

# New M5

## Environmental Impact Statement

Technical working paper: Landscape character and visual impact

### Appendix K



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# WestConnex New M5

Client: Roads and Maritime Services

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## 1.0 Introduction

NSW Roads and Maritime Services (Roads and Maritime) is seeking approval to construct and operate the New M5 (the project), which would comprise a new, tolled multi-lane road link between the existing M5 East Motorway, east of King Georges Road, and St Peters. The project would also include an interchange at St Peters and connections to the existing road network. The project is shown in **Figure 1-1**.

Approval is being sought under Part 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The project is declared to be State significant infrastructure (SSI) under section 115U(2) of the EP&A Act by reason of the operation of clause 14 and Schedule 3 of the *State Environmental Planning Policy (State and Regional Development) 2011*. Accordingly, the project is subject to assessment under Part 5.1 of the EP&A Act and requires the approval of the Minister for Planning. An environmental impact statement (EIS) is therefore also required.

Roads and Maritime is seeking the project to be declared by the Minister for Planning as State significant infrastructure and critical State significant infrastructure under sections 115U(4) and 115V of the EP&A Act.

On 11 August 2015, the Commonwealth Minister for the Environment determined that the project has the potential to significantly impact on a matter of national environmental significance and is therefore a 'controlled action'. This means that approval of the project will be required from the Commonwealth Minister for the Environment in addition to environmental and planning approvals required under State legislation.

Under the Bilateral Agreement relating to environmental assessment (February 2015) between the Commonwealth Government and the NSW Government, this EIS has been adopted for the purpose of meeting the assessment requirements of both the Commonwealth EPBC Act and the NSW EP&A Act.

This technical working paper identifies and assesses the potential visual impacts associated with construction and operation of the project and supports the EIS for the project. A separate urban design assessment has been undertaken, refer to Urban Design Report.

### 1.1 Overview of WestConnex

WestConnex is a 33 kilometre motorway that is intended to link Sydney's west with the airport and the Port Botany precinct. The component projects of the WestConnex program of works are:

- M4 Widening – Pitt Street, Parramatta to Homebush Bay Drive, Homebush (planning approval granted on 21 December 2014 and under construction)
- M4 East – Homebush Bay Drive, Homebush to Parramatta Road and City West Link (Wattle Street) at Haberfield (planning application lodged and subject to planning approval)
- New M5 – (the subject of this EIS)
- King Georges Road Interchange Upgrade (planning approval granted on 3 March 2015 and under construction)
- M4-M5 Link – Haberfield to St Peters (undergoing concept development and subject to planning approval)
- Sydney Gateway (is the subject of further investigations by the NSW Government and would be subject to separate planning approval).

Separate planning applications have or will be lodged for each component project. Each project will be assessed separately, but the impact of each project will also be considered in the context of the wider WestConnex program of works.

A proposed Southern extension from Arncliffe to Kogarah is currently being investigated by the NSW Government, and would connect the New M5 to the southern and bayside suburbs of Sydney, and the proposed F6 motorway.

The WestConnex Delivery Authority (WDA) was established by the NSW Government to manage the delivery of the WestConnex series of projects for Roads and Maritime on behalf of the State. The WDA was a public subsidiary corporation of the Roads and Maritime. Following the achievement of early milestones for the WestConnex program of works, the NSW Government took the opportunity to evolve this early governance model.

On 1 October 2015 the transfer of the project delivery functions of WDA to Sydney Motorway Corporation (SMC) was finalised, forming a single decision-making entity to finance and deliver the WestConnex program of works. SMC is a private corporation, the shareholders of which are the Minister for Roads, Maritime and Freight and the Treasurer, with a majority independent board of nine directors.

Roads and Maritime is the Government client agency for the WestConnex program of works. In that capacity Roads and Maritime will enter into contractual arrangements with SMC subsidiary entities which will design, build, own and operate the motorway on behalf of Roads and Maritime. Roads and Maritime and SMC are working together to manage the planning approval process for the project. However, for the purpose of the planning application for the project, Roads and Maritime is the proponent.

## 1.2 Overview of the project

Key components of the project would include:

- Twin motorway tunnels between the existing M5 East Motorway (between King Georges Road and Bexley Road) and St Peters. The western portals along the M5 East Motorway would be located east of King Georges Road, and the eastern portals at St Peters would be located in the vicinity of the Princes Highway and Canal Road. Each tunnel would be about nine kilometres in length and would be configured as follows:
  - Between the western portals and Arncliffe, the tunnels would be built to be three lanes but marked for two lanes as part of the project. Any change from two lanes to three lanes would be subject to future environmental assessment and approval
  - Between the Arncliffe and St Peters, the tunnels would be built to be five lanes but marked for two lanes as part of the project. Any change from two lanes to any of three, four or five lanes would be subject to future environmental assessment and approval
- The western portals along the M5 East Motorway would be located east of King Georges Road, and the eastern portals at St Peters would be located in the vicinity of the Princes Highway and Canal Road
- Tunnel stubs to allow for a potential future connection to the M4-M5 Link and a potential future connection to southern Sydney
- Surface road widening works along the M5 East Motorway between east of King Georges Road and the new tunnel portals
- A new road interchange at St Peters, which would initially provide road connections from the main alignment tunnels to Campbell Road and Euston Road, St Peters
- Two new road bridges across Alexandra Canal which would connect St Peters interchange with Gardeners Road and Bourke Road, Mascot
- Closure and remediation of the Alexandria Landfill site, to enable the construction and operation of the new St Peters interchange
- Works to enhance and upgrade local roads near the St Peters interchange
- Ancillary infrastructure and operational facilities for electronic tolling, signage (including electronic signage), ventilation structures and systems, fire and life safety systems, and emergency evacuation and smoke extraction infrastructure
- A motorway control centre that would include operation and maintenance facilities
- New service utilities and modifications to existing service utilities
- Temporary construction facilities and temporary works to facilitate the construction of the project
- Infrastructure to introduce tolling on the existing M5 East Motorway
- Surface road upgrade works within the corridor of the M5 East Motorway.



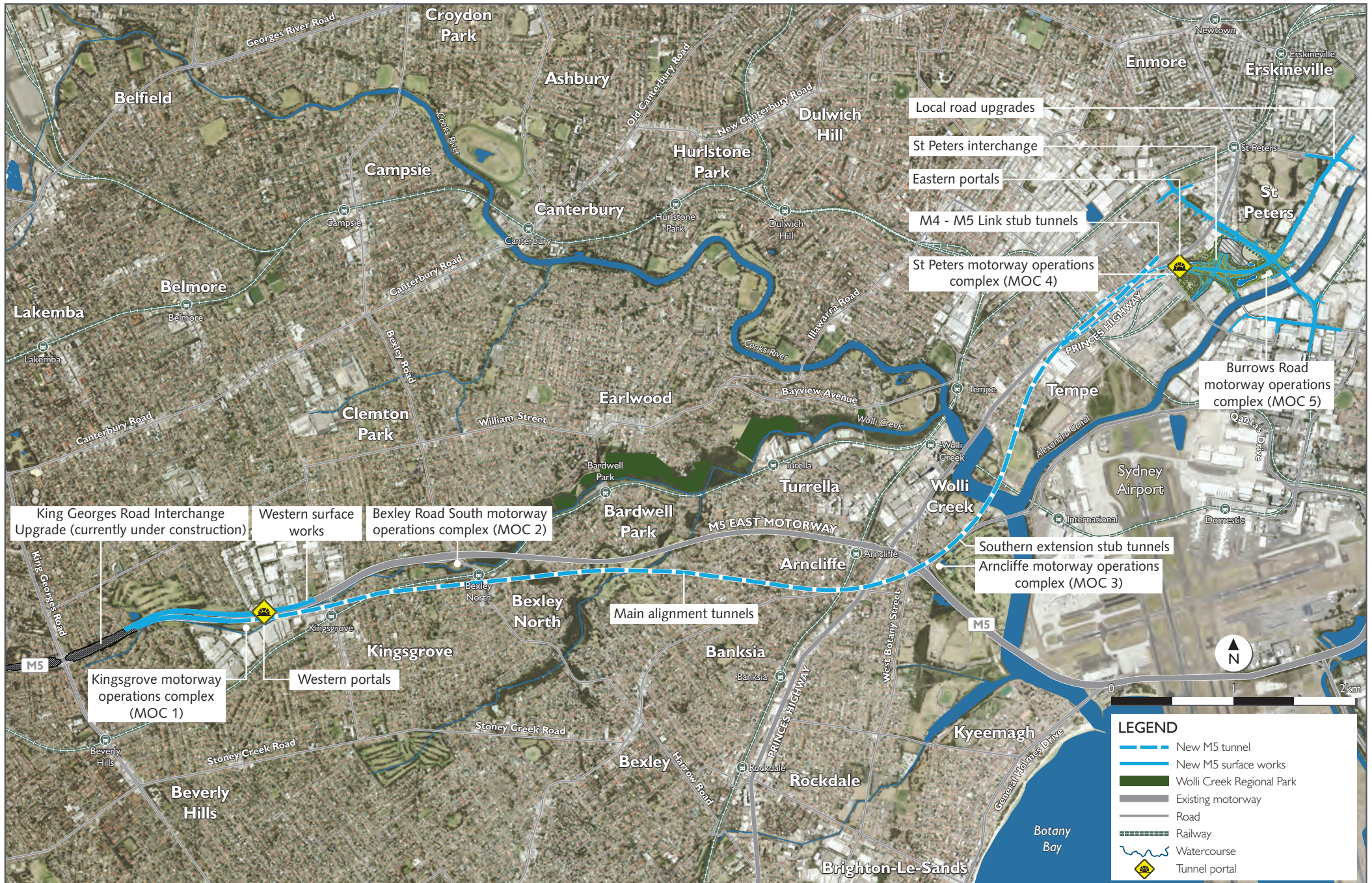


Figure 1-1 The project



Construction activities associated with the project would generally include:

- Commencement of enabling and temporary works, including construction power, water supply, ancillary site establishment, demolition works, property and utility adjustments and public transport modifications (if required)
- Construction of the road tunnels, interchanges, intersections and roadside infrastructure
- Haulage of spoil generated during tunnelling and excavation activities
- Fitout of the road tunnels and support infrastructure, including ventilation and emergency response systems
- Construction and fitout of the motorway control centre and ancillary operations buildings
- Upgrades to surface roads and construction of bridges
- Implementation of environmental management and pollution control facilities for the project.

Subject to the project obtaining environmental planning approval, construction of the project is anticipated to commence around mid-2016 and is expected to take around three years to complete.

The M5 Motorway corridor (the M5 East Motorway and the M5 South West Motorway) is the main passenger, commercial and freight corridor between Port Botany, Sydney Airport and south-west Sydney. Traffic demands on the M5 East Motorway currently exceed the design capacity of the roadway, and as a result, present a significant bottleneck to the M5 Motorway corridor with motorists experiencing heavy congestion and unreliable journey times. The project is needed to provide additional capacity along the M5 Motorway corridor, and would allow for a more robust and reliable transport network.

### 1.3 Project location

The project would be located within the Canterbury, Hurstville, Rockdale, Marrickville, Sydney and Botany Bay local government areas. The project corridor is located from about five to twenty kilometres to the south and south-west of the central business district of Sydney. The project would traverse the suburbs of Beverly Hills, Kingsgrove, Bexley North, Earlwood, Bardwell Park, Bardwell Valley, Arncliffe, Wolli Creek, Tempe, Sydenham, St Peters, Alexandria and Mascot.

### 1.4 Secretary's Environmental Assessment Requirements

In preparing the Technical Working Paper: Landscape and Visual Impact Assessment, the Secretary's environmental assessment requirements (SEARs) issued for the New M5 project on 5 March 2015, and reissued on 26 August 2015 have been addressed. The key matters raised by the Secretary for consideration in the Technical Working Paper: Landscape and Visual Impact Assessment and where this report addresses the SEARs are outlined in **Table 1-1**.

**Table 1-1 Secretary's Environmental Assessment Requirements - urban design, landscape character and visual amenity**

| Secretary's Environmental Assessment Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Where Addressed                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| A consideration of the urban design and visual amenity implications of the proposal, including supporting infrastructure, during construction and operation. The assessment must identify urban design and landscaping objectives to enhance the ventilation stacks, interchanges, tunnels, 'cut and cover' arrangements, consider resulting residual land and treatments and demonstrate how the proposed hard and soft urban design elements of the proposal would be consistent with the existing and desired future character of the area traversed by the proposal. | <b>Chapters 5 and 6</b><br><br>Urban Design Report (Appendix L) |
| Identification of opportunities to utilise surplus or residual land, and utilise key structures (such as stacks) for multiple uses i.e. integration with other structures.                                                                                                                                                                                                                                                                                                                                                                                               | Urban Design Report                                             |

| Secretary's Environmental Assessment Requirements                                                                                                                                                                                                | Where Addressed                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Evaluation of the visual impacts and urban design aspects of the proposal (and its components) on surrounding areas, and consistency with the urban and landscape design of the M5 East Motorway and WestConnex Motorway Urban Design Framework. | Chapter 6<br><br>Urban Design Report (Appendix L) |
| Consideration of impacts on views and vistas, streetscapes, key sites and buildings, and direct amenity impacts (such as proximity and overshadowing).                                                                                           | Chapter 6                                         |
| Details of urban design and landscape mitigation measures, having regard to the urban design and landscape objectives for the proposal.                                                                                                          | Chapter 6                                         |
| Measures to manage lighting impacts both during construction and operation, in particular lighting of the St Peters Interchange and impacts on the operation of Sydney Airport.                                                                  | Chapter 6                                         |
| Artists' impressions and perspective visualisations of the proposal from a variety of locations along and adjacent to the route.                                                                                                                 | Chapter 6                                         |

In addition to the guidelines identified in the SEARs, the following guidelines were considered in this assessment:

- WestConnex Motorway *Urban Design Framework*, Roads and Maritime Centre for Urban Design and the WestConnex Delivery Authority, Final Draft September 2013.
- Beyond the Pavement; *Urban Design Policy, Procedures and Design Principles*, Roads and Maritime updated February 2014.
- Bridge Aesthetics; *Design Guideline to Improve the Appearance of Bridges in NSW*, Roads and Maritime July 2012.
- *Noise Wall Design Guideline; Design Guidelines to Improve the Appearance of Noise Walls in NSW*, Roads and Maritime February 2007.
- *Landscape Guideline; Landscape Design and Maintenance Guidelines to Improve the Quality, Safety and Cost Effectiveness of Road Corridor Planting and Seeding*, Roads and Maritime February 2007

## 1.5 Study area

A study area for the purposes of this assessment is defined by the at surface construction footprint of the project with a buffer of 500 metres. Due to the landform, tree cover, built form and street layout, this area is considered a reasonable boundary within which the project could visually influence the landscape through which the corridor runs. Further, as the construction footprint would be greater than the operational footprint in most instances, this is considered to be the worst case scenario for disturbance.

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## 2.0 Urban and Landscape Design

This section provides a brief summary of the urban design and landscape proposal for the project. For further detailed information, refer to the New M5 Urban Design Report (Appendix L of the EIS).

The urban and landscape design of the project is concentrated on the following locations:

- 1) Western surface works and the Kingsgrove motorway operations complex
- 2) Bexley Road South motorway operations complex
- 3) Arncliffe motorway operations complex
- 4) St Peters interchange and surrounds, including the motorway operations complexes.

At the locations, the design of the built form and landscaping aims to minimise intrusion on existing communities, while providing benefits such as improved active transport infrastructure and creation of open space. In addition to the surface interventions, the urban design of the tunnels has been considered in the context of the journey experience. An overarching art and lighting strategy marries the surface works and tunnel experience (refer the New M5 Urban Design Report for details).

With respect to ventilation facilities at Kingsgrove, Arncliffe and St Peters motorway operation complexes, a detailed review and finalisation of architectural treatment of the ventilation facilities would be undertaken during detailed design. This would be guided by the ventilation performance requirements and the following design principles, as well as outcomes of community consultation:

- Reflective of site and context
- Integration with landscape
- Sculptural urban scale objects – urban landmarks
- Forms informed by function
- Identifiable by their materiality
- Appropriate use of materials.

Further detail in these principles can be found in the New M5 Urban Design Report. For the purposes of this assessment, an envelope design has been considered with a preliminary architectural treatment concept.

The landscape design for the project incorporates the fundamental objectives of landscape design outlined in the Roads and Maritime's guideline *Beyond the Pavement*:

- Safe – All required clear zone and safe sight distance setbacks to avoid the creation of hidden public places whilst maximising passive surveillance opportunities.
- Integration with local setting – The design maintains and enhances existing landscape character and vegetation patterns.
- Ecologically sound – The design uses local species from existing and adjoining plant communities and assists in protecting and recovering local biodiversity.
- Add character and value – The design responds to and draws upon the existing landscape patterns of the area
- Low maintenance and cost effective – The design utilises existing site soils and local robust and durable plant species in a bold and simple way without unnecessary fussiness. Revegetation across the project would be achieved through direct planting of containerised plant stock into prepared planting areas. This would facilitate rapid establishment of new landscape installations.

Where buildings such as ventilation and workshop facilities are located, the landscape intent is to screen as much of the built form as possible.

A preliminary species list for the western reaches of the corridor is provided in the appendices to the Urban Design Report. The species have been chosen based on surrounding endemic vegetation. During detailed design further consultation would be undertaken with councils and the King Georges Road Interchange Upgrade project to ensure seamless integration of all new planting for New M5.

## 2.1 Western surface works and the Kingsgrove motorway operations complex

The western connection of the New M5 occurs between King Georges Road and Bexley Road within the existing M5 East Motorway corridor adjacent to Canterbury Golf Course and Beverly Grove Park. Beverly Grove Park forms part of the larger M5 Linear Park which runs parallel to the M5 East Motorway corridor.

The motorway operations complex is located on the southern side of a realigned westbound bypass ramp adjacent to Wolli Creek. The site is currently part of the M5 Linear Park and consists of an open turfed area with a shared path adjacent to existing industrial businesses. Access to these facilities would be provided via a new service road.

Within the western surface works, the portals have been designed to fit within the widened M5 East Motorway corridor, connect with the King Georges Road interchange and present as a new, sleek and refined element.

The landscaping of the site is shown in **Figure 2-2** and **Figure 2-3**. A photomontage of the western portals is provided in **Figure 2-1**.



Figure 2-1 Photomontage of western portal with the Kingsgrove motorway operations complex



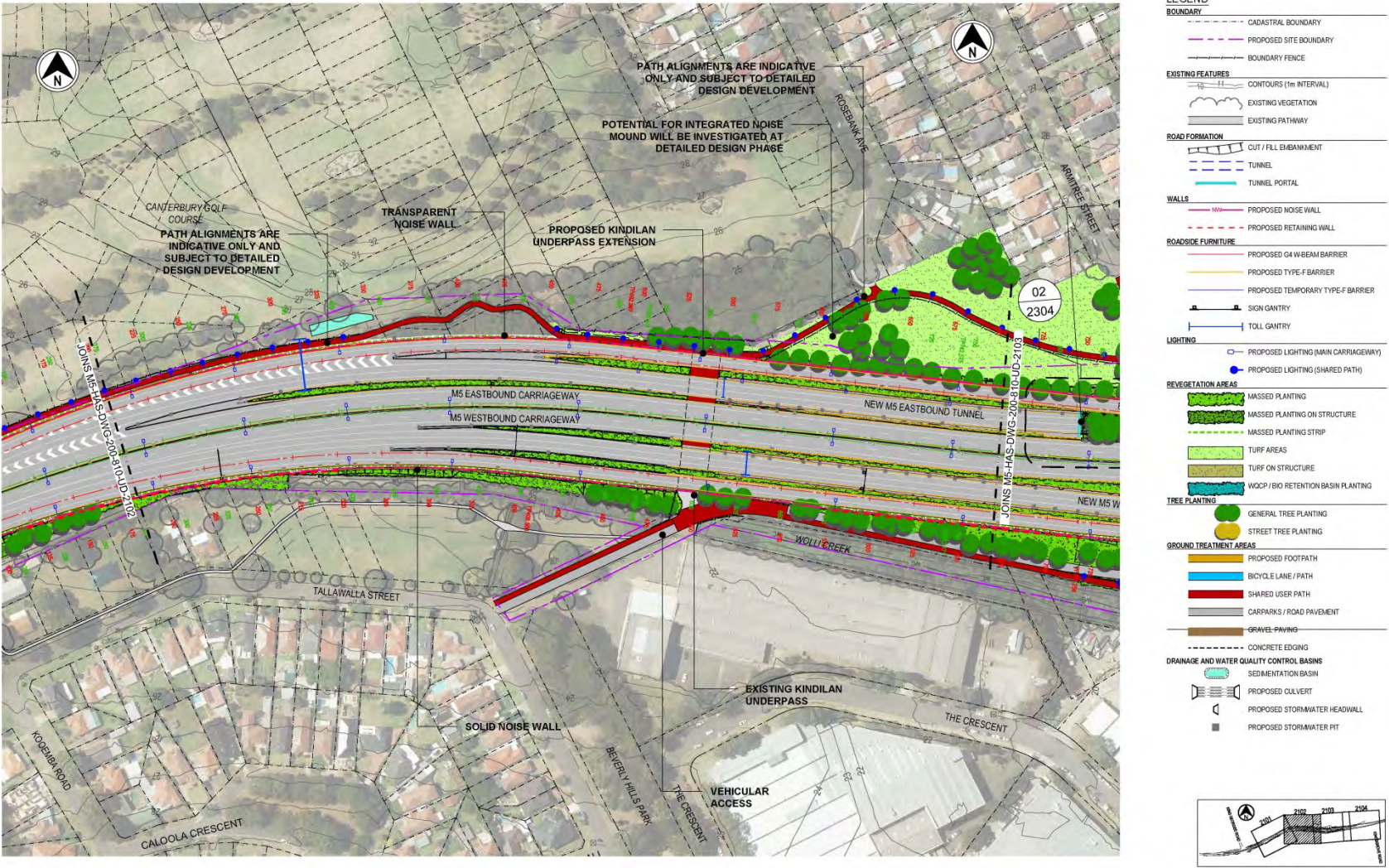


Figure 2-2 Concept design and planting plan for the western portion of the western surface works.

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Figure 2-3 Concept design and planting plan for the eastern portion of the Kingsgrove motorway operations complex.

## 2.2 Bexley Road South motorway operations complex

An air intake, emergency smoke extraction facility and distribution substation is located south of the existing M5 East Motorway on Bexley Road. This facility would supply fresh air to the tunnel and in emergencies be utilised for smoke extraction.

The air intake and emergency smoke extraction facility is located within the centre of an existing turfed road reservation (part of the M5 Linear Park) adjacent to Bexley Road, with vertical fans located below ground. A distribution substation is located to the east of the facility. Vehicle access is provided from Bexley Road (left turn in, left turn out). The design intent is consistent with the overall design intent for the project.

The distribution substation would be clad in dark face brick. This material forms a contemporary interpretation of the surrounding red brick residences. Glazing to the northern and western façade of the distribution substation together with its relatively low scale aims to give the building a residential character. The emergency smoke extraction facility is constructed of precast concrete panel walls in recognition of its utilitarian nature. This is a similar approach to the existing M5 East Motorway operations buildings located on the eastern side of Bexley Road where the building is clad in rendered blockwork above sandstone footings with the more utilitarian buildings behind constructed of raw concrete block work.

Refer **Figure 2-4** for the landscaping concept for this site.

## 2.3 Arncliffe motorway operations complex

The facility at Arncliffe is located adjacent Kogarah Golf Course adjacent to Marsh Street and includes the following:

- Air intake station
- Ventilation facility
- Distribution substation
- Water treatment plant
- Water treatment wetland.

The Arncliffe motorway operations complex layout has had consideration to providing a setback to the ponds that provide breeding habitat to the Green and Golden Bell Frog (referred to as the RTA ponds). Landscape areas would be restored with new areas of turf and tree planting to screen the motorway operations complex and to match in with the existing open space character of the site.

A ventilation facility is located adjacent to Marsh Street and includes four ventilation outlets. A distribution substation is located to the south of the facility. A water treatment plant and wetland is also provided to the east of the site.

The landscaping proposes to screen built form along the northern and western facades. The architectural treatment of the ventilation facility would be confirmed during detailed design. The associated buildings would read as part of the overall New M5 family.

The distribution substation and water treatment plant are clad in dark face brick on structural concrete block work. Openings providing service access to the plant rooms are grouped in a similar manner to the other distribution substations with common recesses exposing bands of the structure – a smooth-faced concrete block. Access doors within the block work are painted a light grey to match. The ventilation facility is clad in precast concrete panels on the east and west facades and corten metal cladding on the northern and southern facades. Refer **Figure 2-5** for concept and planting design.





Figure 2-4 Concept design and planting plan for the Bexley Road South motorway operations complex

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Figure 2-5 Concept design and planting plan for motorway operations complex at Arncliffe (MOC3).

