape Character Zones (LCZ)
 - Identification of visibility and potential views to the project during construction and operation
 - Identification of urban design and landscape objectives
- Assessment of landscape character and visual impacts of the concept design
- Assessment of visual impacts during construction, including night lighting impacts
- Identification of reasonable and feasible mitigation measures.

The method to assess both landscape character and visual impacts has been based on a combination of ‘sensitivity’ of the existing landscape character zone or view subject to change, and the ‘magnitude’ of change on that zone or view (refer to **section 3.3** and **Table 3-1**).

The visual impact assessment evaluates the impact of the construction and operation of the project on receptor views, including potential impacts associated with lighting. The visual impact assessment considers views from neighbouring properties, including residential, commercial, industrial, and users of public open space, as well as from passing motorists, pedestrians and cyclists.

Key assumptions

This assessment of potential landscape and visual impacts has been undertaken on the urban design concept presented in **Appendix L** (Urban Design Report) for the project, within the context of the existing conditions of the surrounding areas. It also considers proposed conditions as detailed in the M4 East UDLP at Haberfield and in the New M5 UDLP at St Peters respectively.

The Rozelle Rail Yards site management works would result in the removal of vegetation, waste, stockpiles of materials, existing rail infrastructure, buildings and redundant services. This would significantly alter the character of the LCZ. The site management works have commenced and would take about 12 months. The assessment for this report within and surrounding the Rozelle Rail Yards has been undertaken based on these works being completed prior to construction of the M4-M5 Link commencing.

Proposed landscape treatments shown in this report are assessed as being at an early stage of growth (12–18 months) to ensure a reasonable, conservative approach to any beneficial effects of vegetative screening on the project. Artist's impressions are provided for key visual receptor locations at 12-18 months as above, and at 10 years for general information purposes.

On the basis of the above, it can be expected that the landscape character and visual impact assessment ratings derived within this report would improve when:

- Buildings and infrastructure are architecturally designed and rendered in accordance with the guiding principles identified in **Appendix L** (Urban Design Report) of the EIS
- The project landscape works mature
- Mitigation measures are put in place
- Remaining project land is developed in the future with regard to the urban design objectives and principles with the WestConnex Urban Design Framework (WUDF), other relevant planning documents, and council planning codes.

Residual impacts

For the purposes of this assessment and in accordance with the EIAG, the basic project concept - its location, form and key elements – has been assessed. Where there are unavoidable landscape or visual impacts that cannot be fully mitigated by the urban design measures incorporated into the concept design (subject of this assessment), these are considered to be residual impacts. These residual impacts would be mitigated where possible, once the recommended measures are integrated into the detailed design.

In accordance with the EIAG, rating of residual impacts is not undertaken. It can be expected that the impact assessment ratings would improve as a result of developing project land in accordance with the UDLP; maturing of the landscape; and implementing of mitigation measures. However, given that the level of success with which these elements would be implemented cannot be measured at this stage as a contractor has not been appointed and detailed design is still to be undertaken, the EIAG defers to a position of assumed likely improved outcomes only.

An integrated urban design and engineering process

The concept design for the project defines:

- The property acquisition requirements for the project sufficient for the current design and construction planning
- A project footprint, comprising land required for construction and operation of the project
- A clear description of the design principles, extent of potential visual impacts and impact management requirements
- A sound and clear basis for refinement of the detailed design to a standard required to minimise visual impacts of the permanent infrastructure as much as possible.

The concept design would continue to be refined where relevant to improve road network and safety performance, minimise impacts on receptors and the environment, and in response to feedback from stakeholders. In accordance with *Beyond the Pavement: Urban Design Procedures and Design Principles* (Roads and Maritime Services 2014) and the EIAG, urban designers and engineering teams have worked together to develop this integrated, collaborative outcome. Key elements of this process included:

- Identification of urban design objectives of the project to enhance the interchanges, tunnels, cut-and-cover and slot arrangements
- Analysis of the built and natural fabric of the local and regional context
- Provision of an overview urban design concept for the project

- Consideration of project land and treatments, including identification of opportunities to use remaining project land, particularly for the provision of community space (passive and recreational) and utilise structures (such as ventilation facilities) for multiple uses
- Identification of measures to create, promote and enhance connectivity, for example where connectivity is currently limited by the Rozelle Rail Yards and City West Link
- Demonstration of how the proposed urban design would be consistent with the existing and desired future character of the area
- The landscape character assessment evaluates the potential impacts of the operation of the project on the combined quality of the built, natural and cultural aspects that make up an area and provide its unique sense of place.

3.2 Analysis of existing environment

The existing landscape and visual environment along the project has been assessed through a desktop review of aerial photography, geographic information system (GIS) mapping of topography and vegetation, land use mapping and site inspections.

The M4-M5 Link project is assessed in this EIS and the cumulative impacts of the project are also considered in the context of the broader WestConnex program of works in this assessment (refer to **Chapter 8**).

3.2.1 Document review and government liaison

Key documents reviewed for this project are listed in section 1.5 and Chapter 11 (References), and include other specialist assessments relevant to this LVIA such as the Urban Design Report (McGregor Coxall, 2017), shadow diagrams (AECOM, 2017), Active Transport Strategy (AECOM, 2017), Non-Aboriginal Heritage Assessment (GML, 2017) and Arboricultural Impact Assessment (ELA, 2017). Key policy and planning documents were also reviewed and are further discussed in **Chapter 4**.

3.2.2 Definition of landscape character zones

In order to assess landscape character impact, LCZs have been identified across the project footprint in areas where surface works are proposed. Where available, existing LCZs identified within council Development Control Plans (DCPs) have been adopted for this assessment.

The LCZs are defined as areas of landscape with similar properties or strongly defined spatial qualities, which are distinct from adjoining areas. As much of the project would comprise of tunnelled motorway, the landscape character units were focussed around areas of proposed surface works, including the interchanges and the ventilation facilities. The existing environment, including landform, heritage and infrastructure, is detailed within these LCZs (refer to **section 5.3**).