## 2.4 St Peters interchange and surrounds

The St Peters interchange is located within the Alexandria Landfill site, connecting with the local road network at the intersection of Campbell and Euston Roads. The site is bound by Canal Road in the west, Burrows Road in the south, Princes Highway in the north and Campbell Road in the east. The St Peters interchange is a key connection in the overall WestConnex journey. With the New M5 tunnel entry/exit point at the southern reaches of the St Peters interchange connections would be made to the surrounding local road network as well as the future WestConnex M4-M5 Link and the future Sydney Gateway. These two proposed links would provide regional connections to Sydney Airport and Port Botany as well as the remainder of Sydney's orbital road network. The design of the St Peters interchange as well as artist's impressions of the interchange and local road upgrades is provided in **Figure 2-6**, **Figure 2-7** and **Figure 2-8**.

The design aims to achieve a lasting and cohesive urban design strategy for the overall Interchange that would unify and shape the different stages of the project, including the New M5, and the future Sydney Gateway and the future M4-M5 Link.

The St Peters interchange consists of the motorway control complex, ventilation facility, distribution substation, fire pump rooms and deluge tanks and the interchange road network. The ventilation facility and associated service buildings are located above the tunnel portals, at the corner of Canal Road and Princes Highway (the St Peters motorway operations complex). The ventilation outlets are located directly over the exit ramp cut and cover structure along with an electrical distribution facility, fire pump rooms and deluge tanks. Access to these facilities is provided from Canal Road. The Motorway Control Centre is located at the corner of Burrows Road and Campbell Road at the Burrows Road motorway operations complex (refer **Figure 2-6**).

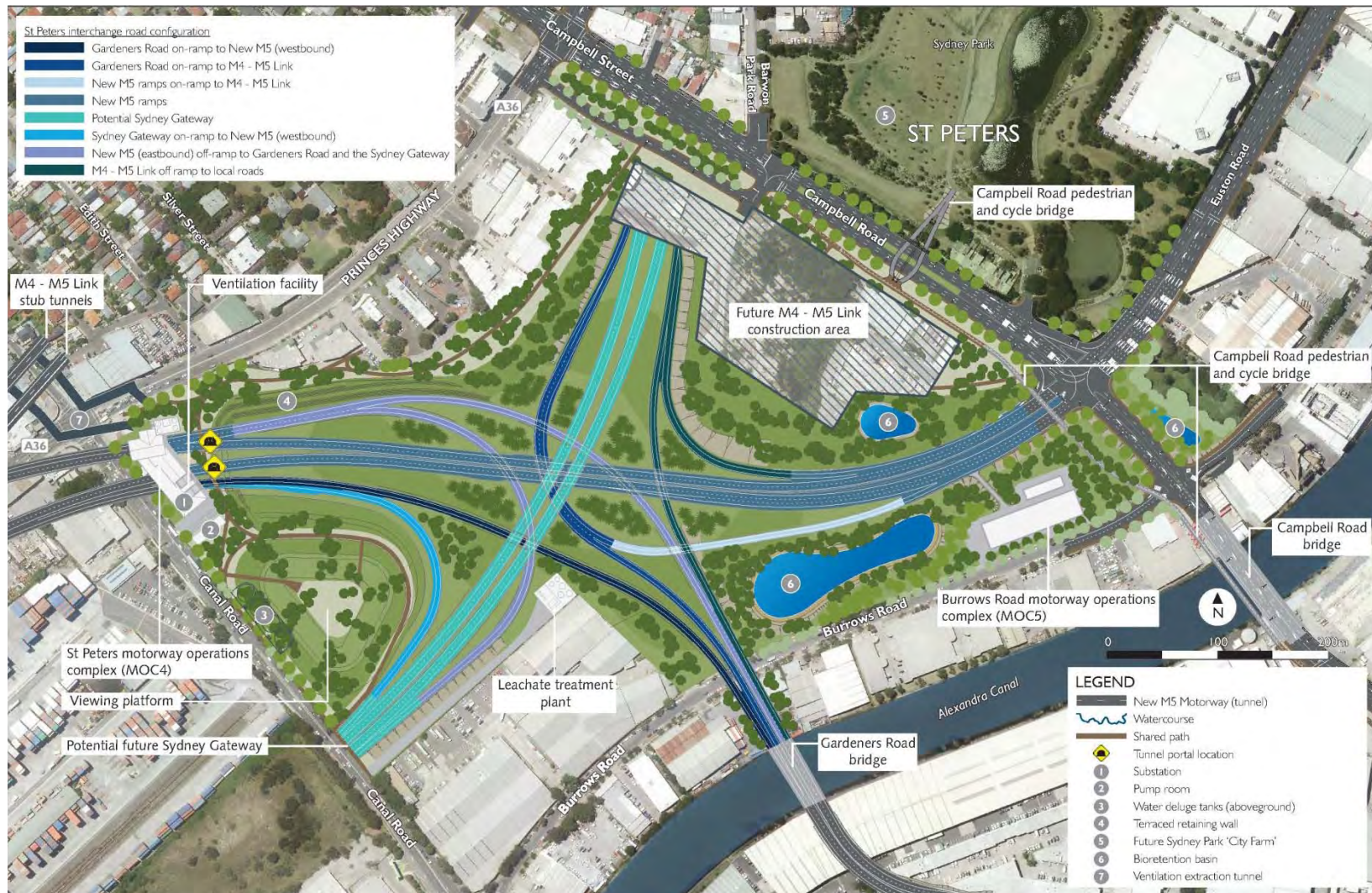
In developing the design, a strategy has been proposed for the overall interchange, focusing on the following objectives:

- Close the Alexandria Landfill
- Return surplus lands to the community as public open space.
- Provide an extensive green volume of vegetation to compete with and soften the scale of the proposed multi-level interchange, creating an 'urban forest'
- Promote the use of a tall, established tree canopy cover to not only soften the scale of the proposed infrastructure, but also provide a counterpoint and extension of the green open space of Sydney Park
- A ventilation facility and Motorway Control Centre designed to enhance the existing street character whilst treated as a cohesive set of architectural buildings.

The design allows for future stages of the interchange to adopt similar approaches to materials and detailing to achieve overall project cohesion and an integrated 'whole of project outcome'. The landscape approach in this zone is essentially to create 'green volume' and remediate the former landfill site by creating an 'urban forest', capable of competing with the scale of the proposed interchange.

Large areas of new tree planting would be incorporated on both sides of the New M5 ramps and above the portals to present a continuous green canopy and create a sense of green immersion for the motorist upon entry or exit from the tunnel. Landscape treatments surrounding the St Peters motorway operations complex would focus on creating a defined street edge with street tree planting, and feature fig tree plantings to offer increased 'green volume' and help define a sense of landscape character for the site. These figs would also provide valuable shade for park users.





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Figure 2-7 Artist's impression of St Peters interchange , view towards the New M5 portals and the St Peters motorway operations complex



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Figure 2-8 Photomontage of local road upgrades and Campbell Road bridge crossing at St Peters, at ultimate completion (including the future M4-M5 Link)

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### 3.0 Methodology

The urban design, landscape character and visual amenity impact assessment has been undertaken in accordance with the *Roads and Maritime Services Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment* (Reference number EIA-N04, 2013). This method is widely accepted by NSW government authorities and is relevant to this project in that it addresses changes to corridor infrastructure within the urban setting.

In accordance with these guidelines, the following assessments have been carried out:

- Construction
- Visual impact assessment of construction compounds and tie-in works
- Assessment of changes to pedestrian, cyclist and vehicular traffic movements to surrounding areas
- Assessment of night lighting impacts
- Operation
- Operational landscape character impacts
- Future character / context assessment
- Operational visual impacts
- Assessment of night lighting impacts.

Due the nature of the project as a series of intermittent surface works areas connected by a tunnel, the project has been split into four areas in order to analyse the surrounding environment and operational visual impact for each area, these being:

- 1) Western surface works
- 2) Bexley Road surface works
- 3) Arncliffe surface works
- 4) St Peters interchange and surrounds.

Tolling infrastructure along M5 East Motorway has been assessed in addition to these surface works areas.

#### 3.1 Project description

A full description of the project is provided in Chapter 5 and Chapter 6 of the environmental impact statement (AECOM, 2015) and The New M5 Urban Design (refer **Appendix L**) (WDA, 2015). This report describes elements of the project relevant to understanding the essential aspects of the project that would potentially give rise to its effects on the landscape and visual amenity.

#### 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 land use, and site inspections.

For each of these areas, the following elements are discussed:

- Topography and visibility
- Infrastructure environment
- Key heritage sites
- Landscape Character Zones.



### 3.2.1 Definition of Landscape Character Zones

Existing Landscape Character Zones (LCZs) are identified as sharing broadly homogenous characteristics or spatial qualities. These may include:

- Planning designations
- Topographical qualities
- Natural drainage qualities
- Ecological characteristics / land cover
- Parks and open space
- Cultural and recreational characteristics
- Architecture
- Spatial qualities
- Infrastructure.

As much of the project would comprise of tunnelled motorway, the landscape character zones were focussed around areas of proposed surface works, including western surface works, Bexley Road surface works, Arncliffe surface works and St Peters interchange and surrounds. The landscape character zones that were identified across the project area include:

- 1) Landscape Character Zone 1: Residential
  - a) High Density Residential
  - b) Low Density Residential
- 2) Landscape Character Zone 2: Industrial
- 3) Landscape Character Zone 3: Recreation
  - a) Open space
  - b) Waterways
- 4) Landscape Character Zone 4: Transport Corridor
  - a) Transport
  - b) Infrastructure
- 5) Landscape Character Zone 5: Urban Centre
- 6) Landscape Character Zone 6: Commercial Corridor

The landscape character zones identified above were defined as areas of landscape with similar properties or strongly defined spatial qualities and visually distinct from adjoining areas.

### 3.3 Assessment of landscape character and visual impact

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.

The visual impact assessment evaluates the impact of the construction and operation of the project on receiver 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 steps in the landscape character and visual impact assessment include:

- Analysis of the landscape and visual context, including:
- Assessment of the existing landscape character and visual environment, which included
  - Definition of LCZs
  - Identification of visibility and potential views to the project during construction and operation
  - Summary of the policy and planning setting, specifically in regard to future character and context
- Identification of urban design and landscape objectives
- Assessment of impacts during construction and operation
- 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 **Section 3.3.1** and **Table 3-1**).

Visual and landscape character impact assesses the change from existing. This methodology does not assess the quality of the change (ie if the change is an adverse, neutral or positive change within the existing setting) within each impact rating. This is addressed within the descriptive text within each chapter supporting the assessment for each area.

To assist in the assessment of potential visual impacts, photographs, panoramas and / or artists impressions have been used (refer **Section 3.3.2**).

#### 3.3.1 Sensitivity and magnitude

An Impact Grading Matrix (refer **Table 3-1**) is used to assess both landscape and visual impact, and examines sensitivity and magnitude to give a combined impact rating of between negligible and high.

##### 3.3.1.1 Sensitivity

The sensitivity of the landscape is assessed based upon the extent to which it can accept change of a particular type and scale without adverse impacts upon its character. Sensitivity varies according to the type of development and nature of the landscape, including:

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

The sensitivity of visual receptors and views would also be dependent on:

- The location and context of the viewpoint
- The expectations and activity of the receptor
- The number of receptors
- The importance of the view

- The most sensitive receptors may include:
  - Users participating in outdoor recreational pursuits
  - Communities where the development results in changes in the landscape setting or valued views enjoyed by the community
  - Occupiers of residences with views affected by the project.

### 3.3.1.2 Magnitude

The magnitude of change affecting a landscape or visual receptor depends on factors such as the nature, scale and duration of the particular change that is expected to occur. In the landscape, the magnitude of change would depend on factors such as the extent of loss, change or addition of a feature, or changes in the backdrop, or outlook from a landscape that affects its character. The impact on a view would depend on factors such as the extent of visibility, degree of obstruction of existing features, degree of contrast with the existing view, angle of view, duration of view and distance from the project.

Table 3-1 Landscape Character and Visual Impact Grading Matrix

|             |      | MAGNITUDE       |                 |                |                   |
|-------------|------|-----------------|-----------------|----------------|-------------------|
|             |      | High change     | Moderate change | Low change     | Negligible change |
| SENSITIVITY | High | High            | High – moderate | Moderate       | Negligible        |
|             | Mod  | High – moderate | Moderate        | Moderate – low | Negligible        |
|             | Low  | Moderate        | Moderate – low  | Low            | Negligible        |
|             | Neg  | Negligible      | Negligible      | Negligible     | Negligible        |

(Source: Roads and Maritime Services Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment)

### 3.3.2 Visual envelope mapping

The likely visibility of the proposed elements of the project at operation from surrounding areas has been broadly mapped, to define a visual envelope. This provides an indication of which parts of the project are likely to be viewed from surrounding development. The mapping typically shows 'worst case', ie. some receivers may only see the tip of a ventilation facility, where as other closer receivers may view a substantial part of the infrastructure element.

### 3.3.3 Photos and panoramas

A photograph (or series of photographs, stitched together to produce a panorama) of the project from each Receiver Location has been used to assist in the analysis process.

These photos were taken at the widest focal length available on the camera (18 millimetre focal length), as many of the views of the project area were seen at close proximity rather than at any distance. A wider angled image was therefore chosen to be able to capture as much of the landscape as possible and more accurately convey the scene experienced by the observer.

### 3.3.4 Assessment of night lighting impacts

The assessment of the impacts of night lighting considers the change from the existing condition during both construction and at operation. Neighbouring properties (residential, commercial and industrial), users of recreational space and motorists are considered to be the key receptors and are separately assessed. The following assumptions are made with regard to the assessment process:

The assessment is 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 phase and at operation.

There is no assessment of existing or proposed luminescence levels.

During construction, it is assumed that:

- Site establishment works and construction would likely commence in mid 2016 with expected opening to traffic in late 2019
- Construction activities would generally take place from 7am to 6pm, Monday to Friday and 8am to 1pm Saturday, with no work on Sunday or public holidays. However, certain activities including tunnelling and hauling of spoil would take place outside standard construction hours
- No detailed information regarding night lighting within construction compounds is available at this stage of the assessment, however vehicle movement into and out of the compounds has been used to make assumptions about night lighting, ie. where vehicle movement at compound entries is within regular work hours, minimal lighting for safety purposes is assumed within that compound at night, where access is maintained 24 hours a day, lighting adequate for safe construction activity is assumed
- Construction vehicles entering and leaving the sites has been discussed in the assessment
- Light levels would be sufficient to meet occupational health and safety levels, and security levels.

Operational lighting is assumed to be:

- In operation seven days a week
- At levels sufficient to meet occupational health and safety levels, security levels, and where applicable, the requirements for managing conflicts with Sydney Airport operations.



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## 4.0 Existing environment

### 4.1 Introduction

The project spans from the M5 East Motorway at Beverly Hills eastwards to Arncliffe, then north-east to St Peters and Alexandria, and comprises a series of contained surface works areas connected by two (east and west bound) tunnels (refer **Figure 4-1**). For the purposes of this report and as described in Chapter 2.0, the project has been divided into four areas for analysis and assessment:

- 1) Western surface works, which includes:
  - The Kingsgrove motorway operations complex (MOC1)
  - The western portals for the New M5
  - The realignment of the M5 East Motorway, including road infrastructure such as tolling gantries
- 2) Bexley Road surface works, which includes the Bexley Road South motorway operations complex (MOC 2)
- 3) Arncliffe surface works, which includes the Arncliffe motorway operations complex (MOC 3)
- 4) St Peters Interchange and surrounds, which includes:
  - St Peters motorway operations complex (MOC4)
  - Burrows Road motorway operations complex (MOC5)
  - The eastern portals and associated new road sections
  - Pedestrian / cycle bridges along and over Campbell Road
  - Provision for the connection to the future M4-M5 Link and future Sydney Gateway
  - Local road upgrades, including two new bridges over the Alexandra Canal.

The Kingsgrove Road surface works, located at Kingsgrove Road, is associated with the construction of tolling infrastructure only within the existing motorway corridor. This has been assessed in **Section 6.4.6**.

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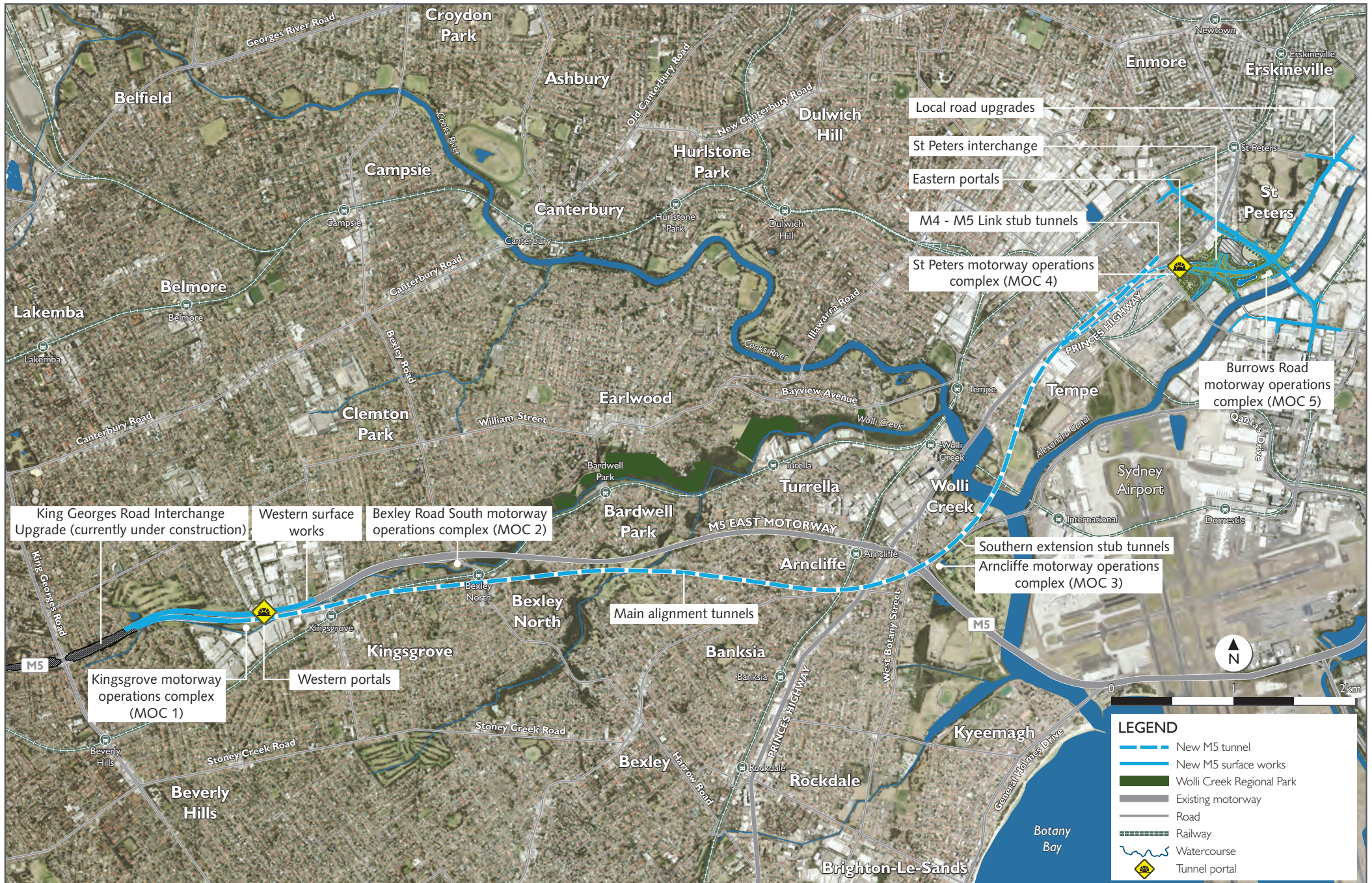


Figure 4-1 The project



## 4.2 Western surface works

The western surface works area follows the M5 East Motorway road corridor between King Georges Road and Karigal Street. The western surface works project area comprises primarily the M5 East Motorway road corridor and includes areas of public recreation space adjoining the M5 East Motorway (refer **Figure 4-2**). Some of the public recreational spaces that are not required for the project would be returned to open space following construction.

Works would occur further west of Cooloongatta Road, however, these would occur within the existing motorway corridor and would be limited to pavement and line marking works with the exception of tolling infrastructure. Tolling infrastructure has been considered in **Section 6.4.6**. However, as this project would not change the visual appearance of the M5 East Motorway (noting that areas west of Cooloongatta Road would be impacted by King Georges Road Interchange Upgrade, with this area this area of disturbance associated with pavement and line marking has not been considered further.

### 4.2.1 Topography and visibility

The western surface works lies within the Wolli Creek valley adjacent to Wolli Creek, gently rising in elevation from east to west (refer **Figure 4-3**). A ridge line runs broadly parallel to the western surface works between 500 metres and one kilometre north of the M5 East Motorway, and between one and two kilometres south of the M5 East Motorway. A valley floor around 300 metres wide lies directly south of the southern boundary of the western surface works to the railway line, where the land then rises gently south towards the southern ridge line. At the western end of the site, the ridge line passes around 300 metres west of the site, beyond King Georges Road.

Around half of the western surface works (west of the Kindilan underpass) lies on the valley floor. East of the Kindilan underpass, the M5 East Motorway is bounded by a vegetated mound to the north and to the south. These mounds visually buffer the M5 East Motorway from the surrounding landscape. The northern mound separates Beverly Grove Park North and the residential development to the north from the M5 East Motorway (refer **Figure 4-4**). The southern mound defines the edge of Beverly Grove Park South, which lies between Wolli Creek and the M5 East Motorway (refer **Figure 4-5**), and provides separation between the M5 East Motorway and the industrial estate and residential land beyond to the South (refer **Figure 4-6**).

Despite its the elevation in places, views to and from the western surface works site are limited due to the prevalence of mature tree cover in the surrounding landscape (refer **Figure 4-6**), gentle, even rise of the landform between valley and ridge line (refer **Figure 4-7**), and tall industrial development in the valley floor to the south of the M5 East Motorway, east of the Kindilan Underpass (refer **Figure 4-8**).





Figure 4-2 Landscape character zones - Western surface works



#### 4.2.2 Context

The western surface works broadly ties in with the existing M5 East Motorway and is surrounded by a mix of residential and light industrial development. The central portion of the site is bounded by Canterbury Golf Course to the north, which is buffered from the M5 East Motorway by a strip of Cooks River / Castlereagh Ironbark Forest (also known as Beverly Grove bushland).

The M5 East Motorway is flanked on both sides by the M5 Linear Park, which provides a shared pedestrian and cycle path linking pockets of recreational open space of varying sizes. Wolli Creek runs roughly parallel to the M5 Linear Park, comprising a fenced concrete channel with occasional pockets of in-channel vegetation (either reed beds or weedy tree species).

The residential development surrounding the site is zoned Medium Density to the north and Low Density (refer **Figure 4-9**) to the south of the M5 East Motorway corridor, although within the study area all of this residential development appears to comprised generally of single and double storey homes in a mix of architectural styles, on individual lots (refer **Figure 4-10**).

The suburbs surrounding the western surface works generally contain well established landscapes (gardens and parks) and mature street trees. The mature tree cover in the residential and light industrial areas softens the built hardscape (refer **Figure 4-11**), and provides amenity to the M5 Linear Park pedestrian and cycle path (refer **Figure 4-12**).

The Airport, Inner West and South railway line runs south of the M5 East Motorway, lying around 150 metres from the eastern most corner of the western surface works, moving further from the site as the corridor travels west, lying around 700 metres from the western most tip of the western surface works boundary. A local mixed use urban centre is located at Kingsgrove Railway Station, around 300 metres from the south-eastern corner of the western surface works boundary. Views between this area and the western surface works are screened by vegetation and built form (particularly the industrial buildings to the south of the western surface works site boundary).



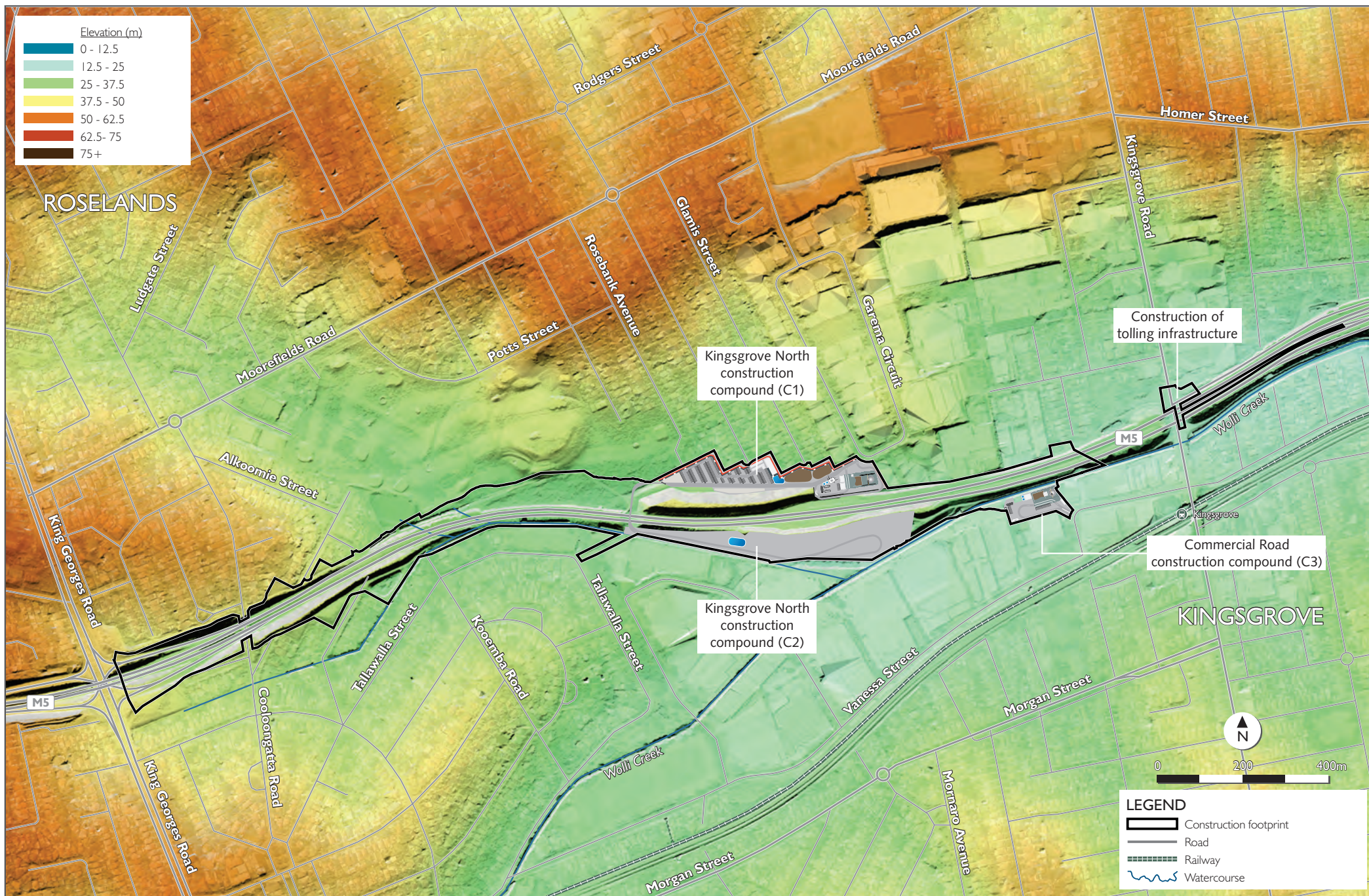


Figure 4-3 Topography of the surrounding environment - Western surface works



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Figure 4-4 A large vegetated mound separates Beverly Grove Park North and residential development from the M5 East Motorway.



Figure 4-5 Noise mound compartmentalising the M5 East Motorway (left of frame) from Beverly Grove Park South and the surrounding area, flanked by the M5 Linear Park pedestrian and cycle path, Wolli Creek channel and industrial development beyond (right of frame).



**Figure 4-6** View south from Beverly Grove Park South, showing glimpse views through industrial complexes to residential development and ridge line beyond.



**Figure 4-7** View south along Armitree Street towards the western surface works at the end of the street, showing the gentle rise from the valley floor to the ridge, and the screening nature of mature street trees and landscape vegetation.





**Figure 4-8** View south from Beverly Grove Park South to industrial development beyond, east of the Kindilan Underpass. Note how the industrial buildings screen the elevated Beverly Grove Park South from the surrounding landscape.



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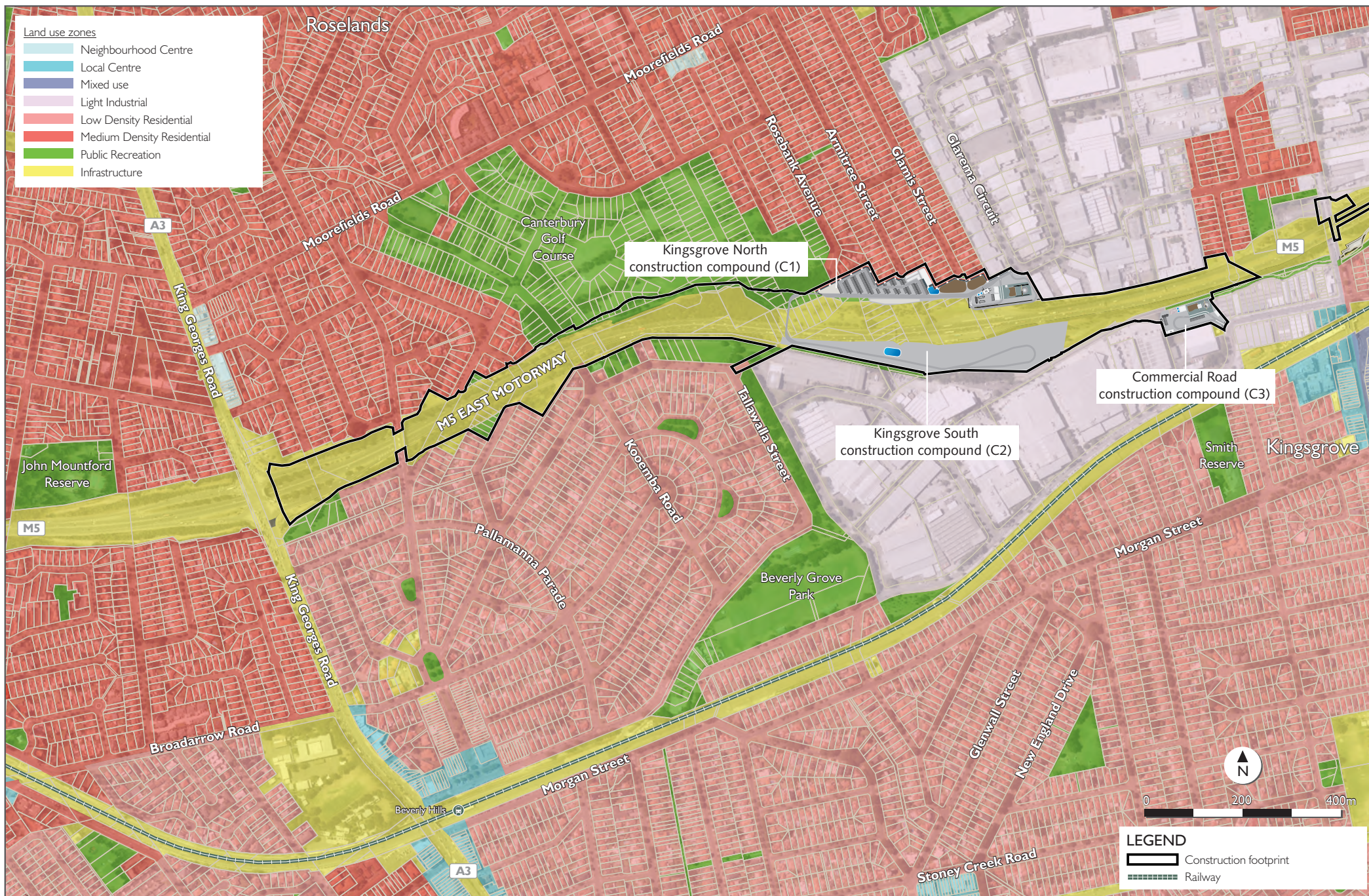






Figure 4-10 Typical streetscape of low density housing, Pallamana Parade Urban Conservation Area, Beverly Hills



Figure 4-11 Mature street trees provide a softening of developed areas, including light industrial areas



**Figure 4-12** Landscaping including mature trees provide a pleasant environment for the M5 Linear Park pedestrian and cycle path (photo taken from Tallawalla Reserve)

#### **4.2.3 Heritage sites**

Although heritage items may not be directly affected by the project, they may be indirectly impacted through physical and visual encroachment into curtilage areas, and changes to the heritage context of the landscape.

Heritage items and heritage conservation areas in and around the project corridor include:

- Welfare Avenue Urban Conservation Area, listed on the Register for the National Estate (a non-statutory register)
- Pallamana Parade Urban Conservation Area, listed on the Register of the National Estate (a non-statutory register), located in Beverly Hills:
  - Built-up in the 1930s and in the immediate post-World War II period and consists of shrub-lined streets radiating from Yarralah Place (around which are located the community buildings of churches and a school).
  - The Canterbury section of the precinct possibly pre-dates the Hurstville section as there are some 1920s bungalows but the majority of the houses are contemporary with those in the Hurstville section. There are some vacant blocks in the path of the proposed extension of the M5 East Motorway from Liverpool.
  - The gardens are generally well-landscaped and treed.
  - There are a small number of unsympathetic intrusions into this area but it is still remarkably intact.
- Kingsgrove Railway Station Group (local heritage significance) located at corner of Kingsgrove Road and Commercial Road, Kingsgrove.
- Kingsgrove East Urban Conservation Area, listed on the Register of the National Estate (a non-statutory register) (local heritage significance) located in Kingsgrove:
  - Comprising an area of single-storey 1930s bungalows on medium sized lots. Uniform appearance of the area stemming from development within a single period as well as the almost universal use of face brick.
  - The Kingsgrove East Precinct epitomises the area and era in both the excellent, intact nature of its houses, their gardens and street plantings.



- The Kingsgrove West urban conservation area, listed on the Register of the National Estate (a non-statutory register), which lies just west of the Kingsgrove East urban conservation area:
  - The precinct appears to have been built-up in the 1920s and consists of shrub lined streets.
  - The precinct possesses streetscape integrity because it was developed during one period.
  - The area has a uniformity of housing style including colour, form and architectural detail that gives the area a harmonious appearance.
  - The gardens are generally small and sparsely landscaped.
  - There are a small number of unsympathetic intrusions into this area but it is still remarkably intact.

Further information on the heritage items can be found in Technical Working Paper: Non-Aboriginal Heritage (AECOM, 2015). However, the Kingsgrove West urban conservation area extends beyond the assessment study area for non-Aboriginal heritage.

#### **4.2.4 Landscape Character Zones**

Landscape Character Zones (LCZs) were determined primarily by land use, as these were considered to be the strongest defining landscape character elements of the area. Five LCZs have been identified surrounding the western surface works area (refer **Figure 4-2**), comprising:

- 1) LCZ 1: Residential
- 2) LCZ 2: Industrial
- 3) LCZ 3: Recreational
- 4) LCZ 4: Transport corridor
- 5) LCZ 5: Urban centre.

Although these LCZs may extend beyond the study area boundary, the character of these zones was analysed and assessed within this boundary only, for the purposes of this report.

A further defining element of landscape character is topography (refer **Figure 4-3**), with the M5 East Motorway following the Bardwell and Wolli Creek Valleys, located along the valley floor.

##### **4.2.4.1 Landscape Character Zone 1: Residential**

The Residential LCZ flanks the western surface works along the north-western, south-western and central-northern boundaries of the site. The topography varies within this LCZ from flat to gently sloping towards the western surface works from the north and south (refer **Figure 4-3** and **Figure 4-13**).

This LCZ is made up of both Low and Medium Density zoned land, comprising predominantly single and double storey houses on individual lots with mature landscaping and street trees. Three non-statutory heritage conservation areas lie within the residential land in the study area: Kingsgrove East Urban Conservation Area, Kingsgrove West Urban Conservation Area, and the Pallamana Parade Urban Conservation Area. All three are well preserved examples of 1930s low density housing development.

This LCZ is characterised by generally wide, quiet streets periodically traversed by transport corridors (eg King Georges Road, the Airport, Inner West and South railway line, and the M5 East Motorway). Houses are set back from the roadways by mature, landscaped front gardens.

Where the boundaries of this LCZ flank the M5 East Motorway corridor, the residential housing is generally buffered by a strip of recreational land. At its narrowest, this buffer comprises the pavement of the M5 Linear Park pedestrian and cycle path (refer **Figure 4-14**). In other places, wide tracts of recreational land (LCZ 3) lie between the residential boundaries and the M5 East Motorway (refer **Figure 4-15**).



Figure 4-13 The topography of the Residential LCZ ranges from flat to gently sloping towards the western surface works



Figure 4-14 Residential boundary abutting LCZ 4: Infrastructure (the M5 East Motorway noise barriers) with the M5 Linear Park pedestrian and cycle path in between (the narrowest distance between LCZ1 and LCZ 4)



Figure 4-15 LCZ1: Residential boundary (left of frame) meeting LCZ 3: Recreational, with LCZ 4: Transport Corridor to right of frame (top of vegetated noise mound)

#### 4.2.4.2 Landscape Character Zone 2: Industrial

Two pockets of Industrial development lie within the study area, one to the north of the M5 East Motorway along the north-eastern boundary of the western surface works, the other to the south of the M5 East Motorway, along the south-eastern boundary of the western surface works.

The northern industrial development pocket comprises an older mix of light industrial buildings, each addressing streets lined with mature street trees (refer **Figure 4-16**). The topography of the area gently slopes towards the project. Views within the area are predominantly funnelled along the streets, due to the scale of the industrial buildings and mature vegetation. This industrial area abuts residential neighbours to the west and east, Clemton Park to the north and the M5 East Motorway to the south.

The light industrial area to the south of the M5 East Motorway contains a mix of the older style, low rise industrial buildings with mature street trees similar to those seen on Garema Circuit, in addition to more recent, larger scale industrial complexes (refer **Figure 4-17** and **Figure 4-18**). The light industrial area to the south of the M5 East Motorway lies between the M5 Linear Park and the Airport, Inner West and South railway line, on the valley floor (refer **Figure 4-3**). It is buffered from residential development by the rail corridor to the south, Kingsgrove Road to the east, the M5 Linear Park to the north and by the continuation of Beverly Grove Park south to the west.





Figure 4-16 Mature street trees and some landscaping buffer industrial buildings along Garema Circuit.



Figure 4-17 Large scale industrial complexes on the southern edge of Wolli Creek channel to the south of the M5 East Motorway



**Figure 4-18** Large scale industrial complexes on the southern edge of Wolli Creek channel to the south of the M5 East Motorway

#### 4.2.4.3 Landscape Character Zone 3: Recreational

A number of pockets of recreational land lie within the western surface works study area. They can be broadly divided into four groups:

- Recreational land within the visual catchment of the M5 Linear Park, including:
  - Four small pocket parks and one pocket park with a large stormwater basin to the north and south of the M5 along the pedestrian / cyclist pathway between Cooloongatta Road and Kooemba Road,
  - Tallawalla Reserve, a flat, linear park on Tallawalla Street (south of the M5 East Motorway), which has a children's playground and an informal netball practice area divided by two residential blocks (refer **Figure 4-19**),
  - Beverly Grove Park South, a narrow elevated park lying south of the M5 and north of Wolli Creek at the eastern end of the western surface works site area (refer **Figure 4-20**),
  - Beverly Grove Park North, a large flat parkland lying to the north of the M5, abutting back fences of residences on Rosebank Avenue, Armitree Street and Glamis Street (refer **Figure 4-21**).
- Recreational land outside the M5 Linear Park, including Beverly Hills Park
- Canterbury Golf Course
- Beverly Grove bushland, a pocket of Cooks River / Castlereagh Ironbark Forest, an Endangered Ecological Community.

These parks provide a buffer between the M5 East Motorway and neighbouring developments, as well as providing recreational green space for users. They share similar character (with the exception of the Beverly Grove bushland) in that they are open, turfed spaces, generally with fringing vegetation and scattered shade trees. All are vegetated with mature tree and shrub vegetation (particularly on the noise mounds between the M5 East Motorway and the parks, and on the edges of the Wolli Creek channel), and address the streets to varying degrees. The edges of the two largest of these parks (at the eastern end of the site) predominantly address the unscreened back fences of neighbouring residential or industrial properties (refer **Figure 4-22**).

Considering the observed relatively high utilisation of the M5 Linear Park pedestrian and cycle path, it is assumed that all parks within the M5 Linear Park have a relatively high usage rate by residents of surrounding areas for active and passive recreation activities.



Where this LCZ meets the boundary with the M5 East Motorway (LCZ 4), it is visually delineated by the top of the noise mound between the Motorway and the northern edge of the recreational space. The LCZ is therefore partly characterised by the noise mound batter facing that land, which assists in spatially defining the area.



**Figure 4-19** Eastern end of Tallawalla Reserve, with informal netball facilities and Wolli Creek in the background, screened by trees



**Figure 4-20** Beverly Grove Park South, with the M5 East Motorway screened by the noise mound to right of frame, and Wolli Creek to the south, screened by trees to the left of frame





**Figure 4-21** Beverly Grove Park North, bounded to the north by residential neighbours (right of frame) and to the south by the M5 East Motorway (noise mound to the left of frame)



**Figure 4-22** Residential neighbouring properties backing onto Beverly Grove Park North

#### 4.2.4.4 Landscape Character Zone 4: Transport corridor

Within the study area, this LCZ comprises:

- The M5 East Motorway
  - A linear element that cuts through the landscape, providing an effectively impenetrable visual barrier in between interchanges
  - Visually confined by substantial noise walls, landscaped buffer mounds, and parks associated with the M5 Linear Park
  - Views within the LCZ are predominantly contained within the Motorway by vegetated mounds and noise walls, or retaining walls where the carriageway is lower than the surrounding area. Limited glimpse views are available to the surrounding landscape.

Some views into this LCZ are afforded at interchanges where a road passes over the Motorway.

- The Airport, Inner West and South railway corridor
  - Defined by its use as a utilitarian transport corridor with limited qualities beyond that (eg scenic, environmental etc.)
  - Visually confined by substantial noise walls where the rail line passes at or above the grade of the surrounding landscape, or retaining walls where the rail lines pass below the ground level of the surrounding landscape.
- Major road corridors
  - King Georges Road and Kingsgrove Road
  - While these are large scale transport corridors, the urban design and land use on either side of the roadways help to integrate these elements into the surrounding landscape.

All of these transport corridors are linear elements which cut across the landscape, although as noted, the M5 East Motorway and rail corridors are more visually detached from the surrounding landscape than the major road corridors, which tend to be integrated into their surroundings due to urban design and land use.

#### 4.2.4.5 Landscape Character Zone 5: Urban centre

A minor urban centre lies south-east of Kingsgrove Railway Station, along Kingsgrove Road around 200 metres from the south-eastern corner of the western surface works site boundary. It is a small cluster of commercial development with a few scattered community facilities.

The commercial development lines Kingsgrove Road between the rail corridor south to Edward Street, with limited community facilities (an Anglican and Catholic Church, police station and school) sited behind the commercial strip and in the side streets.

Views to and from this LCZ are limited by landform and built form, with no views available to the western surface works site afforded from public spaces within this LCZ.

### 4.3 Bexley Road surface works

The Bexley Road surface works site comprises three distinct areas (refer **Figure 4-23**):

- Bexley North (location of Bexley North (C4) construction compound) is bounded by the M5 to south, Bexley Road to the east, and the back boundaries of residential homes fronting onto Flatrock Road and Jones Avenue. In its current state, it is a flat piece of vacant land fenced off with chain link fencing (refer **Figure 4-24**)
- Bexley South (location of Bexley South (C5) construction compound and permanent site of the Bexley Road Motorway operations complex is bounded by the M5 East Motorway along its northern boundary and Bexley Road to the east, and is currently recreational land within the M5 Linear Park. It is vegetated by mature and semi mature trees and shrubs, and is bounded by Wolli Creek to the south which is fringed with trees (refer **Figure 4-25**)
- Bexley East (location of Bexley East (C6) construction compound) is bounded by Bexley Road to the west, the back boundaries of residential properties fronting onto Wolli Avenue to the north, and the back boundaries of residential properties fronting onto Johnston Avenue to the north-east. The M5 East filtration plant and motorway operations support is currently undertaken at this site (refer **Figure 4-26**). It is publicly inaccessible.

The three separate sites that make up the Bexley Road surface works site are broadly arranged around the M5 East interchange at Bexley Road. The M5 East Motorway and Bexley Road separates the Bexley North, Bexley South and the Bexley East construction compound sites.

#### 4.3.1 Topography and visibility

The Bexley Road surface works site lies north of Wolli Creek, broadly on the valley floor (refer **Figure 4-27**). The landform rises to the north almost immediately from Wolli Creek to a ridge line approximately 400 metres north of the northern boundary of the site. The M5 East Motorway, adjacent to Wolli Creek to the north, has been built up above the valley floor, before entering a dive structure under Bexley Road.

Although lying on the valley floor with a ridge line wrapping around the northern boundary of the site, the Bexley Road motorway operations complex is compartmentalised by Wolli Creek and large infrastructure elements (namely the M5 East Motorway, Bexley Road, Wolli Creek and the rail corridor to the south), and as such screened by localised elements, including:

- Walls, such as noise walls and screening walls, particularly associated with the M5 East Motorway corridor (refer **Figure 4-28**) which limit views along Bexley Road
- Mature vegetation, including street trees, park trees, and riparian vegetation along Wolli Creek (refer **Figure 4-29**) which particularly limit views from areas south of Wolli Creek northwards to the site and from areas to the east, where the further riparian vegetation associated with Wolli Creek (east of Bexley Road) block views back to the site
- Landform, such as noise mounds and other mounds mitigating level changes between roadways and Wolli Creek (refer **Figure 4-30**).



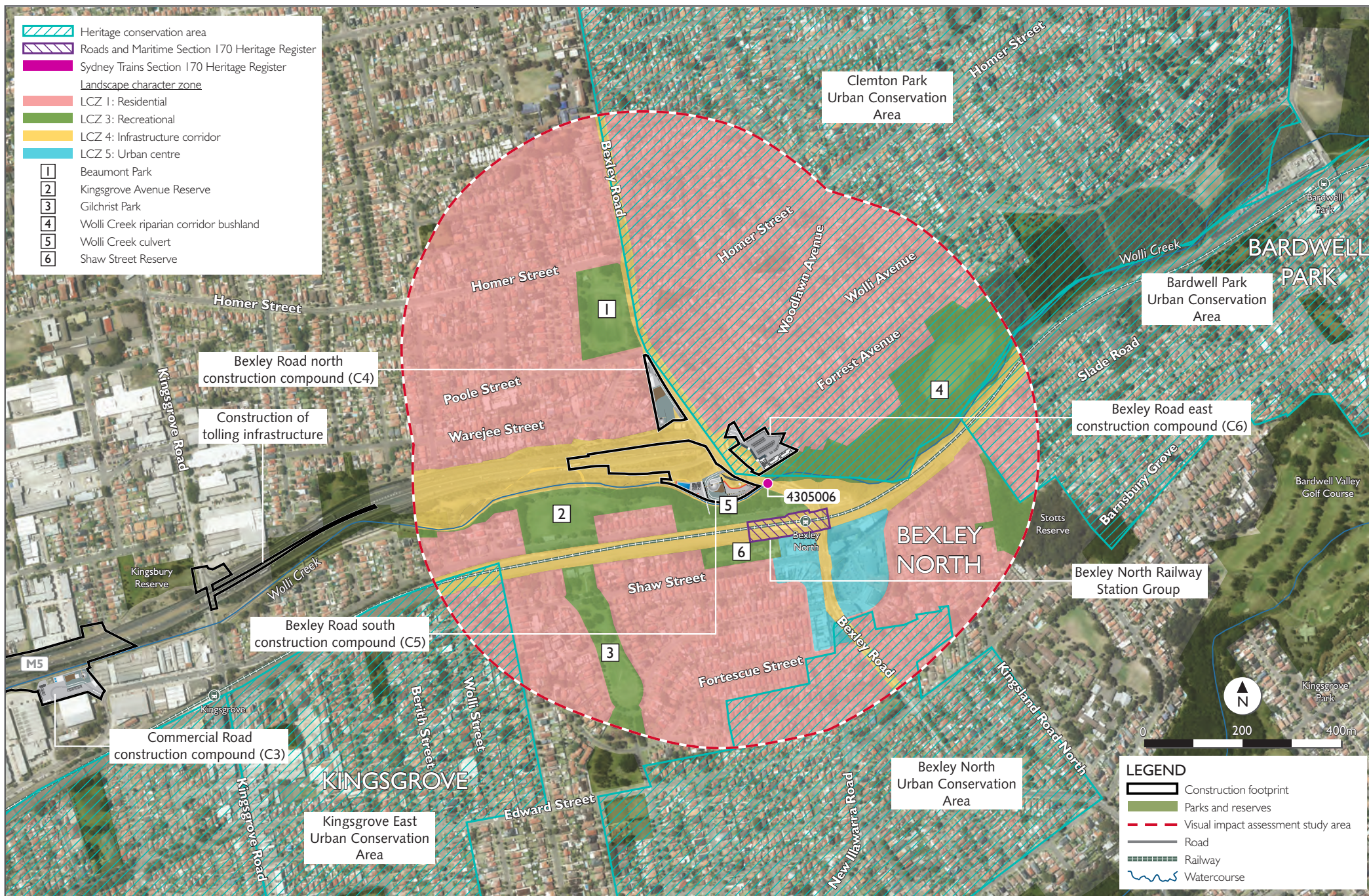


Figure 4-23 Landscape character zones - Bexley Road surface works





Figure 4-24 Bexley Road surface works site area: Bexley north (Bexley Road North construction compound), with the entry to the M5 Linear Park to the left of frame and Bexley Road to right of frame



Figure 4-25 View east from the M5 Linear Park pedestrian and cycle path to the site of Bexley Road surface works site: Bexley south (Bexley Road South construction compound and site of permanent MOC2), with the entry to the M5 Linear Park to the left of frame and Wolli Creek (fringed with trees) to right of frame



Figure 4-26 View east from the exit of the pedestrian overpass to the Bexley East site area (Bexley Road East construction compound), which lies beyond the sandstone wall



#### 4.3.2 Context

The land occupied by the Bexley Road surface works sites is zoned SP2 Infrastructure (refer **Figure 4-31**) and is bisected by the M5 East Motorway and Bexley Road into the three distinct areas, as listed in **Section 4.3**. All three areas have been used for construction purposes in the past, with the northern and eastern sites remaining fenced off from public access. The southern part of the site (Bexley South, between Wolli Creek and the M5 East Motorway) has been landscaped and is currently utilised as a public recreational area, part of the M5 Linear Park.