3.2.3 Existing views

In order to assess visual impact, existing views have been identified based on a range of criteria, including:

- Where there is potential for a significant change between the before and after view
- Where there is potential for a significant adverse visual outcome for sensitive receptors
- Where there is potential for a significant adverse visual outcome to locations of high visual amenity
- Where there is potential for a significant adverse visual outcome to heritage listed items or heritage conservation areas
- Where the view is representative of other similar settings, in which there was potential for a similar adverse outcome, eg on the character of a streetscape.

3.3 Landscape character and visual impact assessment

The method applied to measure both landscape character and visual impact comprised a sensitivity analysis of each existing landscape zone or view subject to change, and an assessment of the magnitude of change on that zone or view. Professional judgement and experience is applied on a case by case basis to identify qualitative levels of significance for each receptor (see **Table 3-1**).

Table 3-1 Landscape character and visual impact grading matrix

Visual impact		Magnitude of change			
		High	Moderate	Low	Negligible
Sensitivity	High	High	High–moderate	Moderate	Negligible
	Moderate	High–moderate	Moderate	Moderate–low	Negligible
	Low	Moderate	Moderate–low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Source: Roads and Maritime (March 2013)

3.3.1 Landscape character impact

Sensitivity

The sensitivity of a landscape is based upon the extent to which it can accept change of a particular type and scale without adverse impacts upon its character or value. Sensitivity is based on:

- Inherent landscape value, eg its condition, perceptual qualities, and cultural importance
- Likely congruency of the proposed change, i.e. the extent to which the proposal may 'fit' or be 'absorbed' into the landscape, e.g. in relation to line, colour, texture, form and scale.

Magnitude

The magnitude of change depends on factors such as the extent of:

- Loss, change or addition of any feature or element, or
- Change to the landscape itself or one nearby that affects its character
- The quality and extent of the concept design solution.

3.3.2 Visual impact

Sensitivity

The sensitivity of visual receptors and existing views to the proposed change is dependent on:

- Location and context of the receptor location
- Expectations and activity of the receptor
- Type and number of receptors
- Quality of the existing view
- Importance of the view
- Temporal duration of the view.

The most sensitive visual receptors may include:

- Users participating in outdoor passive recreational activities
- Communities where development results in changes in the landscape setting or valued views enjoyed by the community
- An area with a high frequency and range of users
- Residents with views affected by the project.

Magnitude

The magnitude of change on a view would depend on factors such as:

- Extent of visibility of the change (refer 'visual envelope mapping' below)
- The scale, size and character of the project
- Degree of obstruction of existing features
- Degree of contrast with the existing view
- The quality of the design outcome
- Angle of existing view
- Duration of view, and
- Distance from the project.

The magnitude of change can therefore range from a total view loss, to negligible or no change, to beneficial.

3.3.3 Visual envelope mapping

The likely visibility of the permanent project infrastructure from surrounding areas (visual catchment) has been broadly mapped, to create a visual envelope. This provides a measure of the extent of receptors with visibility of project infrastructure in the surrounding environment. The mapping typically shows 'worst case' as it primarily relates to existing landform, and does not allow for the obscuring effect of vegetation. For example, the visual envelope may suggest some receptors have visibility of a ventilation facility, however due to the location of existing vegetation and the receptor's orientation to the infrastructure, the view may in fact be obscured.

3.3.4 Visualisations

Photographic panoramas, created using a Canon 750D with an 18–55 millimetre wide angle lens, have been used as a base for graphic visualisations which depict elements of the project. Photographs were taken in late 2016 and early 2017 from key receptor locations. Where necessary, photos were stitched together. Each panorama was then zoomed into the area of interest within it. Artists impressions of project elements based on known information are then superimposed over the panoramas and the potential for view loss arising from the project is then assessed at this point.

3.3.5 Assessment of night lighting impacts

A broad assessment of the impacts of night lighting during both the construction and operation phases of the project was undertaken, by applying the methodology for assessment of visual impacts described above. Key visual receptors include neighbouring residential, commercial and industrial properties, users of recreational space, as well as from passing motorists, pedestrians and cyclists.

The following assumptions are made with regard to the assessment process:

- A detailed lighting concept will be based around the considerations identified in **Appendix L** (Urban Design Report) of the EIS, and would be developed in accordance with AS/NZS 1158 Lighting for roads and public spaces, AS 2560 Guide to sports lighting, AS 4282 Control of the obtrusive effects of outdoor lighting, and AS/NZS 60598 – Series Luminaires. The assessment of night lighting impacts is therefore not based on a lighting design, but rather assumptions have been made with regard to the types and extent of lighting likely to be installed for both the construction and operation phases consistent with applicable guidelines

- There is no assessment of existing or proposed luminance levels
- No detailed information regarding night lighting within construction ancillary facility is available at this stage of the assessment, however the proposed operating hours at each construction ancillary facility has been considered. Construction vehicles entering and leaving the facilities has been discussed in the assessment. Operational lighting during construction is assumed to be:
 - In operation seven days a week
 - At levels sufficient to meet occupational health and safety levels, and security levels.

3.3.6 Assessment of overshadowing impacts

An assessment of overshadowing impacts as a result of project buildings and structures was undertaken and is provided in **Appendix M** (Shadow diagrams and overshadowing) of the EIS. The assessment is summarised in **section 7.3.4**.

4 Policy and planning setting

4.1 Urban design, landscape character and visual amenity

The policy and planning setting for the landscape and visual aspects of the project has been established with regard to the following relevant planning documents.

- *A Plan for Growing Sydney* (NSW Government, 2014)
- *Draft Central District Plan* (NSW Government, 2016)
- *The Bays Transformation Plan* (UrbanGrowth NSW, 2015)
- *Parramatta Road Urban Transformation Strategy* (UrbanGrowth NSW, 2016)
- *Sydney Regional Environmental Plan 26 – City West*
- Ashfield Local Environmental Plan 2013 (Ashfield LEP 2013)
- Leichhardt Local Environmental Plan 2013 (Leichhardt LEP 2013)
- Sydney Local Environment Plan 2012 (Sydney LEP 2012)
- Marrickville Local Environmental Plan 2011 (Marrickville LEP 2012)
- Leichhardt Development Control Plan 2013 (Leichhardt DCP 2013)
- Sydney Development Control Plan 2012 (Sydney DCP 2012)
- Marrickville Development Control Plan 2011 (Marrickville DCP 2011).