Wolli Creek flanks the Bexley South and Bexley East sites to the south, comprising a fenced concrete channel with occasional pockets of in-channel vegetation (either reed beds or weedy tree species), and a fringe of mature riparian vegetation which limits views to the south. The land immediately south of Wolli Creek is zoned Public Recreation (Kingsgrove Avenue Reserve), and comprises a steep, densely vegetated embankment rising to the pedestrian path on Kingsgrove Avenue and the rail line.

The western boundary of the Bexley North site backs onto the back yards of a number of residential properties, which front onto Flatrock Road and Jones Avenue. These dwellings lie within Medium Density zoned land, but generally comprise double story brick dwellings on single lots (ie low density housing). The streetscape in this area is characterised by a mix of older style and new single and double storey brick homes with generally well established gardens and mature street trees.

Along the north-eastern boundary, the Bexley North construction compound site is flanked by Bexley Road and similar low density residential development on Low Density zoned land. Bexley East is bounded on the east by low density housing (refer **Figure 4-32**), and to the west by Bexley Road. To the south, the site adjoins a bushland area associated with the western extent of Bardwell Valley Park, which is zoned National Parks and Nature Reserves. At the boundary, the park is well vegetated with a mix of mature indigenous tree and shrub vegetation and woody weeds such as Large Leaf Privet. This vegetation effectively screens the Bexley East construction compound site from the south (refer **Figure 4-33**).

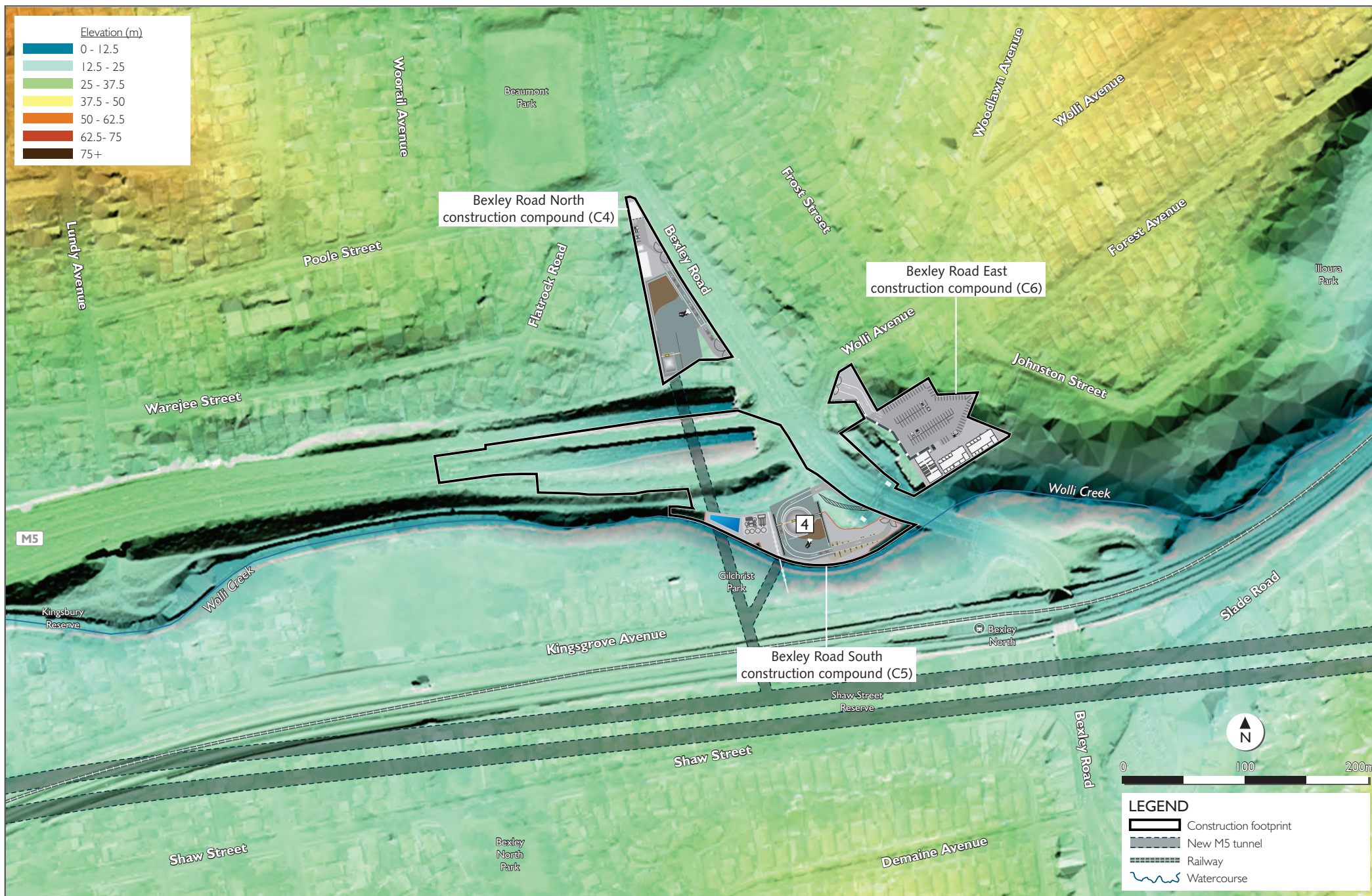


Figure 4-27 Topography of the surrounding environment - Bexley Road surface works





Figure 4-28 Noise and screening walls associated with the M5 East Motorway



Figure 4-29 Mature vegetation associated with Wolli Creek riparian corridor and Kingsgrove Avenue Reserve as seen from Bexley Road





Figure 4-30 Noise mound between the M5 East Motorway and Wolli Creek with Kingsgrove Avenue Reserve to right of frame

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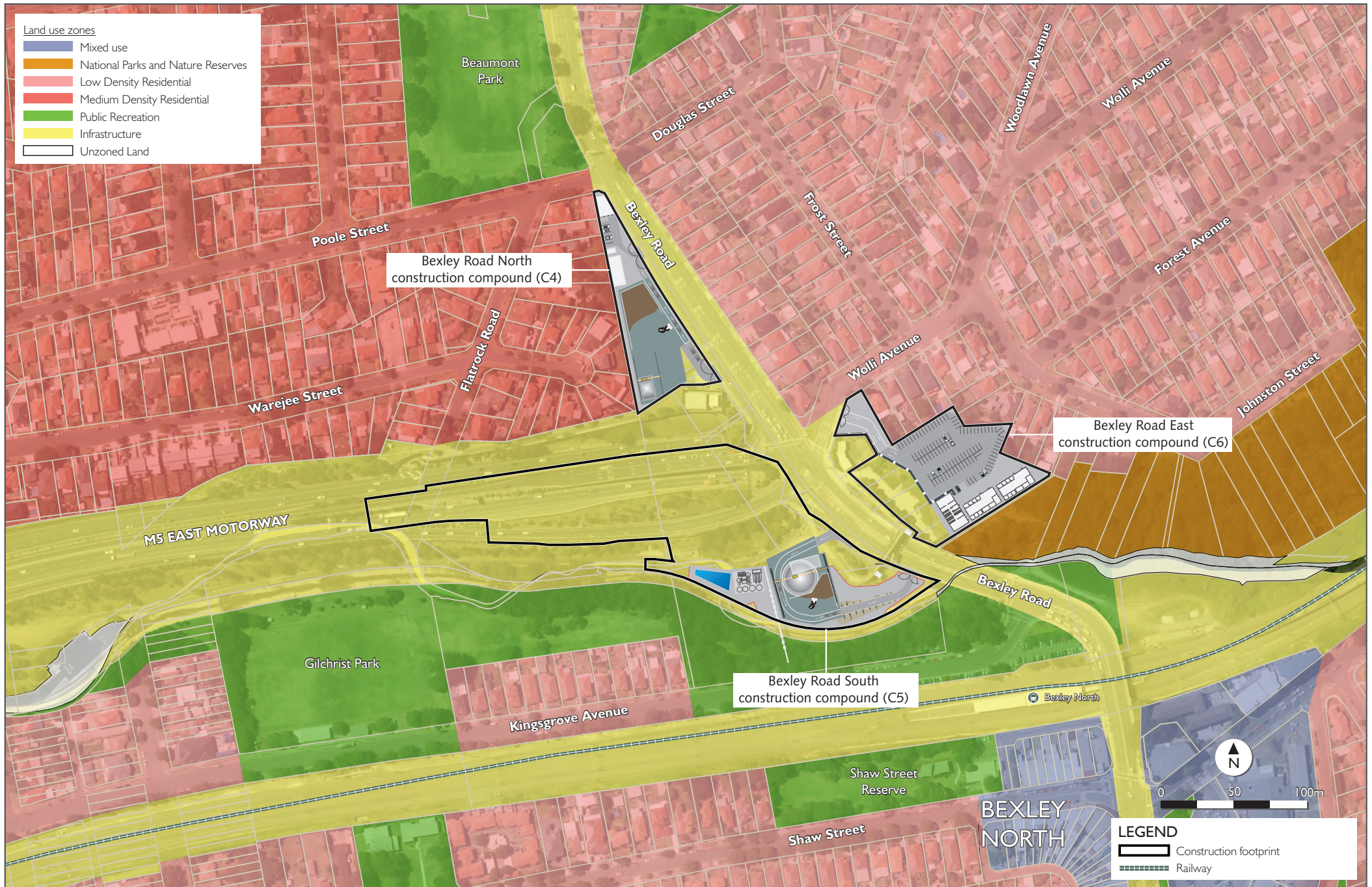


Figure 4-31 Bexley Road surface works area with surrounding land zoning





Figure 4-32 Typical low density housing along the eastern boundary of the Bexley East construction compound site.



Figure 4-33 View to the Bexley East construction compound site from the intersection of Bexley Road and Kingsgrove Avenue

### 4.3.3 Heritage sites

Although heritage items may not be directly affected by the project, they may be indirectly impacted through physical and visual encroachment into curtilage areas, and changes to the heritage context of the landscape.

An assessment of heritage items and heritage conservation areas in and around the project corridor include:

- Bexley North Railway Station Group, listed on the Sydney Trains Section 170 Heritage and Conservation Register located in Bexley Road, Bexley North.
- Wolli Creek culvert, listed on the Roads and Maritime Section 170 Heritage and Conservation Register, located in Bexley Road, Earlwood.
- Clemton Park heritage conservation area, listed on the Register of the National Estate (a non-statutory register), located within and adjacent to the Bexley Road East construction compound; and
- Wolli Creek Valley, listed on the Rockdale Local Environmental Plan as an item of local significance and located to the east of the Bexley Road surface works.

### 4.3.4 Landscape Character Zones

Landscape Character Zones (LCZs) were determined primarily by land use, as these were considered to be the strongest defining landscape character elements of the area. Four LCZs have been identified surrounding the BRSW area (refer **Figure 4-23**), comprising:

- 1) LCZ 1: Residential
- 3) LCZ 3: Recreational
- 4) LCZ 4: Transport corridor
- 5) LCZ 5: Urban centre.

Although these LCZs may extend beyond the study area boundary, the character of these zones was analysed and assessed within this boundary only, for the purposes of this report.

#### 4.3.4.1 Landscape Character Zone 1: Residential

The land within the study area surrounding the Bexley Road surface works site predominantly comprises the Residential LCZ, zoned Medium Density to the west of Bexley Road north of the M5 East Motorway, and Low Density in all other areas (refer **Figure 4-31**). This LCZ adjoins or lies adjacent to three site boundaries at this location:

- The western boundary of the Bexley North site
- The northern and north-eastern boundaries of the Bexley East site.

Housing to the north-west and south / south-west of the Bexley Road surface works site predominantly comprises single story red brick dwellings with established landscaped gardens and mature street trees. Some double story and rendered homes are also present. Many of the older homes (particularly those north-west of the Bexley North site) have more sparsely landscaped front yards and low brick fences (refer **Figure 4-34**).

Housing to the north-east and east of the site is less homogenous, but typically newer, larger, two story homes with a mix of brick and rendered brick facades (refer **Figure 4-35**) with mature landscaping and street trees.

#### 4.3.4.2 Landscape Character Zone 3: Recreational

Within the study area, recreational land can be broadly divided into three groups (refer **Figure 4-23**):

- Parks with organised sporting facilities
  - Beaumont Park, which comprises a sporting field, play equipment and toilet block, and is bounded by Bexley Road to the east, Poole Street to the south, Homer Road to the north and residential housing to the western boundary (fronting onto Woorail Avenue).
  - Kingsgrove Avenue Reserve, with sporting sheds, sports field, toilets, play equipment, and is used by a local soccer team (refer **Figure 4-36**)
  - Parks typically characterised by flat topography and central playing fields surrounded by mature shade and street trees. Some informal play spaces and playgrounds provided at periphery of these parks

- Green spaces within the M5 Linear Park
  - A series of informal green space situated between the M5 East Motorway and Wolli Creek and linked with a designated share path (refer **Figure 4-37**)
  - Moderate to steep sloped site with turf and scattered trees and clumped mature vegetation
  - Popular pedestrian and cycle path links these spaces together on both the northern and southern sides of the M5 East Motorway
  - Although this area is used as recreational space, its land use is zoned SP2 Infrastructure
- Bushland reserves / National Parks
  - Western extent of Bardwell Valley Park, east of Bexley Road (refer **Figure 4-38**)
  - Vegetated Wolli Creek riparian corridor west of Bexley Road (part of Kingsgrove Avenue Reserve but very different in character and usage, refer **Figure 4-39**)
  - These are heavily vegetated riparian corridors with limited public access due to dense bushland of varying quality and steep slopes.

The recreational land within the M5 Linear Park at the intersection of the M5 East Motorway and Bexley Road (north of Wolli Creek) lies within the Bexley Road surface works site. The southern boundary of the Bexley Road surface works site (Bexley South and Bexley East construction compounds) lies adjacent to riparian vegetation associated with Wolli Creek. This land visually functions to screening the site from southern areas.



**Figure 4-34** Typical low density housing on Kingsgrove Avenue near Bexley Road





Figure 4-35 Typical two storey brick residences on Bexley Road near the M5 East Motorway



Figure 4-36 View of Kingsgrove Avenue Reserve from the southern side of Kingsgrove Avenue



Figure 4-37 Entry to the M5 Linear Park (south of the M5 East Motorway) with riparian vegetation of Wolli Creek in the background



Figure 4-38 Bardwell Valley Park seen in the background beyond Bexley Road





Figure 4-39 Sloping recreational land south of Wolli Creek, with Kingsgrove Avenue to the right of frame

#### 4.3.4.3 Landscape Character Zone 4: Transport corridor

Within the study area, this LCZ comprises:

- The M5 East Motorway
  - A linear element that cuts through the landscape, providing an effectively impenetrable visual barrier between interchanges.
  - Visually confined by substantial noise walls and landscaped buffer mounds (refer **Figure 4-40**)
  - Views within the LCZ are predominantly contained within the M5 East Motorway by vegetated mounds and noise walls, or retaining walls where the carriageway is lower than the surrounding area. Limited glimpse views are available to the surrounding landscape.
  - Some views into this LCZ are afforded at interchanges where a road passes over the M5 East Motorway.
- The rail corridor
  - Defined by its use as a utilitarian transport corridor with limited qualities beyond that (e.g. scenic, environmental, etc.)
  - Visually confined by substantial noise walls where the rail line passes at or above the grade of the surrounding landscape, or retaining walls where the rail lines pass below the ground level of the surrounding landscape (refer **Figure 4-41**). Views into and out of the rail corridor open up at station precincts, in this case, at Bexley North Station.
- Major road corridors
  - Bexley Road
  - Although Bexley Road is a large scale transport corridor, the urban design and land use on either side of the roadways allow integration of these elements into the surrounding landscape (refer **Figure 4-42**). The road is at grade, and development addresses the corridor along its length.

All these transport corridors are linear elements which bisect the landscape, although as noted, the M5 East Motorway and rail corridors are more visually detached from the surrounding landscape than the major road corridors, which tend to be integrated into their surroundings due to urban design and land use.



#### 4.3.4.4 Landscape Character Zone 5: Urban centre

An urban centre is situated on the southern side of the rail line adjacent to Bexley Railway Station, around 150 metres from the south-eastern corner of the Bexley Road surface works site boundary. It comprises a small commercial area with shops, cafes and restaurants, community facilities (eg. a public library), and a number of small pocket parks with limited facilities.

Views to and from the urban centre are limited to within the road corridor between bends, and are blocked by built form and the flat landform within the valley floor. In addition, the generally visually impermeable rail corridor infrastructure LCZ lies between this LCZ and the Bexley Road surface works site. No views are available from this LCZ to the Bexley Road surface works site.



Figure 4-40 View west towards the entry / exit to the M5 East Motorway from Bexley Road. Views to and from the M5 East Motorway are screened by noise walls, noise mounds and screening vegetation



Figure 4-41 Views into and out of the rail corridor between stations are limited by noise walls and screening vegetation (to right of frame)



Figure 4-42 Bexley Road is integrated into the surrounding landscape by land use and urban design.

## 4.4 Arncliffe surface works

The site for the Arncliffe surface works is located in the north-western section of Kogarah Golf Course, which is bounded by Marsh Street to the north, the M5 East Motorway to the south-west and Cooks River to the east. The site is a key point on the alignment for both construction and operational requirements. Permanent operational facilities include a ventilation facility (including emergency smoke extraction), air intake facility and an operational water treatment plant (refer **Figure 4-43**). The Arncliffe construction compound would occupy a larger area of the golf course which would be returned following completion of construction.

### 4.4.1 Topography and visibility

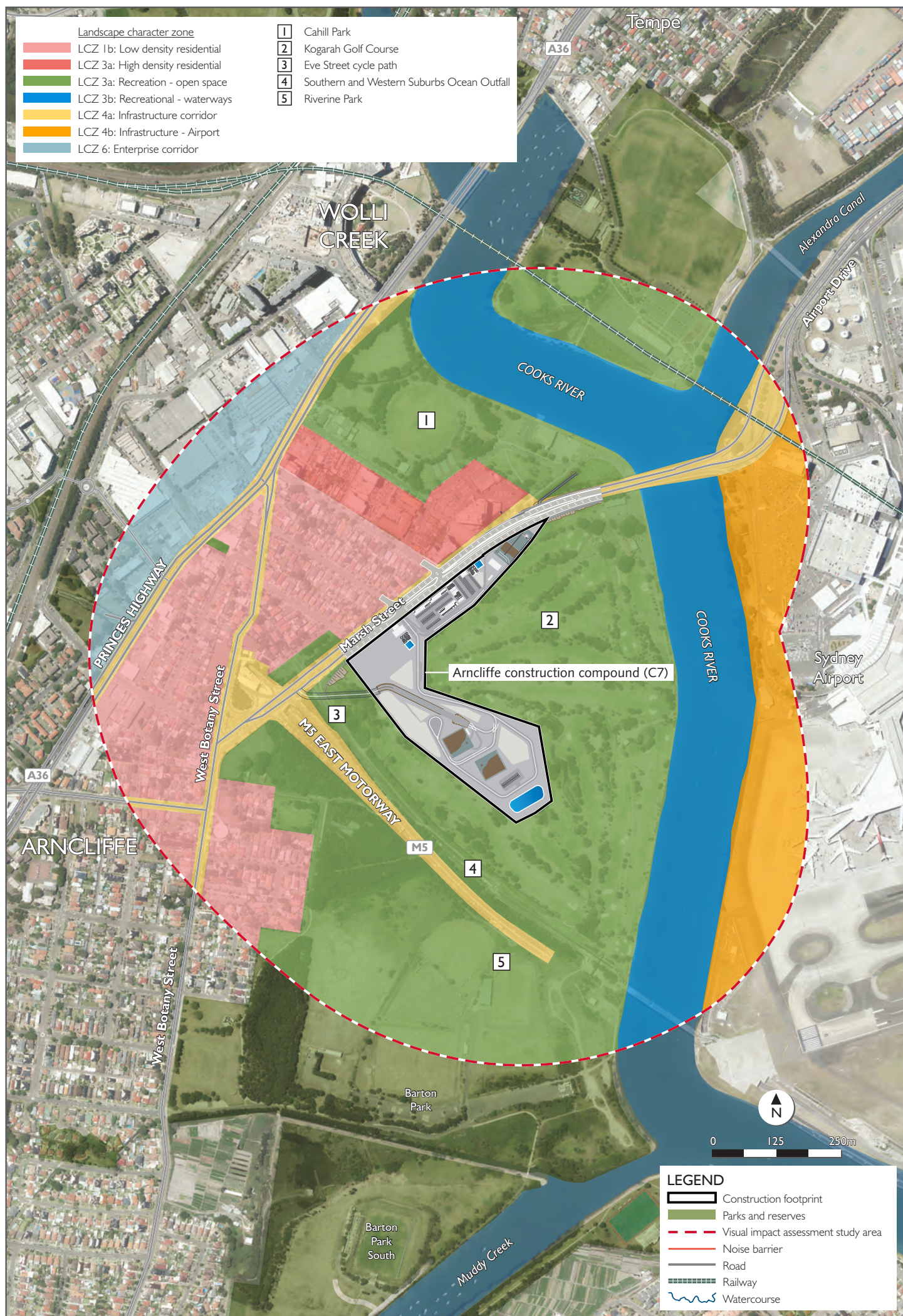
The land surrounding the Arncliffe surface works is generally low-lying and flat due to its proximity to Cooks River and Botany Bay (refers to **Figure 4-44**). The topography begins to rise from the north-western corner westwards, but no significant or district views to or across the site are be available from ridgelines due to the very gradual rise and distance from elevated ground. A view across the site (eastwards) is available from the north-western corner of the site on Marsh Street where the street rises to a bridge over the M5 East Motorway (refer **Figure 4-45**).

The Cooks River is a highly urbanised catchment with a history of intensive land use, dominated by low density residential development and pockets of industrial areas concentrated in Botany along the Alexandra Canal within Tempe. Views to the site from much of the low density residential development are limited by the flat landform and low (single and double storey) housing, although some views would be available from taller buildings in surrounding areas, namely from the high density and Mixed Use zoned land to the north of the site.