The desired future character of the study area has been determined based on the statutory and strategic directions provided in these documents.

4.2 Regional policy and planning

At a regional level, *A Plan for Growing Sydney 2014* provides guidance on land use planning decisions in Sydney for the next 20 years. The plan describes where people are likely to live and work, and how they will move around the city and its subregions. The plan also guides district (previously referred to as subregional) planning by identifying the metropolitan priorities for each of the districts across Sydney. District planning demonstrates how the growth of the city will be closely integrated with long term transport and infrastructure planning, as major renewal and growth programs capitalise on existing and planned transport.

The Plan divides Sydney into six distinct planning regions based on geographic location and other features. District planning demonstrates how the growth of the city will be closely integrated with long term transport and infrastructure planning, as major renewal and growth programs capitalise on existing and planned transport.

The project is located within the City of Sydney and Inner West LGAs, which are contained within the Central District under *A Plan for Growing Sydney*. Each District is required to have a District Plan, which applies a further layer of strategic direction to that of *A Plan for Growing Sydney*. Exhibition of the Central District Plan for public comment concluded on 31 March 2017. The priorities for the Central subregion outlined in the Draft Central District Plan that are relevant to the project (when considered as part of the project) are to:

- Improve connections and amenity along the WestConnex corridor
- Identify the opportunities to create the capacity to deliver 20-year strategic housing supply targets
- Develop and implement an economic development strategy for the Eastern City
- Investigate opportunities to enhance east-west public transport connections
- Coordinate infrastructure planning and delivery for growing communities

- Incorporate the mitigation of the urban heat island effect into planning for urban renewal projects and Priority Growth Areas
- Identify and map potential high impact areas for noise and air pollution
- Use funding programs to deliver the Central District Green Grid priorities.

The strategy for the Central District identifies that the desired future character of the broader region is to be a global sustainability leader, managing growth while maintaining and enhancing the District's liveability, productivity and attractiveness for residents and visitors. Priorities for the District include:

- Enhancing the role of global Sydney
- Leveraging investment in transport infrastructure
- Improving freight, logistical and urban services
- Planning for demographic change
- Meeting housing demand with innovative solutions
- Enriching unique places and connections
- Promoting and celebrating cultural diversity
- Protecting the environment and enhancing sustainability.

4.3 Local policy and planning

At a local level, there are a number of LGA and precinct-specific policy and planning documents that articulate the desired future character for different areas within the project footprint. Relevant LEPs and DCPs are critical in detailing specific information regarding desired future character for the areas indirectly or directly impacted by the project. LEPs guide planning decisions for LGAs through zoning and development controls, which provide a framework for the way land can be used. The desired future character for an area is the basis upon which appropriate land uses are identified.

DCPs provide detailed planning and design guidelines that support the planning controls set out in the respective LEP. In this way, DCPs provide a further level of specific detail in regard to the desired future character for specific areas. Each DCP categorises the land within the LGA into distinct areas by virtue of topography, estate and street pattern or building form and outlines the objectives and desired future character for each of these specific areas. In the Leichhardt DCP these are termed *distinctive neighbourhoods*. In the Marrickville DCP these are termed *precincts*. The Sydney DCP identifies these different areas through *specific areas, localities and specific sites*.

Also of relevance to the M4-M5 Link project, a strategic planning process is currently being led by UrbanGrowth NSW for The Bays Precinct. The Bays Precinct comprises 5.5 kilometres of harbour frontage, around 95 hectares of largely government owned land and around 94 hectares of waterways in Sydney Harbour. There are eight sub-precincts within The Bays, including the Rozelle Rail Yards, the Rozelle Bay and Waterways and White Bay Power Station. These are within, adjoining or adjacent to the construction and operational elements of the M4-M5 Link project at the Rozelle interchange.

A Transformation Plan has been developed by UrbanGrowth NSW, providing a blueprint to transform The Bays Precinct into a hub of enterprise, activity and beautiful spaces. An overview of the Transformation Plan for each of the relevant sub-precincts is outlined as follows:

- Rozelle Rail Yards: potential to reconnect areas to the north and south of the Rozelle Rail Yards, and to improve connections from Lilyfield to the water. Identified features include providing greater housing choice, creating new open space and nature reserves to link to the harbour, integrating and reconnecting communities providing new pedestrian and cycle links between Lilyfield and Rozelle, intersecting with major infrastructure and raising awareness of and interpreting heritage of rail transport

- Rozelle Bays and Waterways: potential to integrate a viable mix of new land and maritime uses including a mix of commercial, open space and other living uses, with working harbour industries and on-water recreation facilities. It would also include better public access to the waterfront and waterways. Improvements to water quality are also a key objective. Identified features include integrating living and working side by side with maritime uses, providing new and upgraded maritime infrastructure, providing staged public waterfront access, improving water quality
- White Bay Power Station: unlock the potential of the White Bay Power Station to recognise its history in an authentic way. Identified features include providing a hub for knowledge-intensive and advanced technological industries, adaptively re-using the State-listed heritage of the White Bay Power Station, providing housing choices to support and attract talent for a knowledge-intensive destination, merging with the Bays Waterfront Promenade in a new activated forecourt that provides access to the water and reviewing opportunities for a new ferry service.

The Plan sets out immediate, medium term and long term priorities for the sub-precincts. Immediate Priority Destinations (works commencing 2015 – 2019 include the Bays Waterfront Promenade (Stage 1 Pyrmont to Blackwattle Bay and future stages consistent with medium and longer-term priorities) and the White Bay Power Station (including surround). Medium-term Priority Destination (works commencing 2019 – 2022) includes Rozelle Bay and Bays Waterways (Blackwattle and Johnston Bays). Longer-term Priority Destinations (works commencing 2022 and beyond) include: the Rozelle Rail Yards.

As planning for The Bays Precinct is not yet finalised, the Sydney Regional Environmental Plan 26 – City West (SREP 26) currently serves as a guide for the desired future character of the area providing high level planning principles for the precinct. This document represents the applicable statutory planning instrument for the area and will be superseded once the planning process for The Bays Precinct is finalised.

The desired future character of each of the identified LCZs drawn from the above outlined documents is detailed and assessed against potential landscape character impacts in **section 7.2**.

4.4 WestConnex Motorway Urban Design Framework (WUDF)

The urban design for the project has been developed in alignment with the objectives of the WUDF which are to deliver benefits to road users and the community. The following urban design vision, objectives and principles are derived from the WUDF.

4.4.1 Vision

‘The WestConnex motorway shall be a sustainable, high-quality and transformational project for the people of Sydney and NSW. Exhibiting design excellence as a whole and in all constituent parts, it should be sensitively integrated into the natural and built environment, help build communities and contribute to the future liveability of the city’.

The framework’s vision statement then states that ‘a “whole of corridor” design approach shall be adopted, to ensure the realisation of a memorable motorway experience that is legible, identifiable and integrated into the existing urban fabric’.

The successful project ‘integration within the existing urban fabric’ is critical to a well-managed response to potential visual impact and is of direct relevance to this assessment.

4.4.2 Urban design objectives

The WUDF adopts six objectives to implement the project vision and create a project that best benefits both the road users and the community. These objectives are being used to guide the project design and to benchmark project outcomes. Each of the objectives is supported by design principles and guidelines.

Objective 1: Leading edge environmental responsiveness

Planning, design, construction and long term management shall be based upon a natural systems approach, which is responsive to the environment and promotes the highest levels of sustainability.

Objective 2: Connectivity and legibility

Build connectivity across the city, beyond the boundaries of the motorway corridor and promote increased legibility of places, buildings, streets and landmarks.

Objective 3: Place making

Create beautiful places, streets, structures and landscapes that draw their form, character and materiality from local context, the intrinsic natural and cultural qualities of each locale.

Objective 4: Urban renewal and liveability

Enable opportunities for urban renewal and provide high levels of urban amenity and liveability.

Objective 5: Memorable identity and a safe, pleasant experience

Provide a memorable project identity and experiences for road users and adjacent stakeholders which are safe, convenient and enjoyable.

Objective 6: A new quality benchmark

Provide design and construction quality of world-class standard. WestConnex shall establish a new benchmark for integrated sustainability, engineering, art, architecture and urban design.

Implementing the urban design principles

The WUDF provides design direction for the key urban design elements of the project. Urban design elements refer to both the built and landscape works associated with road infrastructure and their composition as a whole. They embody the project vision, objectives and principles in a built outcome.

The WUDF builds on Roads and Maritime Urban Design Policy and the existing suite of urban design guidelines and is to be read in conjunction with these design documents (refer **Figure 4-1**):

- *Beyond the Pavement urban design policy procedures and design principles*, Roads and Maritime Services Centre for Urban Design, January 2014
- *Water Sensitive Urban Design Guideline: Applying water sensitive urban design principles to NSW transport projects*, Roads and Maritime Services Centre for Urban Design, May 2017
- *Bridge Aesthetics: Design guidelines to improve the appearance of bridges in NSW*, Roads and Maritime Services Centre for Urban Design, July 2012
- *Shotcrete Design Guidelines: Design guidelines to avoid, minimise and improve the appearance of shotcrete*, NSW Roads and Traffic Authority, March 2016
- *Noise Wall Design Guideline: Design guidelines to improve the appearance of noise walls in New South Wales*, NSW Roads and Traffic Authority, March 2016
- *Landscape Guideline: Landscape design and maintenance guidelines to improve the quality, safety and cost effectiveness of road corridor planting and seeding*, NSW Roads and Traffic Authority, June 2008
- *Biodiversity Guideline: Protecting and managing biodiversity on RTA projects*, NSW Roads and Traffic Authority, 2011
- *Tunnel Urban Design Guideline: Design guideline to improve the customer and community experience of road tunnels in built up urban areas*, Roads and Maritime Services Centre for Urban Design, Draft for discussion March 2014.

The WUDF provides design direction for each category of urban design element. This includes definition of an urban design approach and precedent images that benchmark the design quality expected in order to achieve the project vision and objectives. The key urban design elements are categorised as:

- Bridges, viaducts and underpasses
- Tunnel portals, ventilation outlets and control centres
- Tunnel interiors
- Landscape
- Walls
- Road furniture
- Lighting
- Art installations.