Views from the M5 East Motorway (along the western boundary of the golf course) are screened by landform, vegetation and noise barriers associated with the road corridor. No views are available from beyond the M5 East Motorway corridor (ie from Cahill Park and Riverine Park, which lie on the western side of the M5 East Motorway)

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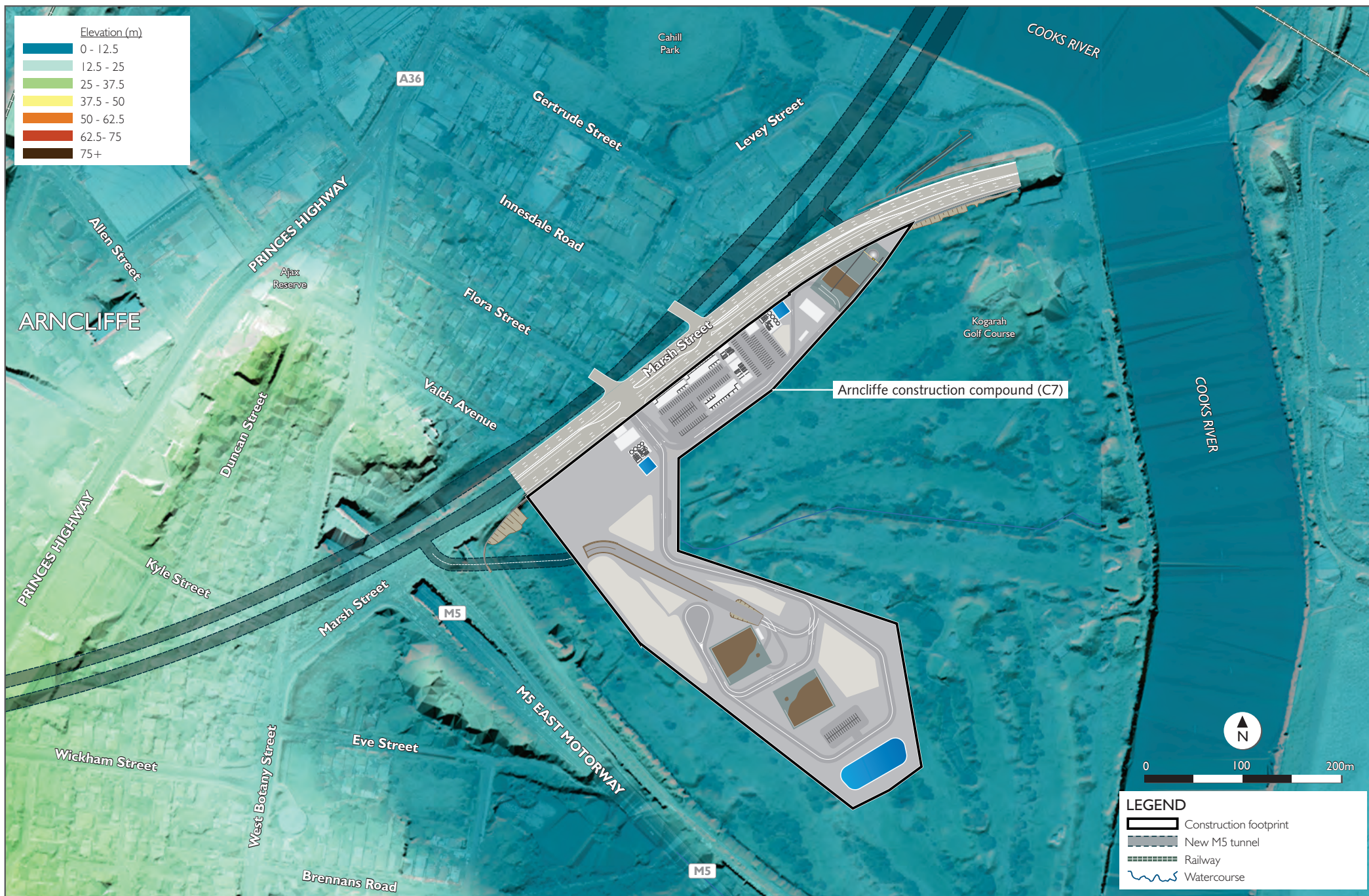


Figure 4-44 Topography of the surrounding environment - Arncliffe surface works





Figure 4-45 View eastwards over the Kogarah Golf Course from the foot path on Marsh Street where the street rises to pass over the M5 East Motorway

#### 4.4.2 Context

The Arncliffe surface works site is located in the eastern corner of Kogarah Golf Course. The golf course is a roughly triangular site, bounded by (refer **Figure 4-46**):

- Marsh Street, which forms the northern boundary of the site and crosses the Cooks River at the north-eastern boundary
- The M5 East Motorway / Eve Street cycleway along the south-western boundary (refer **Figure 4-47**)
- Cooks River along the eastern boundary, with Sydney Airport situated on the other side of the river.

Arncliffe Railway Station is located 600 metres east of the site at the corner of Burrows Road and Arncliffe Street and operates on the Eastern Suburbs and Illawarra line.

The land to the east of the Arncliffe surface works site (on the eastern bank of the Cooks River) is Sydney Airport, which is zoned SP2 Infrastructure. A majority of the land surrounding the site to the west is zoned Low Density Residential, with pockets of Mixed Use, High Density Residential and Public Recreation, particularly to the north of Marsh Street.

The golf course is well connected to other recreational open space along the Cooks River to the north and south. Cahill Park forms the open space to the north of the site and includes playing fields, tennis courts and St George Rowing Club. Riverine Park is located to the south of the site at the confluence of the Cooks River and Muddy Creek.

The Eve Street Cycleway is part of the greater Cook Park Trail which runs along the north-western and south-western boundary of the golf course, it is an off-road pedestrian and cycling route that follows the western foreshore of Botany Bay. The trail also connects with the Cooks River Cycleway at Tempe to the north which leads to Olympic Park at Homebush.



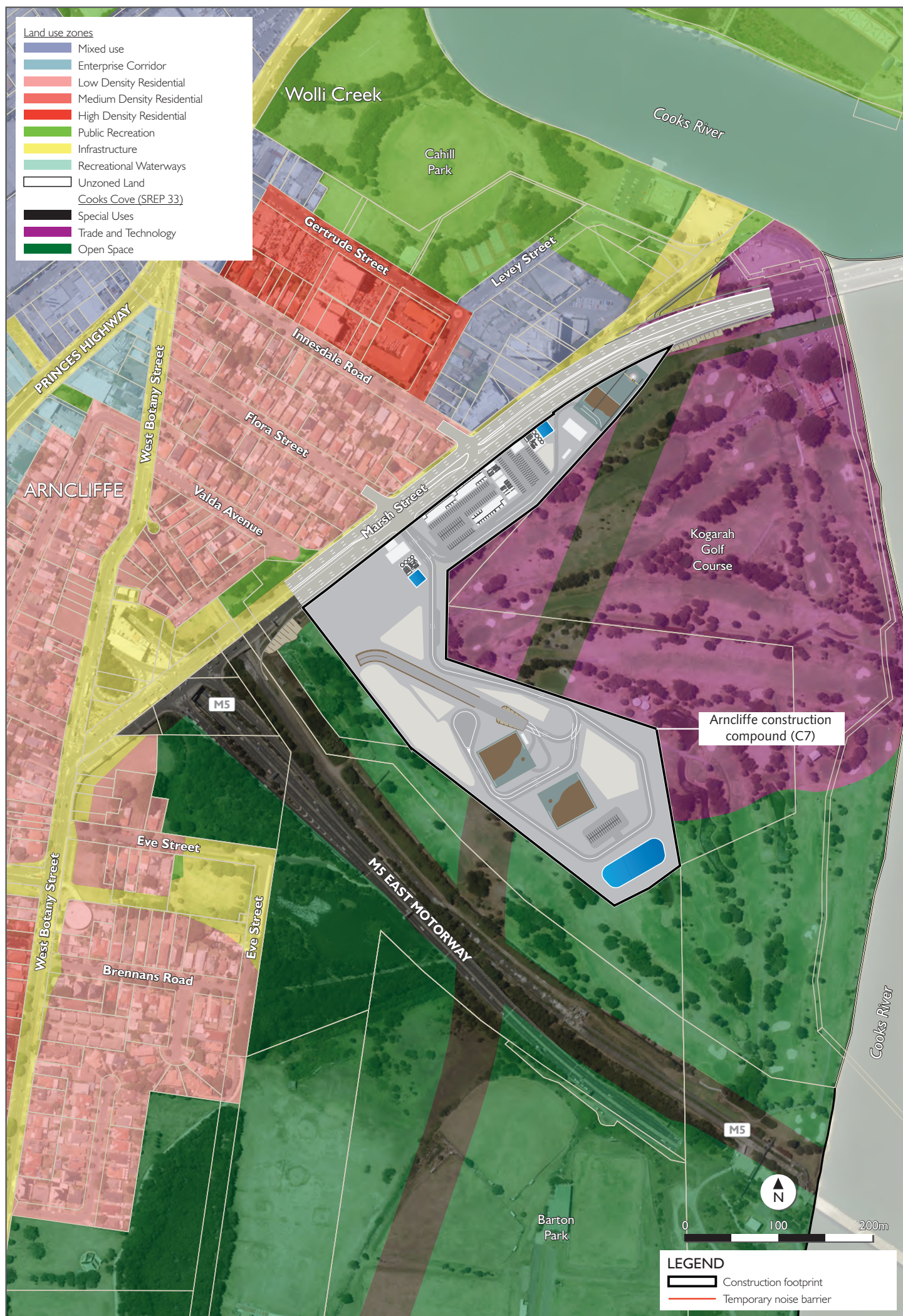


Figure 4-46 Arncliffe surface works site with surrounding land zoning





**Figure 4-47** View from the Eve Street cycleway showing the relationship of the M5 East Motorway (to right of frame, screened by vegetation), the Western Outfall Main Sewer, the cycle path, and the Kogarah Golf Course (beyond the fence to the left of frame).



#### 4.4.3 Heritage sites

Heritage items and heritage conservation areas in and around the project corridor include (refer **Figure 4-43**):

- Western Outfall Main Sewer – Rockdale to Homebush (a State Heritage item) located at corner of Marsh Street and M5 East Motorway (refer **Figure 4-47**).

#### 4.4.4 Landscape Character Zones

Landscape Character Zones (LCZs) were determined primarily by land use, as these were considered to be the strongest defining landscape character elements of the area. Three LCZs have been identified in the area surrounding the MOC3 site (refer **Figure 4-43**), comprising:

- 1) LCZ 1: Residential:
  - a) High Density Residential
  - b) Low Density Residential
- 3) LCZ 3: Recreation:
  - c) Recreation - open space
  - d) Recreation - waterways
- 4) LCZ 4: Infrastructure:
  - e) Transport corridor
  - f) Infrastructure airport

Although these LCZs may extend beyond the study area boundary, the character of these zones was analysed and assessed within this boundary only, for the purposes of this report.

##### 4.4.4.1 Landscape Character Zone 1: Residential

###### ***LCZ 1a: High Density Residential***

This LCZ comprises a small portion to the north of the site and borders Innesdale Road and Marsh Street. A combination of residential apartments and airport transit hotels overlook the Kogarah Golf Course and beyond (refer **Figure 4-48**). This area is characterised by closely spaced high rise buildings with limited green open space at ground level. Opportunities for district and regional views from these buildings would be available.

Some areas of this LCZ are still under construction (eg the Mixed Use zoned land near Marsh Street). Residents had not yet moved into the buildings and the hotels were not yet operational.

###### ***LCZ 1b: Low Density Residential***

The Low Density Residential LCZ forms a large area to the west of Marsh Street, West Botany Street and south of the M5 East Motorway. This LCZ comprises predominantly single and double storey houses on individual lots with mature landscaping and street trees (refer **Figure 4-49**). The LCZ is characterised by generally wide, quiet streets periodically traversed by transport corridors (eg Marsh Street, West Botany Street and M5 East Motorway). A mix of architectural styles are employed within this area, including single story Federation housing, fibro cottages and more modern two storey brick and rendered homes.



Figure 4-48 View looking east along Marsh Street from the north-western corner of Kogarah Golf Course, showing high rise development within LCZ 1a: High Density Residential



Figure 4-49 Typical housing and local park within the Low Density Residential LCZ

#### 4.4.4.2 Landscape Character Zone 3: Recreational

A large expanse of recreational land lies within and to the north, south and east of Kogarah Golf Course. This can be broadly divided into two groups:

- LCZ 3a: Recreation – open space
- LCZ 3b: Recreation – waterways

**LCZ 3a: Recreation – open space**

This LCZ is characterised by greenspace used for passive and active recreational pursuits, including cycling, walking / running, organised and informal sporting activities, and picnics. They are generally large, turfed open spaces with mature vegetation (often fringed with mature trees).

This LCZ is zoned as Public Recreation and is well connected to other recreational open spaces along the Cooks River to the north and south. Cahill Park forms the open space to the north of the site and includes playing fields, tennis courts and St George Rowing Club. Riverine Park is located to the south of the site at the confluence of the Cooks River and Muddy Creek.

Kogarah Golf Course is also contained within this LCZ. The land is broken up into open, turfed fairways divided by patches of mature vegetation. It does not address the Cooks River due to its designed purpose.

**LCZ 3b: Recreation – waterways**

This LCZ is characterised by recreational land directly adjacent to waterways. They are often narrow (sometimes limited to pedestrian / cycle access only) with occasional breakout spaces, areas of mature 'bushland' pockets, and turfed green spaces. These areas are predominantly used for active recreation (walking / cycling) as well as the waterway itself, which is used for active aquatic-based recreation activities rowing, kayaking and fishing

This LCZ is located north of the Marsh Street Bridge, along the Cooks River.

**4.4.4.3 Landscape Character Zone 4: Infrastructure**

Within the study area, this LCZ is divided into two groups:

- Infrastructure – transport corridor
- Infrastructure – airport.

These LCZs are utilitarian in nature, characterised by the individual spatial necessities of their transport uses.

**LCZ 4a: Infrastructure – corridor**

This LCZ comprises the following main roads:

- M5 East Motorway (refer **Figure 4-47**), a linear element that cuts through the landscape, providing an effectively impenetrable visual barrier. It is visually confined by noise walls, landscape buffer planting and open spacing including Kogarah Golf Course and Riverine Park. Views within the LCZ are predominantly contained within the Motorway
- Marsh St (refer **Figure 4-50**), West Botany Street and Wickham Street are major roads that traverse through the landscape, although unlike the M5 East Motorway corridor, they are more visually integrated with the surrounding landscape due to land use and urban design initiatives. A majority of these roads lie at grade with the surrounding landscape.

**LCZ 4a: Infrastructure – airport**

This LCZ comprises the land east of the Cooks River that forms Sydney Airport. It is a large, flat, treeless area bounded by waterways and large road ways, characterised by large expanses of turf and runways, occasional scattered low buildings such as terminals, hangars and sheds, and aircraft (both on the ground, taking off and landing). The airport is visually isolated from surrounding areas by buffer zones and fencing, therefore no detailed views are generally available to and from elements within the land (eg terminals and aircraft hangers).





Figure 4-50 View looking west along Marsh Street, showing fencing of residential properties to the right of frame and the screening vegetation associated with Kogarah Golf Course to the left of frame

## 4.5 St Peters interchange and surrounds

The St Peters interchange site is located approximately six kilometres south of the Sydney CBD and 1.5 kilometres north of the Sydney Airport. The interchange site comprises the Alexandria Landfill site and is adjacent to Sydney Park, which is a regional park managed by City of Sydney. The interchange site is bounded by (refer **Figure 4-51**):

- The Princes Highway and the back of industrial complexes fronting onto Princes Highway along the north-western boundary
- Canal Road on the south-western boundary, and the rear of industrial complexes fronting onto Canal Road and Burrows Road at the southern corner of the proposed interchange site
- Campbell Road along the north-eastern boundary
- Burrows Road along the south-eastern boundary
- Additional outlying areas of the project site (including outlying construction compound sites / bridge construction sites or local road upgrades) affect the following:
  - Alexandra Canal
  - Gardeners Road
  - Bourke Road
  - Campbell Street
  - Euston Road
  - Sydney Park.

Local road upgrades also affect small areas of a number of streets where they join main roads. Refer Section 4.5.5 for details regarding these streets.



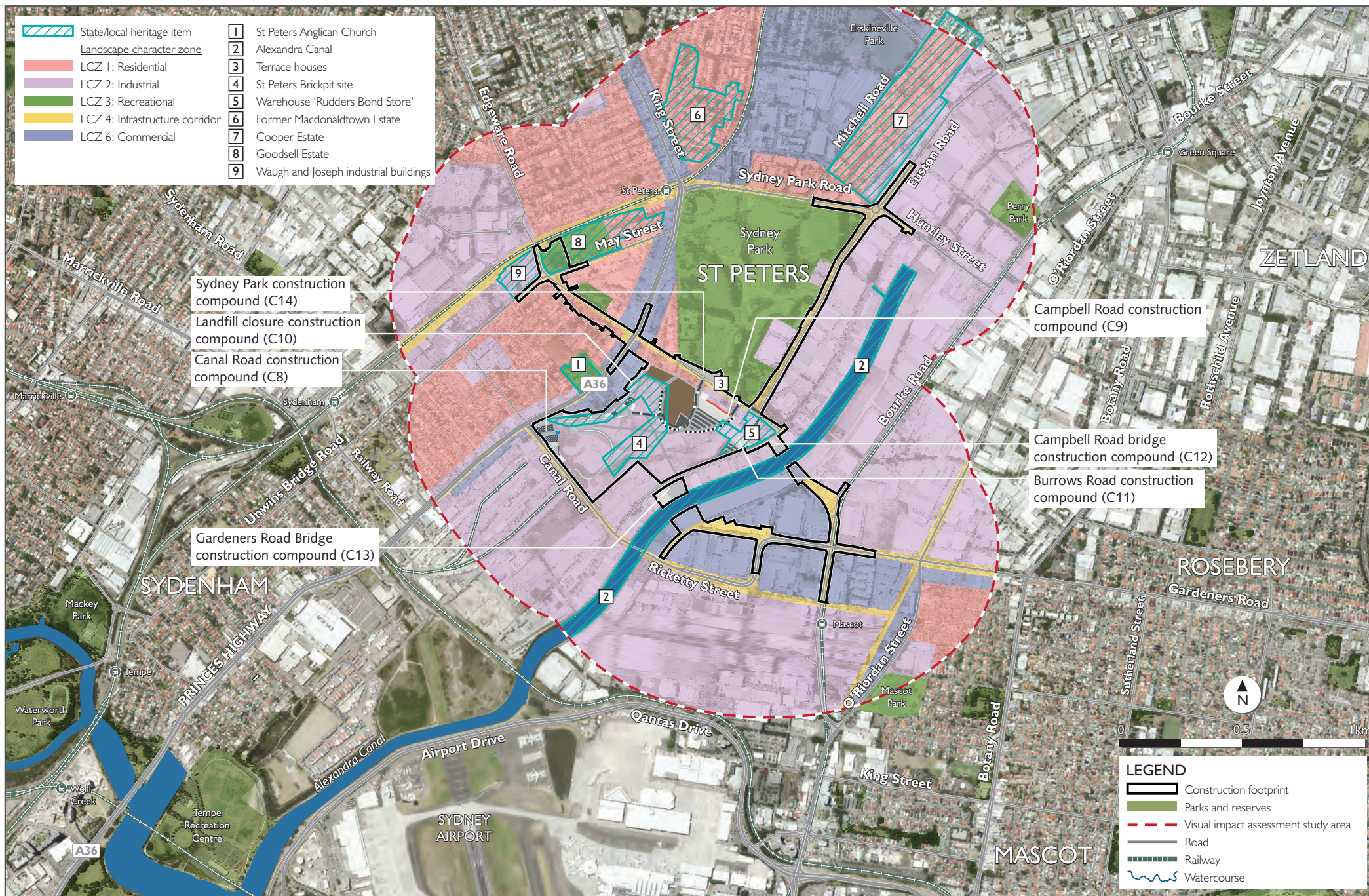


Figure 4-51 Landscape character zones - St Peters interchange and local road upgrades



#### 4.5.1 Topography and visibility

The St Peters interchange site lies within a flat, low lying area adjacent to the Alexandra Canal (refer **Figure 4-52**). West of the Alexandra Canal, the landform gently rises to the Princes Highway corridor, which indicatively follows a low ridgeline. Views from the Princes Highway west towards the canal are generally screened by hoarding and opaque fencing surrounding the landfill, and industrial complexes along the Princes Highway. Some localised mounding on the northern side of the highway (eg the St Peters Anglican Church, refer **Figure 4-53**) provides glimpse views over the fencing and to the landfill site itself, but views to the canal itself are not available due to viewing distance and obstruction by buildings and vegetation (refer **Figure 4-54** and **Figure 4-55**).

The Alexandra Canal is bounded on both banks by large industrial complexes, therefore no views from the canal itself would be available to the site (refer **Figure 4-55**).

Sydney Park, located to the north of the interchange site, comprises a series of constructed landforms, the tallest reaching 30 metres. These landforms form the highest viewing positions within the surrounds of the St Peters interchange, providing views to Sydney Airport and Sydney CBD. However no views are obtained to landfill site due to mature fringing vegetation surrounding the park, residential housing and localised landform (refer **Figure 4-56**).

#### 4.5.2 Context

The St Peters interchange site lies on land zoned as (refer **Figure 4-57**):

- IN1 General Industrial (a majority of the site)
- SP2 Infrastructure
- IN2 Light Industrial (the north-western corner at the Princes Highway, Canal Road intersection).

To the north of the site, the Princes Highway is an active business corridor with commercial and industrial development lining the route. This land is zoned B6 Enterprise Corridor, SP1 Special Activities, SP2 Infrastructure, RE2 Private Recreation and B4 Mixed Use. North of the development fronting Princes Highway, the land is predominantly low density residential housing, with pockets of green spaces.

North of the interchange site, Campbell Street is bounded by land zoned as R2 Low Density Residential to the south-west, and a mixture of B4 Mixed Use, B6 Enterprise Corridor, RE1 Public Recreation and R1 General Residential zoned land to the north. It is a narrow, two lane street bounded by terrace housing, industrial buildings (refer **Figure 4-58**), vacant land and Simpson Park.

Main roads surrounding the St Peters interchange include:

- Canal Road, which forms the south-western boundary of the site and is a key arterial route serving the Sydney CBD as well as Sydney Airport and Port Botany
- Gardeners Road, which lies south-east of the Alexandra Canal forms an important transport connection including as a heavy vehicle route.

St Peters Railway Station is located 700 metres north of the site at the corner of King Street and Lord Street. St Peters Railway Station forms part of the Bankstown to City line.

Sydney Park zoned RE1 Public Recreation to the north of the St Peters interchange is the largest park in the City of Sydney at around 40 hectares in size. It is a regionally significant open space and a valuable community asset that would provide an important cycle and pedestrian connection to the St Peters interchange site.



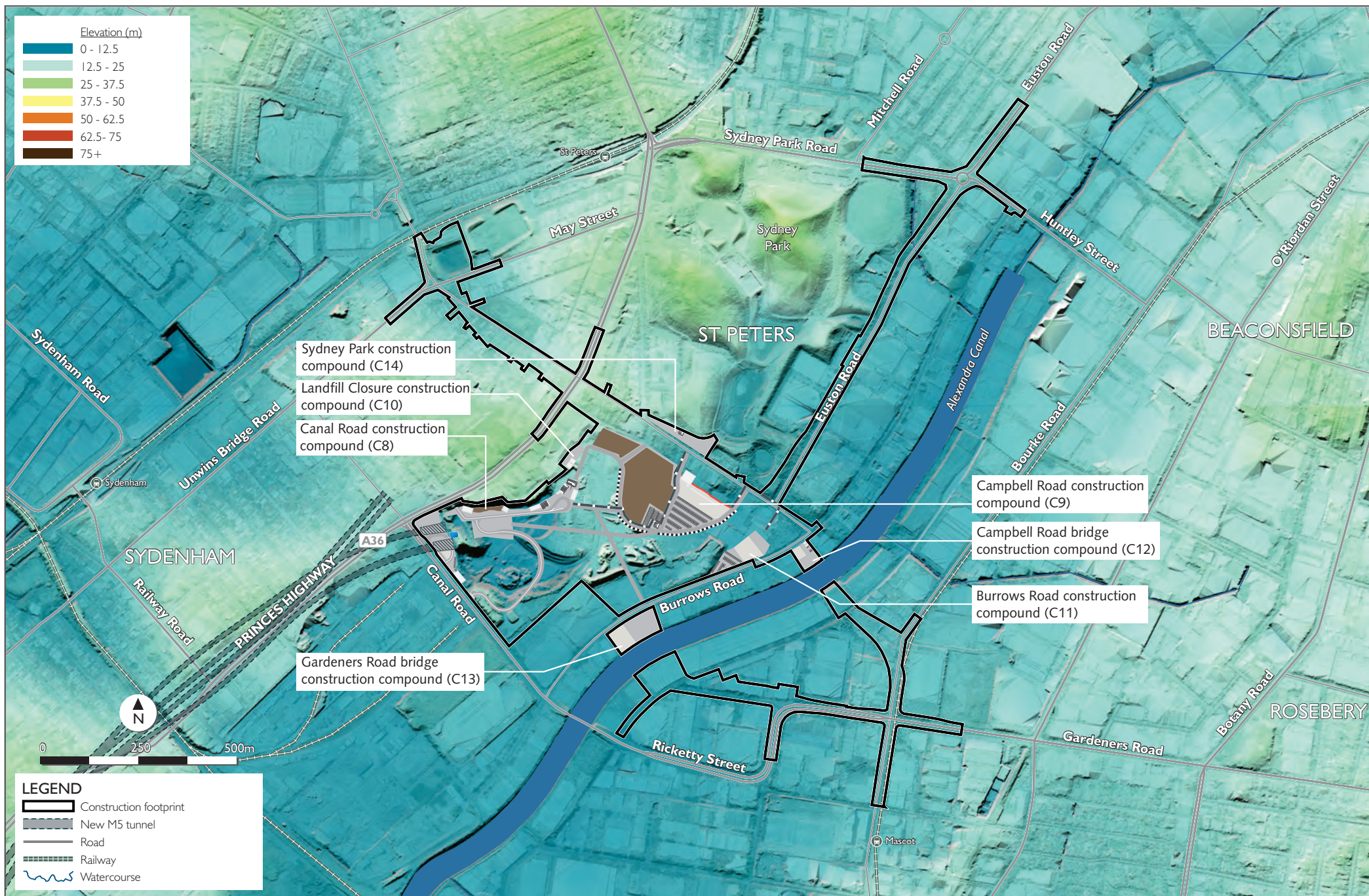


Figure 4-52 Topography of the surrounding environment - St Peters interchange and local road upgrades





**Figure 4-53** St Peters Anglican Church is situated on a localised mound north of the Princes Highway



**Figure 4-54** The view from the driveway of St Peters Anglican Church, looking east across the Princes Highway and commercial buildings, to glimpse views across the landfill site beyond.