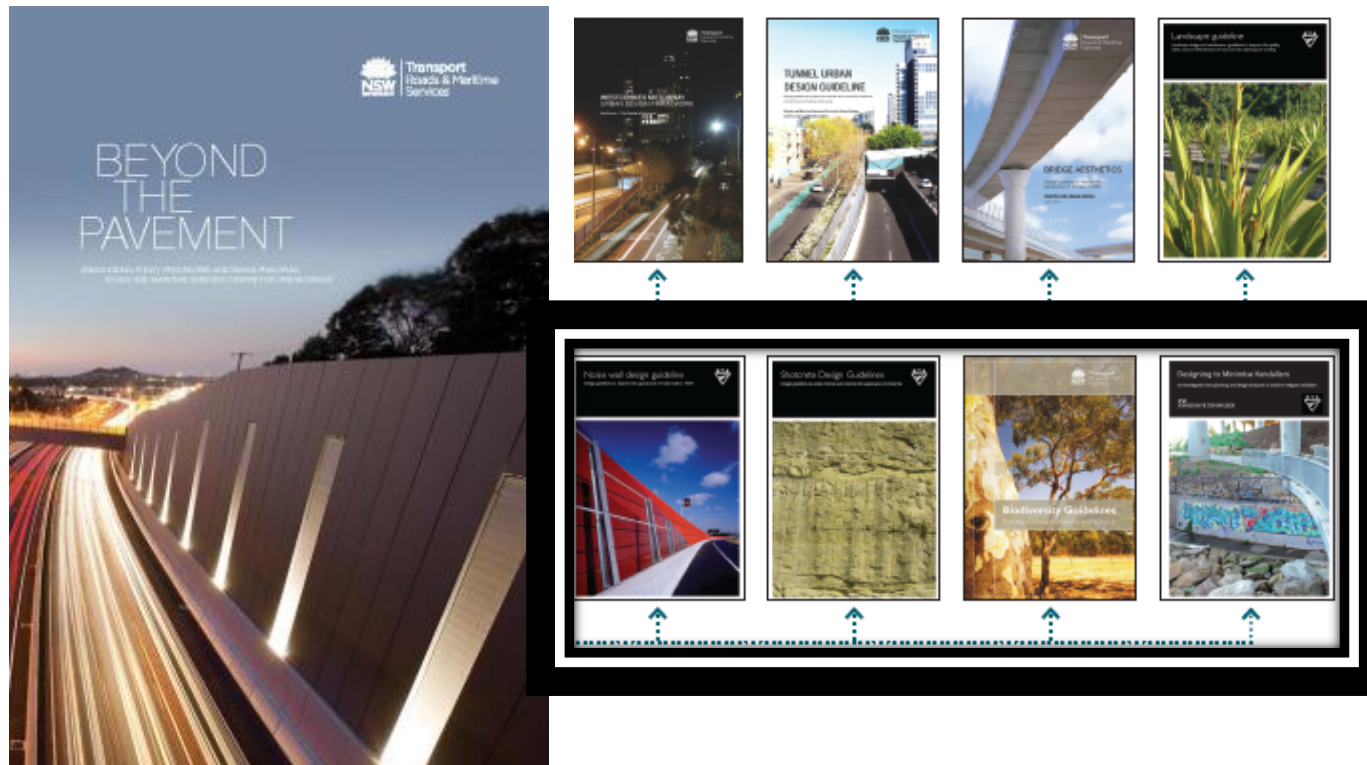


Figure 4-1 The WUDF builds on and expressly refers to the existing suite of Roads and Maritime urban design guidelines and policies, including the principle Beyond the Pavement guiding document

5 Existing environment

5.1 Introduction

The project spans the suburbs of Ashfield, Haberfield, Leichhardt, Lilyfield, Rozelle, Annandale, Stanmore, Camperdown, Newtown and St Peters (see **Figure 2-1**). For the purposes of this report, the project has been divided into four areas for analysis and assessment:

- Central west (Darley Road motorway operations complex)
- Central east (Rozelle interchange)
- Northern (Iron Cove Link)
- Southern (St Peters interchange).

While the project footprint includes construction ancillary facilities at Haberfield and Pyrmont Bridge Road (construction impacts are assessed in **Chapter 6**) these areas have not been assessed with regard to operational impacts. Permanent operational infrastructure is not proposed at Pyrmont Bridge Road. No new permanent operational infrastructure is proposed within Haberfield in addition to what is being constructed as part of the M4 East project other than pavement and finishing works along the Wattle Street ramps. The future uses of these sites are therefore unknown at this stage and would be subject to the either the M4 East or M4-M5 Link Residual Land Management Plans. These respective plans would be developed during detailed design as part of the relevant project.

5.2 Aboriginal and non-Aboriginal heritage

Significant heritage elements can, in their own right, define distinctive landscape character types within the broader urban context. Alternatively, recognition of their presence within a LCZ needs to be considered, as these may provide added weight when assessing receptor sensitivity to project impacts.

This report identifies all state and locally listed Aboriginal and non-Aboriginal heritage items and conservation areas located within identified landscape character zones. These items and conservation areas are then taken into consideration when assessing the sensitivity of these zones and potential impacts to important views. To inform this process, **Appendix U** (Technical working paper: Non-Aboriginal heritage) and **Appendix V** (Technical working paper: Aboriginal heritage) of the EIS were reviewed and are referred to in **section 5.3** of this LVIA report where relevant. It is noted that the LCZs used in this LVIA are broader than the heritage study areas identified in **Appendix U** (Technical Working Paper: Non-Aboriginal heritage) of the EIS, and as such this report may contain additional items and/or conservation areas that inform wider landscape values.

5.3 Landscape character zones

The existing environment of the project is highly urbanised, comprising broadly of:

- Major roads such as City West Link and Parramatta Road and road/ commercial corridors such as Victoria Road and Princes Highway
- Residential areas including established low-density residential areas in parts of Lilyfield, Rozelle and Leichhardt and medium-density and high-density residential development, including parts of Rozelle and St Peters
- Commercial and industrial areas, predominantly alongside Sydney Park, Victoria Road, Rozelle Rail Yards and the marine and port areas of Rozelle Bay and White Bay
- Open space including King George Park and Easton Park in Rozelle, Buruwan Park and the Whites Creek corridor in Annandale, Blackmore Oval in Leichhardt and Sydney Park in St Peters.

LCZs have been identified in those areas that have the potential to be impacted by the surface components of the project both directly and indirectly, during operation. Sites used for construction only have not been considered for LCZ assessments, as no operational infrastructure would remain on site and future use of the land is not known at this stage. The LCZs reflect the differences in character that are inherent in such a densely urbanised setting, due to factors such as the mix and period of housing types, interweaving of land uses, and the number of different land uses as described above. The following sections describe the 33 LCZs that have been identified within and surrounding the project footprint that may be directly or indirectly impacted by the operational project infrastructure.

Descriptions, desired future character and mapping of the LCZs have drawn either directly or with some modification (where appropriate) from DCPs, which identify and map distinct areas by virtue of topography, estate and street pattern or building form. The DCPs that apply to the project are the Leichhardt DCP, Marrickville DCP and Sydney DCP. Although Ashfield Council, Leichhardt Council and Marrickville Council have now been amalgamated as part of the new Inner West Council, a combined DCP is yet to be released and so the existing separate DCPs still apply.

In the Leichhardt DCP the distinct areas are referred to as *distinctive neighbourhoods*. In the Marrickville DCP they are termed *precincts*. The Sydney DCP identifies these different areas as *specific areas*, *localities* and *specific sites*. Each distinct area identified in the DCPs has relevant planning objectives and an articulated desired future character.

An exception to the above is for the areas of land and harbour that form part of what is known as The Bays Precinct (LCZ 15 White Bay Power Station, LCZ16 Rozelle Bay wharves precinct and LCZ 17 City West Link precinct) as outlined in **section 4.1**. As these areas are currently the subject of a strategic planning process, a combination of the key preliminary strategic planning document – *Transformation Plan – The Bays Sydney (UrbanGrowth, 2015)* and the Sydney Regional Environmental Plan 26 – City West (SREP 26) were drawn on for descriptions, desired future character and mapping of the relevant LCZs.

The LCZs in some instances extend a distance out from the project footprint. This is to ensure that the extent of potential project impacts on sensitive LCZs within proximity to the project are appropriately captured, for example the Glebe Foreshore Parklands. The parklands comprise an important recreational resource regularly visited by a large number of sensitive passive recreational receptors. It is important to determine the extent to which the project as a new landscape element would ‘fit’ with the parklands landscape, or be ‘absorbed’ into the retained background landscape when considered from the parklands. Other LCZs share a direct boundary with the project. These LCZs may be quite large with only a relatively short boundary connection with project. In these circumstances the LCZ is assessed along the adjoining edge.

A list of LCZs is provided in **Table 5-1** and detailed descriptions of each LCZ are provided in the following sections (**section 5.3.1 to 5.3.4**). LCZs related to the Wattle Street interchange in Haberfield were assessed as part of the M4 East project EIS. Description of LCZs identified for Haberfield can be found within *WestConnex M4 East Urban Design, Landscape Character and Visual Impact Assessment, September 2015* (refer to LCZ 10 and LCZ 12 for relevance to M4-M5 Link project). As no additional operational infrastructure is proposed as part of the M4-M5 Link project, these LCZs have not been re-assessed.

The Parramatta Road East civil site and Parramatta Road West civil and tunnel site are new sites that were not previously assessed as part of the M4 East project. As no permanent operational infrastructure is proposed at these sites and future use of these sites are unknown at this stage, LCZ assessments have not been undertaken. However, a description of the existing character of these areas is provided in **section 5.4**. These sites are separately assessed for construction visual impacts in **Chapter 6**.

Table 5-1: Landscape character zones

LCZ Number	LCZ Name
Central West LCZs – Darley Road MOC	
LCZ 1	Darley Road residential precinct
LCZ 2	Darley Road commercial precinct
LCZ 3	Leichhardt light rail precinct
Central East LCZs – Rozelle interchange	
LCZ 4	Glebe foreshore parklands precinct
LCZ 5	Annandale Street and Young Street precinct
LCZ 6	Johnston Street precinct
LCZ 7	Whites Creek valley precinct
LCZ 8	Catherine Street precinct
LCZ 9	Catherine Street neighbourhood centre precinct
LCZ 10	Balmain Road precinct
LCZ 11	Nanny Goat Hill residential precinct
LCZ 12	Halloran Street commercial precinct
LCZ 13	Easton Park residential precinct
LCZ 14	Victoria Road south precinct
LCZ 15	White Bay Power Station precinct
LCZ 16	Rozelle Bay wharves precinct
LCZ 17	City West Link precinct
LCZ 18	Rozelle light rail corridor and Whites Creek canal precinct
LCZ 19	Rozelle Rail Yards precinct
Northern LCZs – Iron Cove Link	
LCZ 20	Victoria Road north precinct
LCZ 21	Victoria Road light industrial precinct
LCZ 22	Iron Cove residential precinct
LCZ 23	King George Park precinct
LCZ 24	Callan Park residential precinct
LCZ 25	Sydney College of the Arts precinct
LCZ 26	Darling Street precinct
Southern LCZs – St Peters interchange	
LCZ 27	Sydney Park precinct
LCZ 28	Sydney Park residential precinct
LCZ 29	Alexandra Canal industrial precinct
LCZ 30	Barwon Park precinct
LCZ 31	Princes Highway precinct
LCZ 32	St Peters triangle precinct
LCZ 33	St Peters interchange precinct

5.3.1 Central west landscape character zones (Darley Road motorway operations complex (MOC1))

This section describes the existing character of the three LCZs associated with the motorway operations complex at Darley Road (see **Figure 5-1**).

LCZ 1 – Darley Road residential precinct

This LCZ is located at the bottom of the north-western slope of the Leichhardt/Balmain ridge and the area of land falls within the boundaries of the original Helsarmel Estate. The LCZ is shown on **Figure 5-2**. The streets within the LCZ are predominantly wide and tree lined, which contributes significantly to the character and amenity of the streetscape (see **Figure 5-3**). There is dense, moderate scale landscape tree plantings located on the western edge of Darley Road providing screening to the light rail corridor. Housing along Darley Road presents fenced side boundaries to the street (see **Figure 5-4**).

The LCZ is characterised by a regular grid pattern which provides streetscape coherence and strongly defines the character of the LCZ. Residential form is generally consistent, comprising predominantly low scale buildings. Contrasting with this is the built form located within the block between Francis Street, William Street, North Street and Allen Street, which includes a converted warehouse residential development at the north-east corner of William and Francis streets (see **Figure 5-5**), and a two to four storey warehouse style storage business at the southern western edge of the block. At their frontage along William Street, the residential building and storage business are provided mid to long range views down Hubert and Francis streets to the Darley Road civil and tunnel site.

Aboriginal and non-Aboriginal heritage

Non-Aboriginal heritage items located within this LCZ are listed in **Table 5-2** and shown on **Figure 5-2**. There are no registered Aboriginal heritage sites located within this LCZ.