Figure 4-55 Typical view of industrial complexes flanking the Alexandra Canal (view taken from Rickettys Bridge looking north)



Figure 4-56 Fringing vegetation within Sydney Park and residential housing fronting Campbell Road screen views to the surrounding area from within the park



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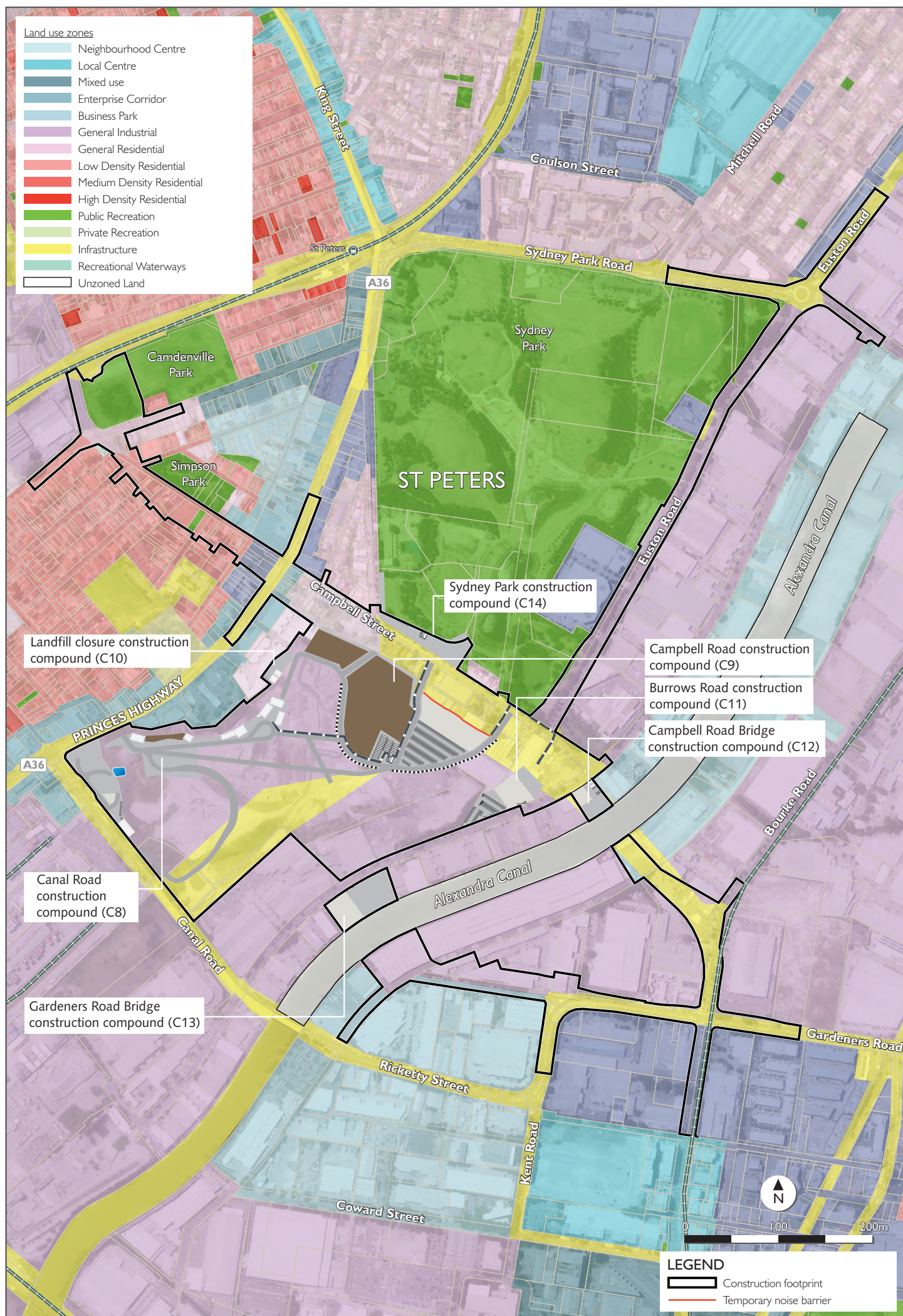


Figure 4-57 St Peters interchange site with surrounding land use zonings





Figure 4-58 View west along Campbell Street, showing existing terrace housing and industrial buildings.

#### 4.5.3 Heritage sites

Heritage items and heritage conservation areas in and around the project corridor include (refer **Figure 4-51**):

- Southern Cross Hotel (local heritage) located at 340 Princes Highway, St Peters (refer **Figure 4-59**)
- Service Garage (local heritage) located at corner of Canal Street and Princes Highway, St Peters (refer **Figure 4-60**)
- Terrace Group (local heritage) located at 2-34 Campbell Road, Alexandria (refer **Figure 4-61**)
- Warehouse 'Rudders Bond Store' (local heritage) located at 53-57 Campbell Road, Alexandria
- Alexandra Canal (State heritage) located at the confluence of the Cooks River
  - Originally a natural creek called Shea's Creek which was a tributary of the Cooks River
  - Man-made canal built in 1880s-1890s; it stretches four kilometres and has a strong historic link to early industrial development in the St Peters and Alexandria area
- Town and Country Hotel (local heritage) located at 2 Unwins Bridge Road, St Peters
- Group of Victorian Filigree and Victorian Italianate terrace houses – 'Narara' (local heritage) located at 4-18 Unwins Bridge Road, St Peters
- Waugh and Josephson industrial buildings (local heritage) located at 1-7 Unwins Bridge Road, St Peters
- Goodsell Estate Conservation Area (local heritage) located between Bedwin Road, May Street, Caroline and May Lane and the railway line, St Peters
- St Peters Anglican Church (local heritage) located at 187-209 Princes Highway, St Peters (refer **Figure 4-53**)
- St Peters Brickpit Geological Site (local heritage) located between Bedwin Road, May Street, Caroline and the Princes Highway, St Peters
- Cooks River Container Terminal (local heritage) located at 20 Canal Road, St Peters
- Houses (local heritage) located at 28-44 Campbell Street, St Peters
- House (local heritage) located at 82 Campbell Street, St Peters



- Former site of 'Petersleigh', demolished in 1910 (local heritage) located at 310 Princes Highway, St Peters
- Former site of 'Nun-Cotnook', demolished, c1920s (local heritage) located at Corner of Berne Street and Princes Highway, St Peters
- Shea's Street Bridge crossing Alexandra Canal (local heritage) located at Ricketty Street, St Peters



Figure 4-59 Southern Cross Hotel, situated at the intersection of Princes Highway and Canal Road



Figure 4-60 Service garage opposite the Southern Cross Hotel on the Princes Highway



Figure 4-61 Heritage listed row of terraces on Campbell Road, opposite the St Peters interchange site

#### 4.5.4 Landscape Character Zones

Landscape Character Zones were determined by land use, as these were considered to be the strongest defining character elements of the area. Five LCZs have been identified surrounding the St Peters interchange area comprising:

- 1) LCZ 1: Residential
- 2) LCZ 2: Industrial
- 3) LCZ 3: Recreation
- 4) LCZ 4: Transport Corridor
- 6) LCZ 6: Commercial Corridor

Although these LCZs may extend beyond the study area boundary, the character of these zones were analysed and assessed within this boundary only, for the purposes of this report.

##### 4.5.4.1 Landscape Character Zone 1: Residential

The Residential LCZ lies to the north and north-west of the St Peters interchange site, lying over a gently undulating landform.

The LCZ comprises:

- Predominantly R2 Low Density zoned land:
  - Characterised by a mix of single and double storey brick and rendered terrace homes on small lots, punctuated by special use buildings such as schools and churches
  - Some newer townhouses and detached dwellings also exist within the terrace housing
- Pockets of R1 General zoned land are dotted throughout the area (mainly along more major roads):
  - Some low rise apartment blocks
  - Otherwise typically small lots, older style homes (many Federation or Victorian) with minimal off-street parking, narrow streets and parallel on-street parking on both sides of many suburban streets gives this area a more inner city suburban, densely populated character (refer **Figure 4-62**)

Mature street trees and gardens add to the established character of this area.

A number of heritage listed items are located within this LCZ, including two groups of double storey 'Victorian' terrace houses located in Campbell Road and Unwins Bridge Road. The Campbell Road terraces are zoned R1 General Residential and comprise a row of double story terrace houses with rear lane access that back onto Sydney Park (refer **Figure 4-61**).

The Residential LCZ is generally characterised by suburban, quiet streets that are periodically intersected by busier transport corridors such as the Princes Highway and Campbell Road.



Figure 4-62 Typical street within the Residential LCZ, Brown Street, St Peters.

#### 4.5.4.2 Landscape Character Zone 2: Industrial

Three distinct groups of industrial zoned land lie within the study area:

- The St Peters landfill site
- The active industrial corridor which backs onto the Alexandra Canal
- Large blocks of industrial land with large industrial complexes on them, many which have internal courtyard car parking areas.

Much of the landfill site is not readily visible from the existing road network. This is largely due to the existing urban form, topography, and screening provided by existing vegetation and mature street tree planting. Where the site does lie directly adjacent to a road, it is bounded by tall solid fencing, hoardings or visually impenetrable sheds (refer **Figure 4-63**). The site itself is an excavated dump site, with weed growth and limited constructed elements lying within it.

The active industrial corridor which backs onto the Alexandra Canal is characterised by large, low lying industrial buildings and sheds with open, fenced lots between them for private car parking and truck loading facilities. While the buildings themselves address the main roads on either side of the Canal (namely Burrows Road and Bourke Road within the study area), glimpse views can be seen between these large, long buildings to the Canal (refer **Figure 4-64**). The streets are lined with large, mature trees (refer **Figure 4-65**). Some blocks act as storage areas for large shipping containers, which visually tie these industrial developments to the canal and its history as an active shipping corridor.

Other areas of industrial land comprise large industrial complexes with internal parking courtyards, e.g. on the corner of Canal Road and Burrows Road. These complexes visually address the streets in a similar manner to those backing onto the Alexandra Canal, with blank building fronts softened by mature street trees and occasional entries to car parks and courtyards at the rear of the buildings.





Figure 4-63 The boundary of the brickpit / landfill site on Princes Highway, east of the Canal Road intersection



Figure 4-64 Glimpse views can be seen between industrial buildings to the Alexandra Canal



Figure 4-65 The view south along Burrows Road, showing low rise, large industrial buildings and mature street trees

#### 4.5.4.3 Landscape Character Zone 3: Recreation

Due to the density of the surrounding residential area, recreational green space is highly used and valued by the local community. It typically comprises formalised, turfed parks with mature fringing vegetation (street trees). Recreational parks within the area fall within two categories:

- Large scale parks
  - Sydney Park is a regionally significant park located north of Campbell Road (refer **Figure 4-66**)
  - The park topographically comprises a series of manmade landforms and wetlands (refer **Figure 4-67**)
  - The park is characterised by large, open turfed areas and mounds, fringed with mature (but often stunted) trees and screening vegetation, and pockets of dense 'bush character' vegetation
  - Facilities within the park include walking paths, BBQs, picnic facilities, seating, public toilets, a playground, and educational elements such as the water sensitive urban design initiatives.
- Smaller sized pocket parks
  - Simpson Park: a small, flat, rectangular, formal local park located north of Campbell Street, fenced on all sides and consisting of a playground, cricket nets, and mature fig trees that line Campbell Street (refer **Figure 4-68**)
  - Camdensville Park: a small park located on the corner of Unwins Bridge Road and Bedwin Road, comprising a playing field and detention basin.



Figure 4-66 Sydney Park, as seen from the corner of Euston Road and Campbell Road, showing mature fringing vegetation and street trees





Figure 4-67 Sydney Park, showing wetlands and a bioretention system nestled between man made landforms



Figure 4-68 Simpson Park viewed from Campbell Street. Large fig trees line the park, providing a visual frame to the flat, turfed area inside

#### 4.5.4.4 Landscape Character Zone 4: Transport Corridor

Within the study area, the Transport Corridor LCZ comprises a number of major roads:

- Princes Highway
  - Strong linear transport corridor broadly following a low ridgeline, and characterised by active retail, light industrial and commercial development (refer **Figure 4-69**)
  - Views are visually confined within the road corridor, predominantly due to built form on either side of the road. Glimpse views can be seen to the landscape beyond the fringing development along perpendicular roads and through gaps between buildings and commercial complexes
  - Utilitarian character with limited scenic amenity.
- Canal Road
  - Visually characterised by industrial development on either side of the road, with large parcels of land and industrial complexes visually containing views within and along the road corridor (refer **Figure 4-70**). The road crosses over the Alexandra Canal, which provides views along the canal to flanking industrial development
  - The road corridor is intermittently flanked by substantial tree cover. The landform slopes away from the Princes Highway to the west



Figure 4-69 View south along the Princes Highway towards the intersection with Canal Road, showing industrial and commercial buildings flanking the road



Figure 4-70 View southeast along Canal Road from the Princes Highway, showing industrial development flanking the road, and mature street trees



#### 4.5.4.5 Landscape Character Zone 6: Commercial Corridor

This LCZ is an active business and commercial corridor which runs north - south adjacent to the Princes Highway. Although this LCZ broadly follows the ridgeline along the Princes Highway, views to the landscape beyond are limited by built form.

The heritage listed St Peters Anglican Church sits on a natural high point and is the only area that contains substantial tree cover along the corridor within the study area.

The character is primarily influenced the utilitarian nature of the road setting, with business and commercial development prominent on either side of the highway. Commercial complexes comprise fast food chains, a hotel and small factory complexes with internal courtyards and limited scattered mature street trees (refer **Figure 4-71**).



**Figure 4-71** View looking south-west along Princes Highway, showing the commercial complexes along the southern side of the highway (to left of frame) and the St Peters Anglican Church grounds to right of frame



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## 5.0 Policy and Planning Setting

### 5.1 Urban design, landscape character and visual amenity

The policy and planning setting for the project and its potential landscape and visual impacts has been established with regard to the following regional planning documents and relevant local environment plans:

- *Sydney Regional Environmental Plan No. 33 – Cooks Cove.*
- *Princes Highway Corridor Strategy 2013*
- *Hurstville Local Environmental Plan 2012*
- *Canterbury Local Environmental Plan 2012*
- *Rockdale Local Environmental Plan 2011*
- *Sydney Local Environmental Plan 2012*
- *Marrickville Local Environmental Plan 2011.*

The anticipated character of the area has been determined based on the strategic direction provided in these documents.

The Cooks Cove Growth Centre is a 100 hectare precinct, which is bounded by the Cooks River and Muddy Creek, Marsh Street, West Botany Street and Bestic Street. It is subject to *Sydney Regional Environmental Plan No. 33 – Cooks Cove*, a deemed State Environmental Planning Policy. Preliminary strategies identified an area for employment uses near Marsh Street with the remainder of the site to be set aside for conservation, open space and recreational purposes. More recently, the NSW Department of Planning and Environment has commenced investigations of the Cooks Cove area as a potential priority precinct.

The *Princes Highway Corridor Strategy*, an initiative of Rockdale City Council, was adopted by the Council in late 2013. The strategy focuses on revitalising the corridor within the Rockdale local government area for employment uses and growing the Arncliffe town centre. This strategy recommends changes to the distribution of residential, mixed use and business zones, as well as increased densities.

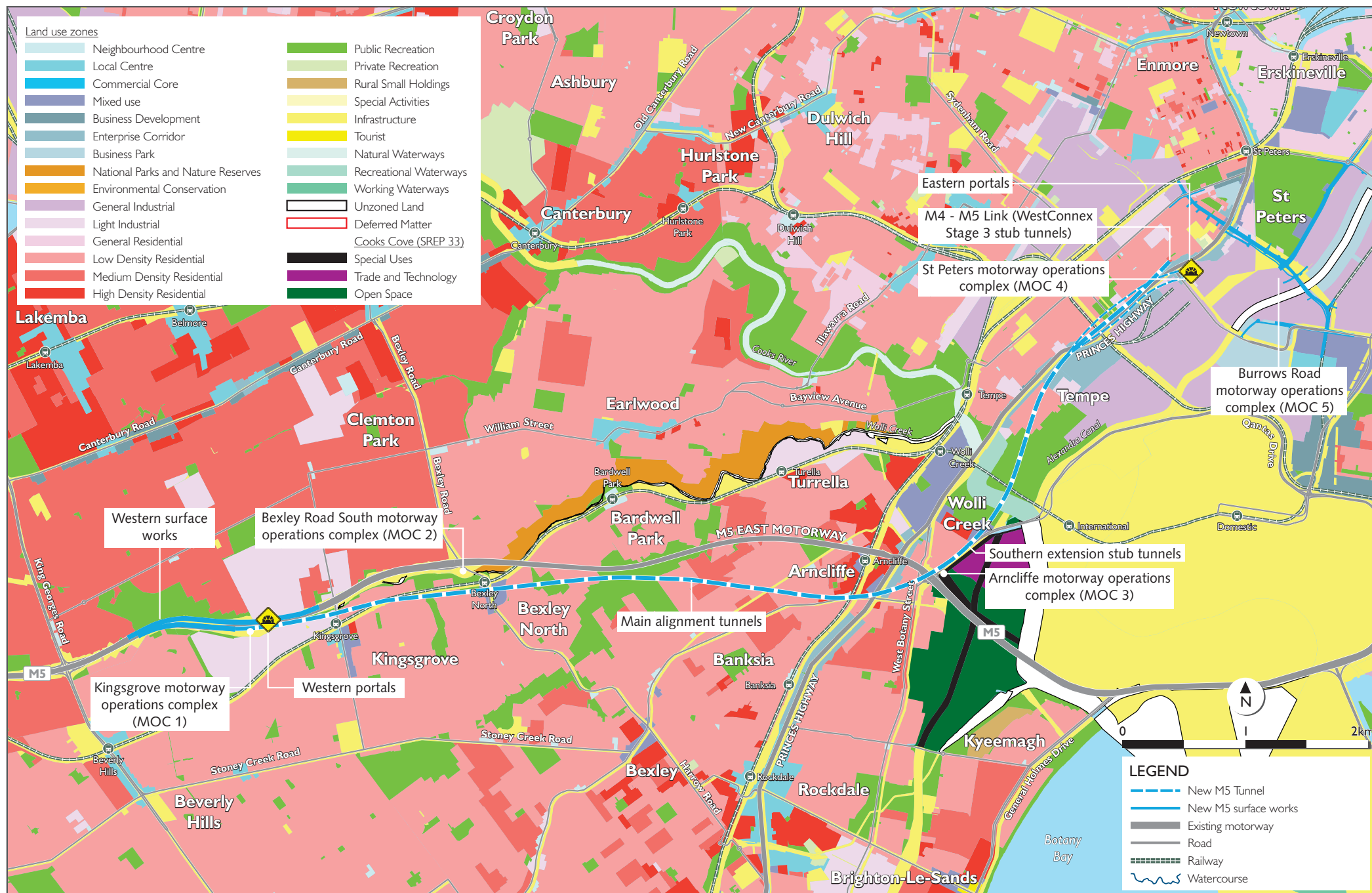
The anticipated character of areas specific to key project components has been inferred from the land zoning provisions under the relevant environmental planning instruments. Existing land use zonings and the anticipated character of these zonings are summarised in **Table 5-1**.

**Table 5-1** Land use zonings within landscape character zones

| Landscape character zone | Description of land use zoning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Western surface works    | <p>The M5 East Motorway corridor is zoned as SP2 Infrastructure under both the Hurstville LEP 2012 and the Canterbury LEP 2012. This zoning reflects the desire to maintain accessibility, supporting economic activity and efficient freight movement.</p> <p>The land to the north of the M5 East Motorway and western surface works area is zoned as RE1 Public Recreation, R3 Medium Density Residential, IN2 Light Industrial under the Canterbury LEP 2012. The land to the south of the M5 East Motorway and western surface works area is zoned as R2 Low Density Residential and IN2 Light Industrial, with some pockets of RE1 Public Recreation under the Hurstville LEP 2012. This zoning reflects the desire to maintain the existing low-medium density residential character and suburban setting of the area, with pockets of bushland.</p> |

| Landscape character zone              | Description of land use zoning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bexley motorway operations complex    | <p>The M5 East Motorway and Bexley Road are zoned as SP2 Infrastructure under the Canterbury LEP 2012. This zoning reflects the desire to maintain accessibility, supporting economic activity and efficient freight movement.</p> <p>North of the M5 East Motorway and west of Bexley Road is zoned as R3 Medium Density Residential and some pockets of RE1 Public Recreation under the Canterbury LEP 2012. East of Bexley Road is zoned as R2 Low Density Residential, E1 National Parks and Nature Reserves and some pockets of RE1 Public Recreation under the Canterbury LEP 2012. This zoning reflects the desire to maintain the existing low-medium density residential character and bushland setting of the area.</p> <p>South of the M5 East Motorway and west of Bexley Road is zoned as R2 Low Density Residential, RE1 Public Recreation, and SP2 Infrastructure (along the East Hills railway line) under the Canterbury LEP 2012. This zoning reflects the desire to maintain the existing low density residential character and bushland setting of the area, while maintaining accessibility.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Arncliffe motorway operations complex | <p>East of the Kogarah Golf Course is Sydney Airport which is zoned as SP2 Infrastructure under the Rockdale LEP 2011. This zoning reflects a desire to maintain accessibility, supporting economic activity, tourism and efficient freight movement.</p> <p>Marsh Street and West Botany Street, to the north and west of the Kogarah Golf Course, are zoned as SP2 Infrastructure under the Rockdale LEP 2011. This zoning reflects the desire to maintain access and connectivity between local centres of employment and economic activity.</p> <p>The north of the Kogarah Golf Course, along Marsh Street, is zoned as R2 Low Density Residential, B4 Mixed Use, R4 High Density Residential and RE1 Public Recreation under the Rockdale LEP 2011. This zoning reflects the desire to maintain the residential character of the area along with integrated business development and recreational areas, in keeping with the <i>Sydney Regional Environmental Plan No. 33 – Cooks Cove</i> and the <i>Princes Highway Corridor Strategy</i>.</p> <p>The west of the Kogarah Golf Course, along West Botany Street, is zoned as R2 Low Density Residential. This zoning reflects the desire to maintain the existing low density residential character of the area.</p>                                                                                                                                                                                                                                                                                                    |
| St Peters interchange and surrounds   | <p>The Princes Highway is zoned as SP2 Infrastructure under the Rockdale LEP 2011 and Campbell Road is zoned as SP2 Infrastructure under Sydney LEP 2012. Canal Road is also zoned as SP2 Infrastructure under the Sydney LEP 2012 and the Marrickville LEP 2011. This zoning reflects the desire to maintain access and connectivity between local centres of employment and economic activity.</p> <p>The Alexandria Landfill (the future site of the SPI) is zoned as SP2 Infrastructure (Sydney LEP) and IN1 General Industrial (Rockdale LEP). To the north of the Alexandria Landfill along the Princes Highway are areas zoned as B6 Enterprise Corridor and B4 Mixed Use, to the east along Campbell Street and Campbell Road are areas zoned as IN2 Light Industrial and R1 General Residential under the Rockdale LEP 2011, and RE1 Public Recreation under the Sydney LEP 2012. To the east and south along Burrows Road and the Alexandra Canal the land is zoned as IN1 General Industrial under the Sydney LEP 2012. To the west of the landfill and Canal Road is land zoned as IN1 General Industrial under the Marrickville LEP 2011.</p> <p>The zoning of the areas surrounding the St Peters interchange identify that the anticipated character of the broader area (assuming no changes to zoning) is to retain the existing low to medium density development, whilst also continuing to encourage business development within the enterprise corridor and mixed use areas and industrial development contained within the existing industrial areas.</p> |





**Figure 5-1 Regional zoning context of the project**

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## 6.0 Assessment of potential impacts

This section provides an assessment of the potential visual and night lighting impacts of the project during construction and at operation. Potential visual and lighting impacts associated with construction would be temporary for the duration of the works for each site and works would be undertaken to revegetate and rehabilitate each site on completion of construction.