Table 5-2 LCZ 1 non-Aboriginal heritage

Figure ID reference	Item Name	Significance	Listing
I658	Former general store, including interiors	Local	Leichhardt LEP 2013 (I658)
I819	Corner shop and residence, including interiors	Local	Leichhardt LEP 2013 (I819)

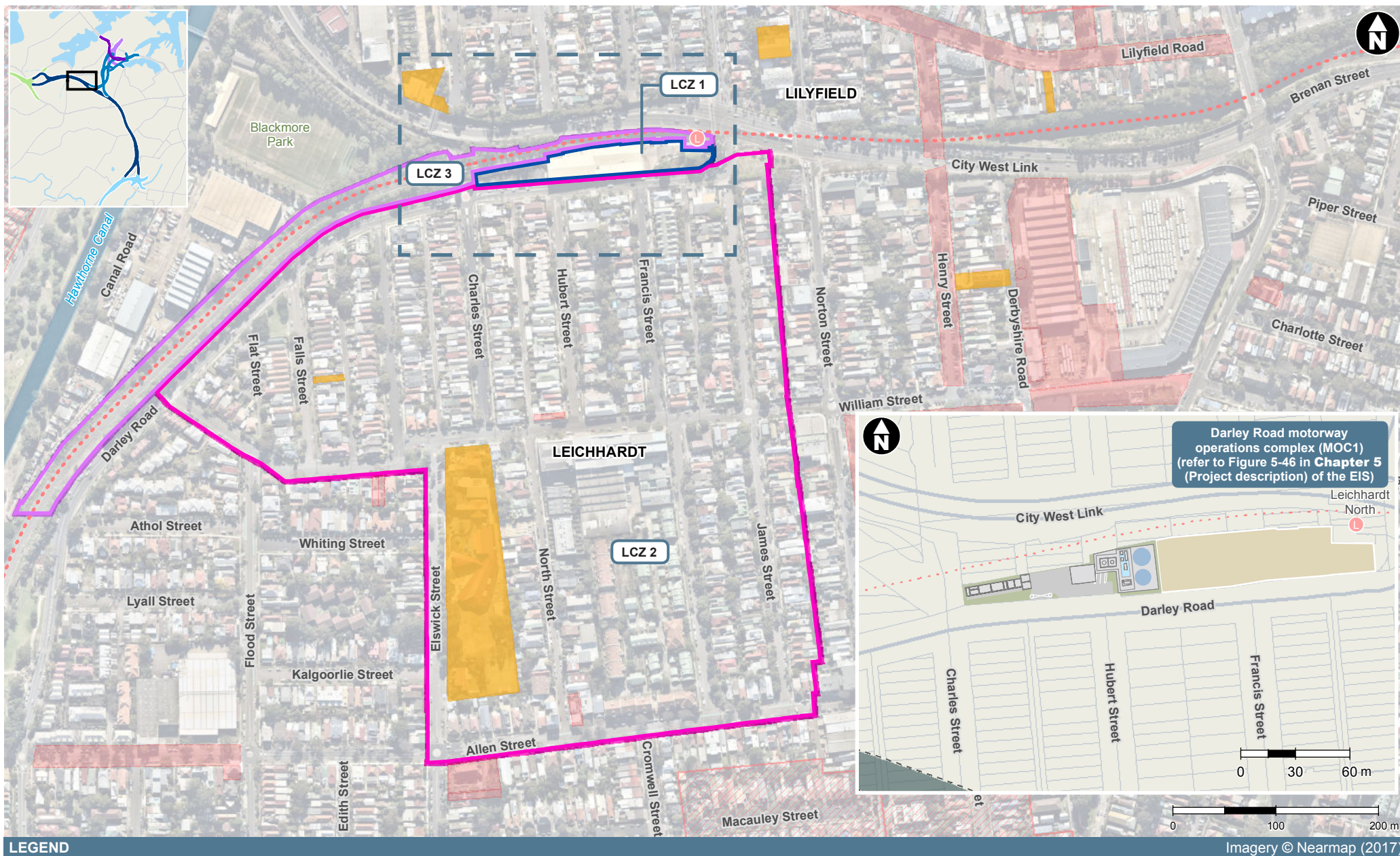


Figure 5-1 Central west landscape character zones



Figure 5-2 LCZ 1 Darley Road residential precinct



Figure 5-3 Representative image of the low scale built form and wide, tree lined streets which are typical within the LCZ



Figure 5-4 View along Darley Road looking east from the central southern edge of the Darley Road civil and tunnel site



Figure 5-5 Converted warehouse residential building at the north-east corner of William and Francis streets

LCZ 2 – Darley Road commercial precinct

This LCZ is located between Darley Road and the light rail corridor and comprises a recently re-developed retail 'warehouse' building with ancillary parking. It is characterised by a gently sloping topography and the built form consists of a large two-storey industrial 'warehouse' style building as shown in **Figure 5-6** and **Figure 5-7**.

The LCZ is shown on **Figure 5-8**. Large scale, mature tree plantings are located at the south eastern end of the LCZ along Darley Road with more moderate scale plantings along the light rail line at the LCZs north western edge above a retaining wall. The remainder of the LCZ is sparse and concreted with a large portion serving as car parking facilities. This south eastern part of the LCZ is zoned primarily B2 Local Centre under the Leichhardt LEP 2013 with a small portion on the north eastern edge zoned SP2 Infrastructure (Railway).

Aboriginal and non-Aboriginal heritage

There are no non-Aboriginal heritage conservation areas or heritage items or registered Aboriginal heritage sites located within this LCZ.



Figure 5-6 View along Darley Road looking north-west towards the warehouse building



Figure 5-7 View along Darley Road looking east towards the warehouse building



Figure 5-8 LCZ 2 Darley Road commercial precinct

LCZ 3 – Leichhardt light rail corridor precinct

This LCZ is characterised by a linear light rail line raised earthen structure, a heritage listed rail bridge at Charles Street, and dense plantings along either side as shown in **Figure 5-9**. The vegetation along either side of the corridor serves to generally screen views to and from the adjacent areas.

The light rail corridor forms part of the Inner West Rail line, which runs from Central to Dulwich Hill. The Leichhardt North Station is located between City West Link and Darley Road near the junction with James Street (see **Figure 5-10**). The station platforms are staggered, with the track crossing located between the platforms and their entrances located at either end of the stop.

Aboriginal and non-Aboriginal heritage

Non-Aboriginal heritage items located within this LCZ are listed in **Table 5-3** and shown on **Figure 5-11**. There are no registered Aboriginal heritage sites located within this LCZ.

Table 5-3 LCZ 3 non-Aboriginal heritage

Figure ID reference	Item Name	Significance	Listing
4805738	Leichhardt (Charles St) Underbridge	Local	RailCorp S170 Register (4805738)



Figure 5-9 View looking north across Darley Road to the elevated light rail line and Charles Street heritage bridge



Figure 5-10 Leichhardt North light rail stop platform looking west

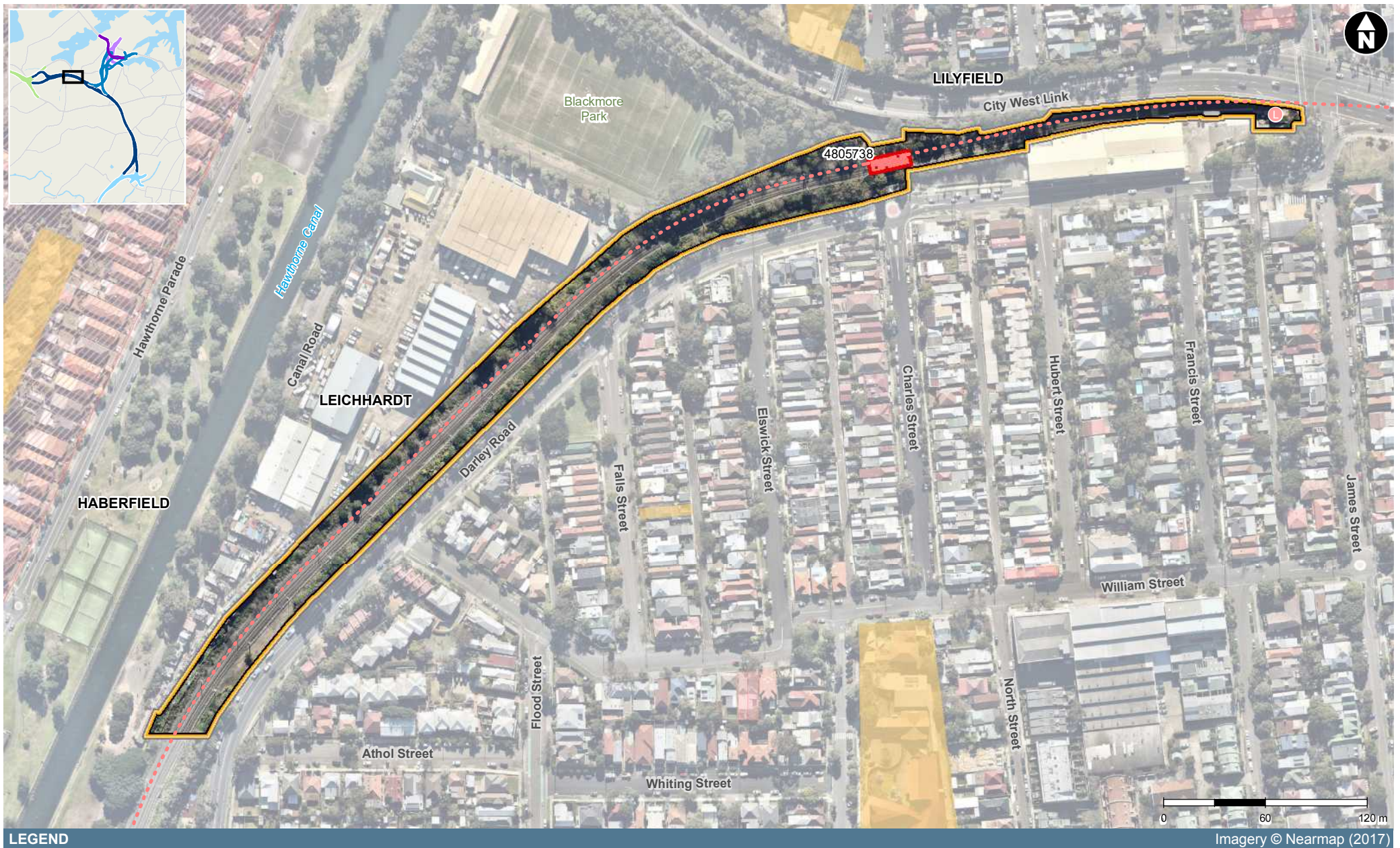


Figure 5-11 LCZ 3 Leichhardt light rail corridor precinct

5.3.2 Central east landscape character zones (Rozelle interchange)

This section describes the existing character of the 16 LCZs (see **Figure 5-12**) associated with the Rozelle interchange.

LCZ 4 – Glebe Foreshore Parklands precinct

This LCZ comprises three adjoining parks that collectively front Rozelle Bay. The LCZ is shown on **Figure 5-13**. Topography of the precinct is flat providing direct views to the adjacent commercial port area however mature tree plantings serve to partially screen views to The Crescent and City West Link beyond (see **Figure 5-14**).

The LCZ is characterised by open grasslands, sports fields, playgrounds, wetlands and barbecue facilities, picnic areas and off-leash areas. Federal Park makes up the western part of the LCZ and is characterised by a multi-use sports field, a skateboard ramp and car parking area near Chapman Road (see **Figure 5-15**). Jubilee Park is located to the south of the LCZ and is characterised by a sports field, cricket pavilion and a recently upgraded children's playground (see **Figure 5-16**). Bicentennial Park in the eastern part of the LCZ is bookended by Glebe Point Road and Chapman Road and stretches along the southern edge of Rozelle Bay (see **Figure 5-17**). It is characterised by a large fenced playground and open grassed areas.

Aboriginal and non-Aboriginal heritage

Non-Aboriginal heritage conservation areas and heritage items located within this LCZ are listed in **Table 5-4**. There are no registered Aboriginal heritage sites located within this LCZ.

Table 5-4 LCZ 4 non-Aboriginal heritage

Figure ID reference	Item Name	Significance	Listing
C34	Toxteth Heritage Conservation Area	Local	Sydney LEP 2012 (C34)
I647	Pope Paul VI Reserve including trees	Local	Sydney LEP 2012 (I647)
I648	Jubilee Park and Oval including cricket pavilion, oval with picket fence and landscaping	Local	Sydney LEP 2012 (I648)
I630	Johnstons Creek including canal and bridge	Local	Sydney LEP 2012 (I630)
I30	Federal Park including landscaping	Local	Sydney LEP 2012 (I30)