### 6.1 Construction visual impacts

Visual impacts during the construction stage would result from the introduction of construction activities and construction ancillary facilities into the existing landscape. For the purpose of assessing these impacts, temporary construction compounds and construction disturbance areas have been grouped depending on landscape and receiver contexts (refer **Figure 6-1**):

- Kingsgrove North construction compound (C1)
- Kingsgrove South construction compound (C2)
- Commercial Road construction compound (C3)
- Bexley Road North construction compound (C4)
- Bexley Road South construction compound (C5)
- Bexley Road East construction compound (C6)
- Arncliffe construction compound (C7)
- Canal Road construction compound (C8)
- Campbell Road construction compound (C9)
- Landfill closure construction compound (C10)
- Burrows Road construction compound (C11)
- Campbell Road bridge construction compound (C12)
- Gardeners Road bridge construction compound (C13)
- Sydney Park construction compound (C14)

Construction works would likely commence in mid 2016 with expected opening to traffic in late 2019.

It is anticipated that construction activities would generally take place from 7am to 6pm, Monday to Friday and 8am to 1pm Saturday, with no work on Sunday or public holidays. However, certain activities including tunnelling excavation and spoil handling and haulage would take place on a 24 hour, seven days a week basis.

The visual impact assessment for each construction compound and western surface works (including night time lighting) is provided in **Table 6-1** to **Table 6-30**.



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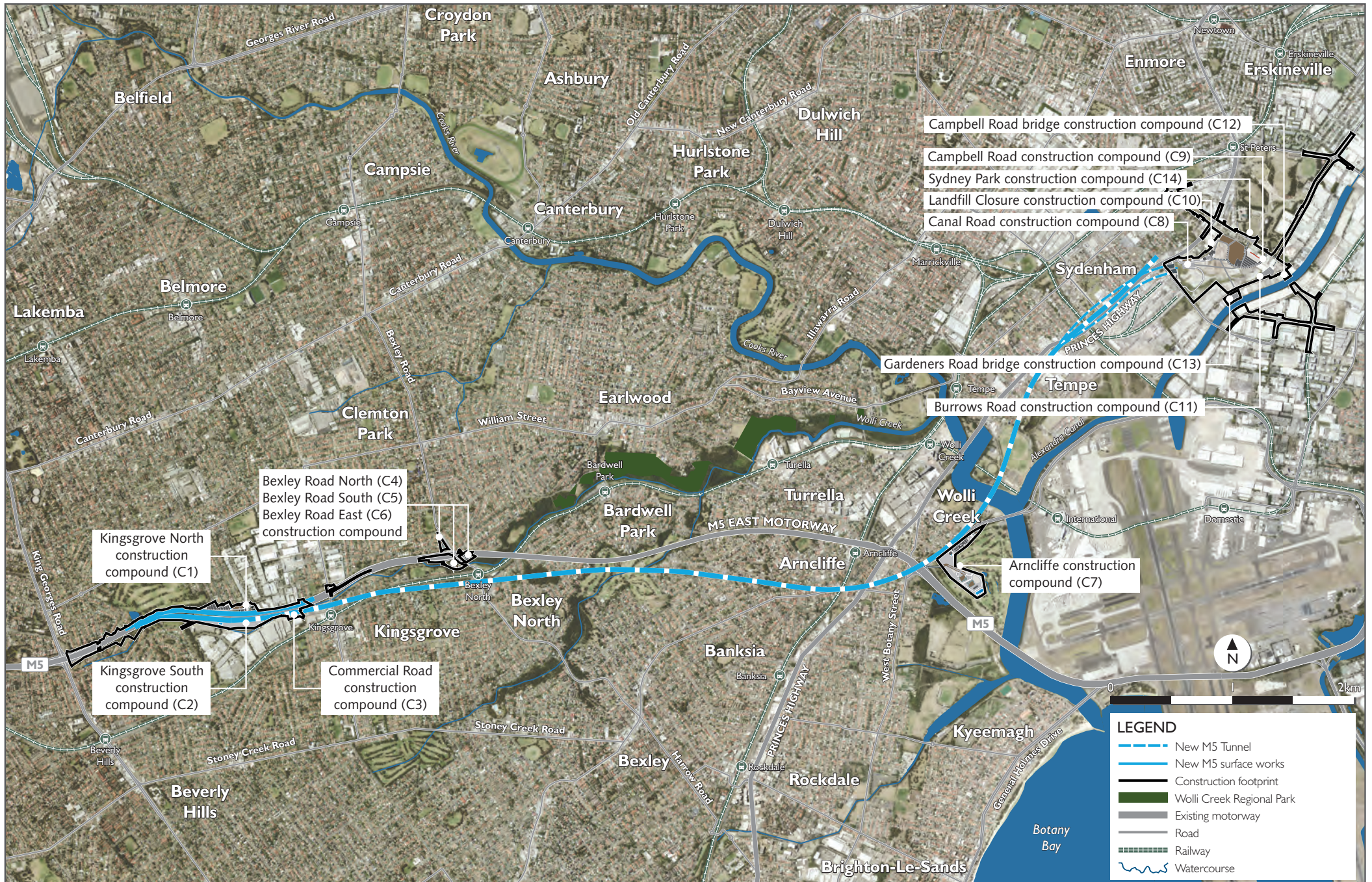


Figure 6-1 Overview of all construction compound locations



Receivers of views to construction compounds and activity could include:

- Industrial neighbours
- Residential neighbours – low, medium or high density
  - With boundaries adjoining the compounds
  - Without boundaries adjoining the compounds
- Commercial neighbours / users of commercial areas
- Users of recreational space:
  - Active recreation (joggers, pedestrians, cyclists and active recreational pursuits such as ball sports)
  - Passive recreation (visitors such as picnickers)
  - Users of semi-public recreation areas, such as golf courses
- M5 East Motorway users (motorists and cyclists).

It is noted that regardless of the visual impact during construction, these changes would be temporary and in many cases the sites returned to their original state.

#### **6.1.1 Kingsgrove North construction compound (C1)**

Kingsgrove North construction compound supports the western surface works at Kingsgrove North. It is located north of the M5 East Motorway and accessed via Garema Circuit (refer **Figure 6-2**). The site currently comprises open space known as Beverly Grove Park North, within the M5 Linear Park. The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Hoarding (four metres high)
- Temporary noise barriers (around 2.5 metres high)
- Car parking
- Tunnel shaft within an acoustic spoil shed and associated haulage
- Site offices and crib area
- Storage laydown areas
- Access between the northern and southern side for construction traffic via the existing Kindilan Underpass
- Sedimentation pond.

Kingsgrove North construction compound would be highly visible to adjoining residential development due to the tunnelling shaft, acoustic shed area and associated infrastructure. The site works would be visually screened with hoarding, fencing and also incorporate a temporary noise barrier adjoining residential development. As such, much of the compound infrastructure would be visible above the perimeter hoarding, fencing and noise walls.

During tunnelling works, the site access at Garema Circuit would be used 24 hours a day, therefore night lighting adequate to safely support construction activity is assumed.

It is anticipated that once the tunnelling activities have been completed, the site's temporary facilities are removed and the tunnel shaft backfilled, the land would be handed over to civil teams for surface civil works.



Five Receiver Locations have been assessed for this site (refer **Figure 6-2**):

- 1) Garema Circuit, Kingsgrove North construction compound entry
  - This Receiver Location assesses the impact of construction on workers in the light industrial area to the north-east of the proposed Kingsgrove North construction compound site, particularly at the entry to the site on Garema Circuit.
  - Receivers comprise industrial neighbours
- 2) Glamis Street, southern end
  - This Receiver Location assesses the impact of construction on residents living at the southern end of Glamis Street, but also approximates the visual impact on residents living along the northern boundary of the proposed Kingsgrove North construction compound on Armitree Street and Rosebank Avenue.
  - Receivers comprise residential neighbours and recreational users of the park at the end of the street (pedestrians and cyclists). Due to the removal of the passive recreation space in this location, no other users of recreational space have been assessed here (ie. passive recreational users).
- 3) 101 Armitree Street
  - This Receiver Location assesses the impact of construction on residents living north of, but not sharing a boundary with the site, and not living within 150 metres of the site boundary. It also approximates the visual impact on residents living at the middle to northern ends of Glamis Street and Rosebank Avenue.
  - Receivers comprise residential neighbours
- 4) M5 Linear Park - Kindilan underpass
  - This Receiver Location assesses the impact of construction on users of the M5 Linear Park at the Kindilan Underpass.
  - Receivers comprise pedestrians and cyclists
- 5) Canterbury Golf Course
  - This Receiver Location assesses the visual impact on of construction on people using the golf course
  - Users comprise active recreational users of a semi-public open space.
- 6) M5 East Motorway
  - This Receiver Location assesses the impact of construction on users of the M5 East Motorway travelling both east and west through the western surface works area.
  - Receivers comprise road users

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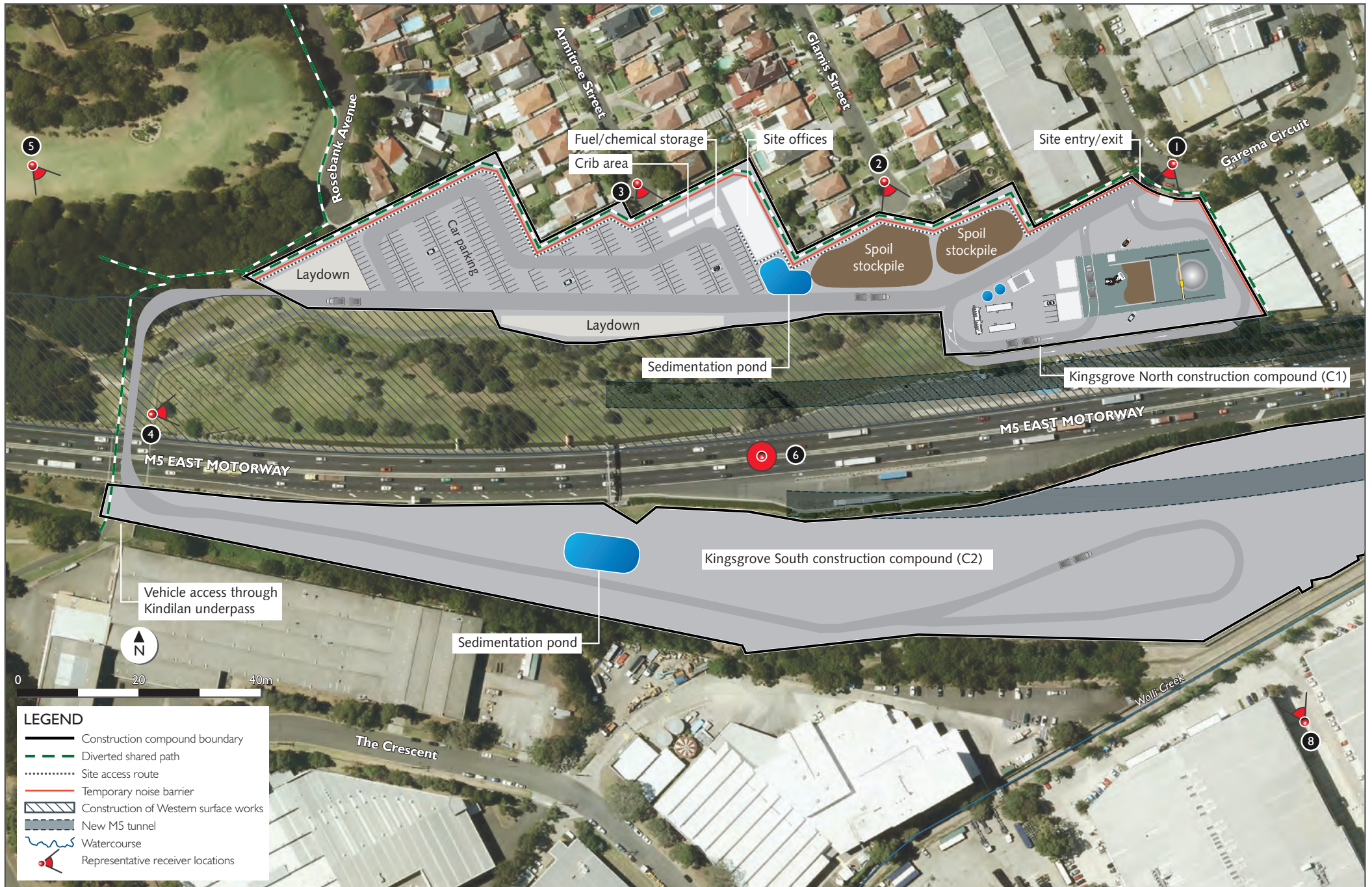


Figure 6-2 Kingsgrove North and Kingsgrove South construction compound receiver locations



### Impact Assessment

Table 6-1 Visual Impact Assessment of Kingsgrove North construction compound (C1)

| Receiver Location                                      | Receiver              | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        |
|--------------------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                        |                       | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rating |
| 1. Garema Circuit, C1 entry (refer <b>Figure 6-3</b> ) | Industrial neighbours | <p>The sensitivity of receivers in the industrial complex is Low due to:</p> <ul style="list-style-type: none"> <li>- The utilitarian nature of the industrial area (i.e. emphasis on function rather than scenic amenity)</li> <li>- The contained nature of the development, with limited views to the landscape outside the industrial complex</li> <li>- Low numbers of viewers (predominantly workers in the surrounding buildings) due to the location of the compound entry at the far end of the street and the small amount of street frontage taken up by the entry to the compound</li> </ul> | <p>The magnitude of the change due to the development during the construction period is Low.</p> <p>Although the nature and scale of much of the construction compound differs dramatically from the existing condition of parkland, the entry point to the compound exists within an industrial complex with limited frontage.</p> <p>While the scale of some of the elements within the construction compound are larger than existing buildings within the neighbouring industrial complex, much of the compound would be difficult to see from the industrial area due to existing built form, mature landscape, and topography. Some of the taller elements may be seen above the existing buildings and trees, but would not be out of character for views seen within an industrial area.</p> <p>Trucks would enter and leave the compound with greater frequency to normally occurring, but at an estimated rate of five vehicles per hour would not be excessive within the context of the existing industrial character of the area.</p> | Low    |

| Receiver Location                                                               | Receiver                                                        | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                                                 |                                                                 | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Rating |
| 2. Glamis Street, southern end (refer <b>Figure 6-4</b> and <b>Figure 6-7</b> ) | Residential neighbours - with boundaries adjoining the compound | <p>The sensitivity of residential receivers is High due to:</p> <ul style="list-style-type: none"> <li>- The close proximity of the construction compound boundary to residents at the southern end of Glamis Street</li> <li>- Receivers would be seeing the view from their primary places of residence, either from their front and back yards, or in a few instances from inside their homes</li> <li>- For residents, the view from their homes can be assumed to be important and receivers may see views towards the construction compound site from living areas of their homes</li> <li>- The scale and character of the development is in sharp contrast to the existing situation</li> <li>- However, there would be low numbers of receivers viewing the construction compound site at such close proximity (limited to residents along the boundary or near to the boundary of the construction compound site).</li> </ul> | <p>The magnitude of the development at this location is High, due to the following:</p> <ul style="list-style-type: none"> <li>- The character and scale of the proposed construction compound is very different from the existing use of the site as a parkland</li> <li>- The noise walls (shown in <b>Figure 6-2</b>) would be very visually intrusive to around 12 properties whose properties back onto the site (or in some cases where the properties share both side and back boundaries with the site), and who currently enjoy views to the open parkland and vegetated M5 East Motorway mound</li> <li>- Other elements (such as the acoustic shed) may also be visually prominent to many residents</li> <li>- Overshadowing from the larger or closer elements to property boundaries (noise walls and the acoustic sheds where they are situated to the east or west of some properties) may impact residents.</li> </ul> | High   |

| Receiver Location | Receiver               | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |
|-------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                   |                        | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Rating |
|                   | Pedestrians / cyclists | <p>The sensitivity of pedestrians and cyclists using the M5 Linear Park pathway near the end of Glamis Street is High due to:</p> <ul style="list-style-type: none"> <li>- The importance of the quality of the view to recreational users</li> <li>- The moderate to high number of users who would use the pathway / park</li> <li>- The slow speed at which the receiver would move through the site, allowing time for the surrounding landscape to be viewed in great detail (especially true of pedestrians)</li> <li>- The close proximity from which the viewer would see changes to the site.</li> <li>- However, the receiver would be moving through / past the site and therefore the view seen may only be a small part of a substantially larger journey.</li> </ul> | <p>The magnitude of the development at this location is High, due to the following:</p> <ul style="list-style-type: none"> <li>- The character and extent of the proposed construction compound is in sharp contrast from the existing use of the site as a park</li> <li>- Pedestrians and cyclists would be diverted around the edge of the construction compound, between the 2.5 metre high noise barrier and the back fences of residences adjacent to the compound, thereby viewing the compound at close range, and travelling through a narrow 'tunnel' environment.</li> </ul> | High   |



| Receiver Location                                 | Receiver                                                           | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |
|---------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                                                   |                                                                    | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rating   |
| 3. 101 Armitree Street (refer <b>Figure 6-5</b> ) | Residential neighbours - without boundaries adjoining the compound | <p>The sensitivity of residential receivers is Moderate due to:</p> <ul style="list-style-type: none"> <li>- The moderate proximity of the construction compound boundary to residents at the southern end of Armitree Street (within 150 metres of site boundary), but low visibility of the compound site from most of the residents in their homes or front and back gardens (i.e. Armitree Street, Glamis Street and Rosebank Avenue)</li> <li>- The extent and nature of the development is very different from the existing situation</li> <li>- The relatively low to moderate numbers of receivers that live in the middle to northern ends of these streets</li> </ul> | <p>The magnitude of the development during construction at this location is Moderate, due to the following:</p> <ul style="list-style-type: none"> <li>- The character and scale of the proposed construction compound is very different from the existing use of the site as a park but potentially not too visually prominent from further up the street</li> <li>- The noise barrier (2.5 metres) at the boundary to the compound would be easily seen from the street and backyards at lower ends of streets. This is due to the topography of the area, taller elements (particularly the acoustic shed, which would have a maximum height of 20 metres at the ridgeline) may be seen above trees and buildings from some distance away, although in places these may be screened by mature street trees and somewhat tucked away in the existing utilitarian industrial zone.</li> <li>- New elements within the compound would comprise a significant character change to the existing view from the street</li> <li>- Views to the compound are unlikely to be seen from inside any residences, with the likelihood of visibility reduced the further north up the street receivers travel.</li> </ul> | Moderate |

| Receiver Location                                                 | Receiver               | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |
|-------------------------------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                                   |                        | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Rating |
| 4. M5 Linear Park - Kindilan underpass (refer <b>Figure 6-6</b> ) | Pedestrians / cyclists | <p>The sensitivity of pedestrians and cyclists using the M5 Linear Park pathway and Kindilan Underpass is High due to:</p> <ul style="list-style-type: none"> <li>- The importance of the quality of the view to recreational users</li> <li>- The moderate number of users who would use the pathway, which is to be potentially doubled during construction (therefore a high number of users) as users of the pathway on the southern M5 East Motorway Linear Park are to be diverted under the Kindilan underpass and onto the northern pathway during construction</li> <li>- The slow speed at which the receiver would move through the site, allowing time for the surrounding landscape to be viewed in great detail (especially true of pedestrians)</li> <li>- The close proximity from which the viewer would see changes to the site.</li> <li>- However, the receiver would be moving through / past the site and therefore the view seen may only be a small part of a substantially larger journey.</li> </ul> | <p>The magnitude of the development during construction at this location is High, due to the following:</p> <ul style="list-style-type: none"> <li>- The character and scale of the proposed construction compound is very different from the existing use of the site as a park</li> <li>- Pedestrians and cyclists would be diverted around the edge of the construction compound, between the 2.5 noise barrier and the back fences of residences adjacent to the compound</li> <li>- Pedestrians and cyclists from the southern side of the M5 Linear Park would be diverted to north of the M5 East Motorway under the Kindilan Underpass, and would share the northern path, thereby increasing the numbers of users of this pathway</li> <li>- Pedestrians and cyclists would share the Kindilan underpass with construction traffic, therefore the user experience would be altered from existing.</li> </ul> | High   |

| Receiver Location         | Receiver                                       | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                      |                |
|---------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                           |                                                | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Magnitude                                                                                                                                            | Rating         |
| 5. Canterbury Golf Course | Active recreation - players on the golf course | <p>The sensitivity of users of the Canterbury Golf Course would be Moderate due to the following:</p> <ul style="list-style-type: none"> <li>- The visual amenity of the landscape would be important to those partaking in the recreational activity, although golfers could also be expected to be concentrating on their game.</li> <li>- The slow speed at which the receiver would move through the site, allowing time for the surrounding landscape to be viewed in great detail and for prolonged periods of time</li> <li>- The close proximity from which the viewer would see changes to the site, but the very limited area from which the site is likely to be seen due to the screening effect of the Beverley Grove Bushland site.</li> <li>- A low to moderate number of users would play on the golf course during the week, but potentially a high number of users would play on the weekends.</li> </ul> | <p>The magnitude of the change at this location would be Low. Only the south-western corner of the course is likely to be affected by the works.</p> | Moderate - Low |



| Receiver Location   | Receiver   | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |
|---------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                     |            | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rating |
| 6. M5 East Motorway | Road users | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- The limited views afforded to road users within the M5 East Motorway corridor, with views predominantly along the roadway itself but not to the surrounding landscape</li> <li>- The small portion of road affected by the construction works as part of a greater journey along the M5 East Motorway</li> <li>- The speed at which road users would view the landscape would preclude any detail views to elements within the road corridor</li> <li>- The utilitarian nature of the M5 East Motorway road corridor as an infrastructure element.</li> </ul> | <p>The magnitude of the change would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- For most of the construction period, the hoardings and visually impermeable fencing around Kingsgrove North construction compound would be visible to both east and west bound traffic, but of minor visual significance due to: <ul style="list-style-type: none"> <li>- the small portion of road affected within the motorists greater journey</li> <li>- the speed at which they would pass the compound</li> <li>- the utilitarian nature of the transport corridor.</li> </ul> </li> <li>- Note: refer Section 6.1.15 for full assessment of visual impact due to construction within the M5 East Motorway corridor, including tie-in works and construction of portals.</li> </ul> | Low    |



Figure 6-3 Entry point of Kingsgrove North construction compound on Garema Circuit (south)



Figure 6-4 View from the end of Glamis Street to the site of Kingsgrove North construction compound, with the M5 East Motorway beyond the vegetated mound in the background. Note the adjacent residence with windows looking towards the Construction Compound site.



Figure 6-5 View south from the street adjacent to the driveway of 101 Armitree Street, towards the site of Kingsgrove North construction compound.



Figure 6-6 View west (left of frame) to east (centre-right of frame) along the pedestrian path, towards the site of proposed Kingsgrove North construction compound, with Kindilan Underpass to the south (right of frame).





**Figure 6-7** View south along Glamis Street looking down the hill to the site of Kingsgrove North construction compound, which would substantially comprise a small element framed by trees at the end of the street.

**Night Lighting Impacts****Table 6-2 Night Lighting Impact Assessment of Kingsgrove North construction compound (C1)**

| Receiver Location           | Receiver              | Visual Impact Assessment      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |
|-----------------------------|-----------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
|                             |                       | Sensitivity                   | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Rating            |
| 1. Garema Circuit, C1 entry | Industrial neighbours | Low<br>Refer <b>Table 6-1</b> | <p>The magnitude of change is Moderate, due to the following:</p> <ul style="list-style-type: none"> <li>- The visual setting of the construction compound includes lighting associated with the M5 East Motorway, local streets, and illuminated lights from adjoining industrial buildings. A majority of the proposed construction compound site is recreational land, and is predominantly unlit, with the exception of lights positioned at regular intervals along the pedestrian pathway</li> <li>- Lighting during construction would be associated with the acoustic spoil shed, tunnel shaft, site office, car parking, amenities and other structures. As the tunnelling construction activities would occur 24 hours – 7 days a week, there would be constant flow of heavy vehicles entering and exiting the site via Garema Circuit. This may result in increased localised glare and lighting movement from vehicle headlights within the industrial complex.</li> <li>- It is anticipated that viewer numbers in the industrial areas at night would be low, as the complexes would only be operational during regular working hours.</li> </ul> | Moderate<br>- Low |

| Receiver Location              | Receiver               | Visual Impact Assessment       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |
|--------------------------------|------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                                |                        | Sensitivity                    | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rating   |
| 2. Glamis Street, southern end | Residential neighbours | High<br>Refer <b>Table 6-1</b> | <p>The magnitude of lighting increase is High due to the following:</p> <ul style="list-style-type: none"> <li>- The visual setting of the construction compound includes lighting associated with the M5 East Motorway, local streets, and illuminated windows of residential properties. The parkland itself on which the compound is situated is predominantly unlit, with the exception of lights positioned at regular intervals along the pedestrian pathway.</li> <li>- Lighting during construction would be associated with the acoustic spoil shed, tunnel shaft, site office, amenities and other structures. As the tunnelling construction activities would occur 24 hours – 7 days a week, there would be constant flow of heavy vehicles entering and exiting the site through the industrial complex, but no extra vehicular movement to residential streets adjacent to the compound. Localised glare and lighting movement from vehicle headlights pointing towards adjoining residential properties would be blocked by the 6m noise walls surrounding the compound; however a generalised increase in lighting spilling up into the night sky from the compound is expected.</li> <li>- It is assumed that the pedestrian pathway between the back fences of adjoining residents and the noise barrier would be lit for safety. While the existing pathway in its current state is lit, the realigning of the pathway to the boundary of the compound / residential properties would bring the lighting much closer to the residential properties than the current situation.</li> </ul> | High     |
|                                | Pedestrians / cyclists | High<br>Refer <b>Table 6-1</b> | <p>The magnitude of lighting increase is Low due to the following:</p> <ul style="list-style-type: none"> <li>- It is assumed that the pedestrian pathway between the back fences of adjoining residents and the noise barrier would be lit for safety, as per the current situation</li> <li>- Light spill from above the noise walls of the construction compound would not be significantly noticeable from directly adjacent to the noise walls due to the close proximity of the wall to the receiver.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Moderate |



| Receiver Location                      | Receiver                   | Visual Impact Assessment           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |
|----------------------------------------|----------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
|                                        |                            | Sensitivity                        | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rating            |
| 3. 101 Armitree Street                 | Residential neighbours     | Moderate<br>Refer <b>Table 6-1</b> | <p>The magnitude of the increase to lighting is Low due to the following:</p> <ul style="list-style-type: none"> <li>- The visual setting of the construction compound includes lighting associated with the M5 East Motorway, local streets, and illuminated windows of residential properties. The park itself on which the compound is situated is predominantly unlit, with the exception of lights positioned at regular intervals along the pedestrian pathway</li> <li>- Lighting during construction would be associated with the acoustic spoil shed, tunnel shaft, site office, amenities and other structures. As the tunnelling construction activities would occur 24 hours – 7 days a week, there would be constant flow of heavy vehicles entering and exiting the site through the industrial complex, but no extra vehicular movement to residential streets adjacent to the compound. Localised glare and lighting movement from vehicle headlights pointing towards adjoining residential properties would be blocked by the 6m noise walls surrounding the compound; however a generalised increase in lighting spilling up into the night sky from the compound is expected.</li> </ul> | Moderate<br>- Low |
| 4. M5 Linear Park - Kindilan underpass | Pedestrians / cyclists     | High<br>Refer <b>Table 6-1</b>     | The magnitude of lighting increase is Low, as it is assumed that the pedestrian pathway between the back fences of adjoining residents and the noise barrier would be lit for safety, as per the current situation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Moderate          |
| 5. Canterbury Golf Course              | Players on the golf course | High<br>Refer <b>Table 6-1</b>     | The magnitude of lighting increase is negligible, as the golf course would not be available for play at night, therefore no receivers would be present to view any changes to lighting levels at the southern end of the course adjacent to the M5 East Motorway.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Negligible        |
| 6. M5 East Motorway                    | Road users                 | Low<br>Refer <b>Table 6-1</b>      | The magnitude of lighting increase is negligible, as it is assumed that lighting levels on the M5 East Motorway would remain unchanged during construction, as the lighting levels must be maintained for road safety.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Negligible        |

### Summary of Potential Impacts

The residents adjoining the Kingsgrove North construction compound site to the north would be the most affected by the visual changes during the construction period. Existing outlook from their properties to vegetated open space would be blocked by tall noise walls, seen at close proximity. Further, pedestrians and cyclists would be directed past the back / side boundary to their properties and lighting would be brought adjacent to their properties for the safety of these users. The visual impact and night lighting impact have both been rated as High for these residents. Lighting during construction would be designed to minimise light spill and the inclusion of noise barriers during construction would reduce the amount of light trespass into adjoining residential properties.

Recreational users of the public open space would be the next most affected user group due to the changes on the site. Active recreation users (pedestrians and cyclists using the public pathway that runs through the M5 Linear park) would experience a High visual impact rating, as their journey would change from one along a gently meandering path through open green space to a journey through a tightly zig-zagging path confined between the back fences of neighbouring properties and a noise barrier up to 2.5 metres high. Levels of lighting experienced by these users should not change significantly, although a Moderate rating has been assigned due to the sensitive rating of the user group rather than the magnitude of change. Fewer receivers would be using the park at night time to view the changes.

All general visual impact and lighting visual impact ratings are summarised in **Table A - 1**.

### **6.1.2 Kingsgrove South construction compound (C2) and Commercial Road construction compound (C3)**

Kingsgrove South construction compound would support the western surface works (refer **Figure 6-2**). It is located south of the M5 East Motorway and accessed via the Kindilan Underpass (connecting this compound to the Kingsgrove North construction compound). The site currently comprises open space known as Beverly Grove Park. The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Civil site compound
- Stockpiling of fill and pavement materials as well as materials generated from excavation activities prior to off-site removal
- Laydown and storage of materials to be incorporated into permanent works
- Access between the northern and southern side for construction traffic via the existing Kindilan Underpass
- Construction of the Kingsgrove motorway operations complex
- A chain link fence surrounding the site
- Removal of noise mounds/barriers.

The Commercial Road construction compound would be located on the southern side of the existing M5 East Motorway, within a private property between Tallawalla Street and Commercial Road, Kingsgrove (refer **Figure 6-8**). The Commercial Road construction compound would be mainly used as a tunnelling support site.

The site currently comprises of an industrial property. The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Hoarding (4 metres high) and chain link fence surrounding the site
- An acoustic shed and associated haulage
- Two site offices and crib area
- Substation.

Both compounds would be highly visible to the adjoining industrial development due to the proximity of the construction site and activities such as the civil works, acoustic shed area and associated infrastructure. Site works would be visually screened with hoarding and fencing adjoining the industrial development. As such, much of the compound infrastructure that would be visible would be restricted to activities or infrastructure that extends above the perimeter hoarding and fencing.

It is anticipated that once the tunnelling activities have been completed at the Commercial Road construction compound, the construction facilities would be removed and the tunnel shaft backfilled. The land would be returned for future industrial uses consistent with the land use zoning for the site.

Once supporting works for the western surface works are complete at the Kingsgrove South construction compound, activities would commence for the construction of the permanent motorway operations complex.

Four Receiver Locations have been assessed for this site (refer **Figure 6-2** and **Figure 6-8**):

- 6) M5 East Motorway
  - This Receiver Location assesses the impact of construction on users of the M5 East Motorway heading both east and west through the western surface works area.
  - Receivers comprise road users
- 7) Commercial Road, Kingsgrove South construction compound entry
  - This Receiver Location assesses the impact of construction on workers and passers-by in the light industrial area to the south-east of the proposed Kingsgrove South construction compound site, particularly at the entry to the site on Commercial Road.
  - Receivers comprise industrial neighbours.
- 8) Vanessa Street Industrial Compounds
  - This Receiver Location assesses the impact of construction on workers in the industrial compounds to the south of the proposed Kingsgrove South construction compound site
  - Receivers comprise industrial neighbours.

The pedestrian and cycle path that runs through the site of the proposed Kingsgrove South construction compound would be redirected to the northern side of the M5 East Motorway during construction via the Kindilan Underpass (to the west of the site) and Kingsgrove Road (to the east of the site) therefore no users of recreational spaces would see the construction compound from a recreational area.



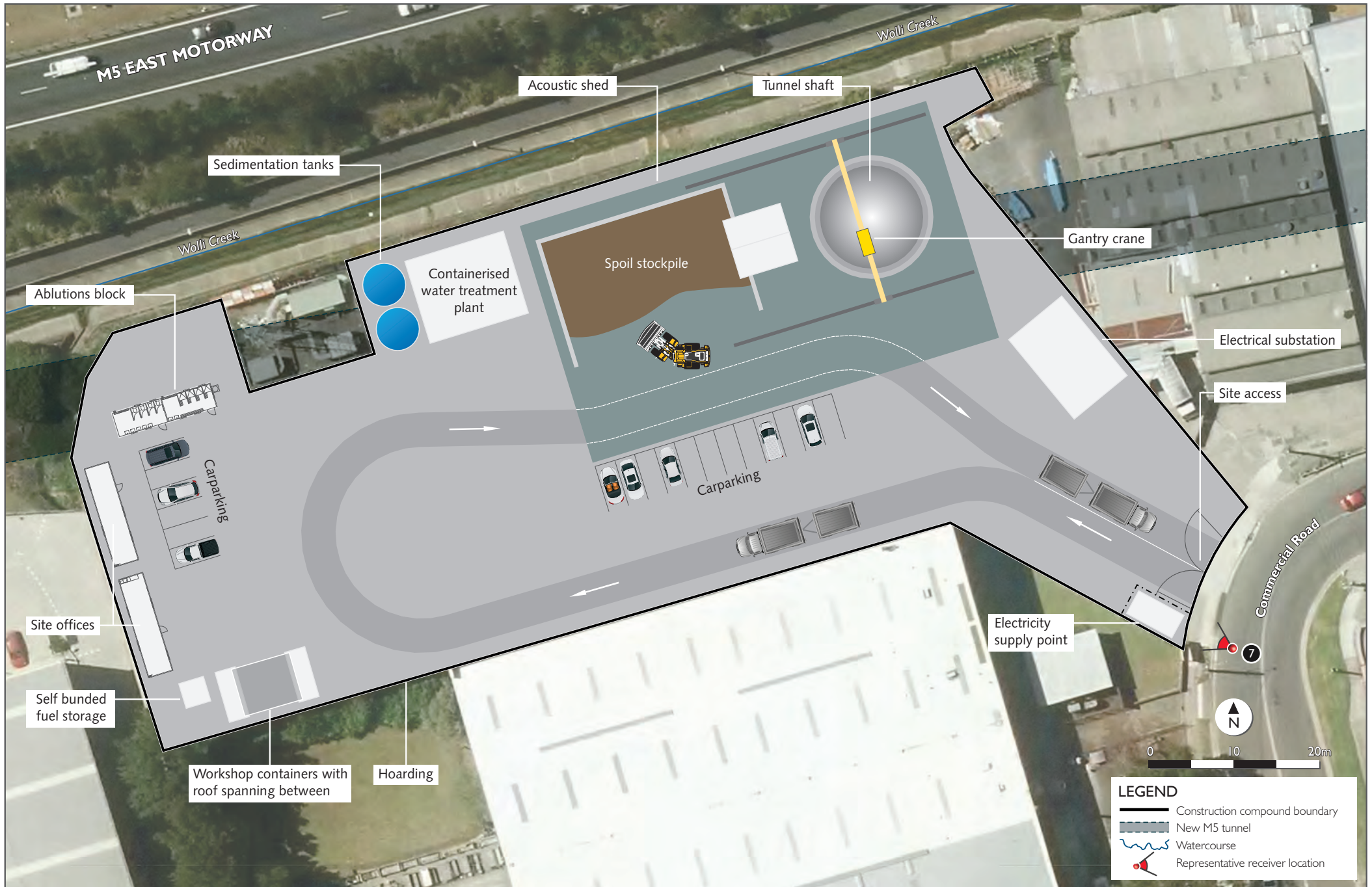


Figure 6-8 Commercial Road construction compound (C3) and receiver locations

### Impact Assessment

Table 6-3 Visual Impact Assessment of Kingsgrove South construction compound (C2) and Commercial Road construction compound (C3)

| Receiver Location   | Receiver   | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |
|---------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                     |            | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Rating |
| 6. M5 East Motorway | Road users | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- The limited views afforded to road users within the M5 East Motorway corridor, with views predominantly along the roadway itself but not to the surrounding landscape</li> <li>- The small portion of road affected by the construction works as part of a greater journey along the M5 East Motorway</li> <li>- The speed at which road users would view the landscape would preclude any detail views to elements within the road corridor</li> <li>- The utilitarian nature of the M5 East Motorway road corridor as an infrastructure element.</li> </ul> | <p>The magnitude of the change would be Low. For most of the construction period, the hoardings and visually permeable fencing around Kingsgrove South construction compound would be visible to both east and west bound traffic, but of minor visual significance due to:</p> <ul style="list-style-type: none"> <li>- The small portion of road affected within the motorists greater journey</li> <li>- The speed at which they would pass the compound</li> <li>- The utilitarian nature of the M5 East Motorway corridor.</li> </ul> <p>Note: refer <b>Section 5.1.8</b> for full assessment of visual impact due to construction within the M5 East Motorway corridor, including tie-in works and construction of portals.</p> | Low    |

| Visual Impact Assessment                                                                  |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |
|-------------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Receiver Location                                                                         | Receiver              | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Rating   |
| 7. Commercial Road, C3 entry (refer <b>Figure 6-9</b> )                                   | Industrial neighbours | <p>The sensitivity of receivers in the industrial complex is Low due to:</p> <ul style="list-style-type: none"> <li>- The utilitarian nature of the industrial area (i.e. emphasis on function rather than scenic amenity)</li> <li>- Limited views are available to the landscape outside the industrial area due to the scale of buildings and flat topography</li> <li>- The small amount of street frontage taken up with the site entry, situated on a corner of a street lined with large industrial buildings (refer <b>Figure 6-9</b>)</li> <li>- Moderate numbers of viewers (predominantly workers in the surrounding buildings and drivers driving past the compound entry)</li> <li>- The similar utilitarian character of a construction compound sited within an industrial development.</li> </ul> | <p>The magnitude of the change due to the development during the construction period is Low.</p> <p>Receivers at this location would have views to the tunnel boring works area of Kingsgrove South construction compound. The Commercial Road construction compound is situated on an existing industrial site, therefore there would be no significant change to the character of the development at this location. The scale of the development would be larger than existing, but acceptable within the context of the industrial character of the area. Additionally, only a small amount of street frontage would be taken up with the site entry, situated on a corner of a street lined with large industrial buildings (refer <b>Figure 6-9</b>)</p> <p>Views to the civil section of the compound would be screened from this location; therefore the change in character of that area would not be visible to receivers at this location.</p> | Low      |
| 8. Vanessa Street industrial compounds (refer <b>Figure 6-10</b> and <b>Figure 6-11</b> ) | Industrial neighbours | <p>The sensitivity of receivers in the industrial complex is Low due to:</p> <ul style="list-style-type: none"> <li>- The utilitarian nature of the industrial area (i.e. emphasis on function rather than scenic amenity)</li> <li>- Although views are available to receivers from the industrial area, they are generally obtained from between large scale industrial complexes (refer <b>Figure 6-10</b>)</li> <li>- Low to moderate numbers of viewers (predominantly workers in the surrounding buildings, who could be assumed to have their attention focussed on their work activities rather than on the landscape)</li> </ul>                                                                                                                                                                         | <p>The magnitude of change due to the development is High, due to:</p> <ul style="list-style-type: none"> <li>- The change in character of the site from an elevated turf green space with scattered trees, to a construction compound and construction site</li> <li>- The change in scale of development and vehicular movement on the site</li> <li>- The visibility of the civil portion of the Kingsgrove South construction compound site to the neighbouring area due to the elevated topography of the site.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                          | Moderate |



### Night Lighting Impacts

Table 6-4 Night Lighting Impact Assessment of Kingsgrove South construction compound (C2) and Commercial Road construction compound (C3)

| Receiver Location                     | Receiver              | Visual Impact Assessment      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rating            |
|---------------------------------------|-----------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
|                                       |                       | Sensitivity                   | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   |
| 6. M5 East Motorway                   | Road users            | Low<br>Refer <b>Table 6-3</b> | It is assumed that lighting levels on the M5 East Motorway would remain relatively unchanged during construction, as the lighting levels must be maintained for road safety, and any increase in lighting would only be visible for a small part of the longer journey.<br><br>The magnitude of increase to lighting is Negligible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Negligible        |
| 7. Commercial Road, C3 (tunnel) entry | Industrial neighbours | Low<br>Refer <b>Table 6-3</b> | The visual setting of the construction compound includes lighting associated with the M5 East Motorway, local streets, and illuminated lights from adjoining industrial buildings. The land on which the Kingsgrove South construction compound would be sited is partially recreational land (a majority of which is unlit), and existing industrial land adjoining Commercial Road is not operational outside of regular working hours and is therefore is presumed to be unlit at night.<br><br>Lighting during construction would be associated with the acoustic spoil shed, tunnel shaft, site office, amenities and other structures. As the tunnelling construction activities would occur 24 hours – 7 days a week, there would be constant flow of heavy vehicles entering and exiting the site via Commercial Road. This may result in increased localised glare and lighting movement from vehicle headlights within the industrial complex. Due to the bend in the road at the compound entry, the glare from headlights would be limited by existing industrial buildings.<br><br>Given that the compound is located in close proximity to the industrial complex, but that the current site is predominantly unlit, the magnitude of lighting increase is moderate. | Moderate<br>- Low |

| Receiver Location                        | Receiver              | Visual Impact Assessment      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rating            |
|------------------------------------------|-----------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
|                                          |                       | Sensitivity                   | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                   |
| 8. Vanessa Street industrial development | Industrial neighbours | Low<br>Refer <b>Table 6-3</b> | <p>The visual setting of the construction compound includes lighting associated with the M5 East Motorway, local streets, and illuminated lights from adjoining industrial buildings and associated car parking areas. The adjoining land on which the Kingsgrove South construction compound seen from this Receiver Location is recreational land, a majority of which is unlit with the exception of a pedestrian path on the high side (northern) edge of the site. The existing industrial land adjoining the Commercial Road compound would be located is screened from view by landform, buildings and the angle of viewing.</p> <p>It is assumed that lighting of the Kingsgrove South construction compound during construction would change between the two phases of the construction period:</p> <ul style="list-style-type: none"> <li>- during tunnel construction, the truck turn-around area may be the only permanently lit area, but the headlights of trucks using the temporary road would be seen at night</li> <li>- during the construction of the MOC1, the site would be well lit</li> <li>- Although the tunnelling construction activities would occur 24 hours – 7 days a week, lighting from this operation is unlikely to be seen from this location. The levels of permanent lighting during the tunnel construction period on the civil compound site would be relatively low (lighting to the truck turn-around road) but the sweeping of headlights from trucks would be seen. The levels of lighting seen during the construction of the Kingsgrove motorway operations complex may be higher.</li> <li>- It is anticipated that viewer numbers in the industrial areas at night would be very low, as the complexes would only be operational during regular working hours.</li> <li>- Given that the compound is located in close proximity to the industrial complex, but that the current site is predominantly unlit, the magnitude of lighting increase is Moderate.</li> </ul> | Moderate<br>- Low |



Figure 6-9 View north-west from Commercial Road to the entry of Commercial Road construction compound (centre left of frame).





**Figure 6-10** View between large scale industrial complexes fronting Vanessa Street, with the rail line in the middle ground and residential areas beyond



**Figure 6-11** View of large scale industrial complexes fronting Vanessa Street, from the M5 Linear Park (Kingsgrove South construction compound site) with Wolli Creek in the middle ground lined with trees

### **Summary of Potential Impacts**

Few receiver groups would see the changes to the Kingsgrove South construction compound and Commercial Road construction compound, as the site is visually contained to the north by the M5 East Motorway, and is bounded to the south by industrial development. Users of the M5 Linear Park at this location would be redirected to the northern park pathway / cycleway so would not see the changes to the site during construction. The workers in the industrial compound to the south of the Kingsgrove South construction compound would be the most affected by the visual changes to the site during the construction period. Night lighting on the site would also be very different to the existing condition, but the impact of these changes would be viewed by few receivers.

All general visual impact and lighting visual impact ratings are summarised in **Table A - 2**.

#### **6.1.3 Bexley Road North construction compound (C4)**

The Bexley Road North construction compound would be located on the western side of Bexley Road and north of the existing M5 East Motorway. It would be located within an area of vacant land bounded by the intersection of Bexley Road and Poole Street in the north, Bexley Road in the east, the M5 East motorway in the south and residential properties along Flatrock Road and Jones Avenue in the west. The Bexley Road North construction compound would be mainly used as a tunnelling support site.

The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations (refer **Figure 6-12**):

- Noise barrier (4.5 metres high) surrounding the site.
- Tunnel shaft
- Acoustic shed
- Self bunded fuel storage
- Electrical substation and supply point
- Spoil stockpile and associated haulage.

Bexley Road North construction compound would be highly visible to adjoining residential development due to the tunnelling shaft, acoustic shed area and associated infrastructure. The construction compound would provide complete excavation for the westbound tunnel. Site works would be visually screened and would include a 4.5 metre temporary noise barrier along the boundaries of the construction compound. As such, much of the compound infrastructure that would be visible would be restricted to activities or infrastructure that extends above the perimeter hoarding and fencing, or could be viewed from elevated locations.

The entry / exit point to the site on Bexley Road would be operational 24 hours a day, 7 days a week, therefore night lighting adequate to support safe construction activity on the site is assumed.

It is anticipated that once the tunnelling activities have been completed, the site's temporary facilities would be removed and the tunnel shaft backfilled in order to prepare the land for other usage.

An air quality monitoring station for the project has been constructed at the site.

Five Receiver Locations have been assessed for this site (refer **Figure 6-12**):

##### **6) M5 East Motorway**

- This Receiver Location assesses the impact of construction on users of the M5 East Motorway heading both east and west through / past the Bexley Road surface works area. The M5 East Motorway dives into a tunnel under Bexley Road, therefore the M5 East Motorway east and west bound lanes lie below the surrounding ground level between the Bexley Road North and South construction compounds. However the on / off ramps intersecting with Bexley Road are at grade with the surrounding area.
- Receivers comprise road users

##### **9) Bexley Road, north of Poole Street**

- This Receiver Location assesses the impact of construction on residents and passers-by on Bexley Road (north-east of the construction compound). This receiver location also assesses the views seen by residents on Bexley Road opposite the Bexley Road North construction compound.
- Receivers comprise road users and residential neighbours.

- 10) M5 Linear Park, Bexley, north of M5 East Motorway entry
- This Receiver Location assesses the impact of construction on users of the M5 Linear Park, which lies to the south of the site between the site and the M5 East Motorway.
- Receivers comprise pedestrians and cyclists.
- 11) Intersection of Bexley Road and Wolli Avenue
- This Receiver Location assesses the impact of construction on residents and passers-by on Bexley Road at the intersection of Bexley Road and Wolli Avenue (south-east of the construction compound).
  - Receivers comprise road users and residential neighbours.
- 12) Flatrock Road / Jones Avenue
- This Receiver Location assesses the impact of construction on residents whose properties share a common boundary with the Bexley Road North construction compound (the compound lies to the east of these residents).
  - Receivers comprise residential neighbours.



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Figure 6-12 Bexley Road North construction compound and receiver locations

### Impact Assessment

Table 6-5 Visual Impact Assessment of Bexley Road North construction compound (C4)

| Receiver Location                                                      | Receiver   | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |        |
|------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                                        |            | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Rating |
| 6. M5 East Motorway (refer <b>Figure 6-13</b> and <b>Figure 6-14</b> ) | Road users | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- Road users travelling on the east and west bound lanes directly between the Bexley Road North and South Compounds would predominantly receive views along the roadway itself, and only to the surrounding landscape from the east bound lane approaching Bexley Road but from a fair distance away, as the road pavement lies below the surrounding ground level</li> <li>- Road users entering / exiting the M5 East Motorway would only see the site from Bexley Road, not from the on / off ramps of the M5 East Motorway due to noise walls and vegetative screening</li> <li>- The small portion of road affected by the construction works as part of a greater journey along the M5 East Motorway.</li> <li>- The utilitarian nature of the M5 East Motorway road corridor as an infrastructure element.</li> </ul> | <p>The magnitude of the change would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- The change to views seen by motorists would comprise the tops of taller elements within the compound, seen over the noise walls adjacent to the M5 East Motorway corridor by cars travelling east towards the tunnel entry under Bexley Road</li> <li>- The small portion of road affected within the motorists greater journey</li> <li>- The speed at which they would pass the construction compound</li> <li>- The utilitarian nature of the M5 East Motorway corridor.</li> </ul> | Low    |



| Receiver Location                                                 | Receiver               | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |
|-------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                                                                   |                        | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rating          |
| 9. Bexley Road, north of Poole Street (refer <b>Figure 6-15</b> ) | Residential neighbours | <p>The sensitivity of residential neighbours on Bexley Road is Moderate, due to the following:</p> <ul style="list-style-type: none"> <li>- These properties are residential; therefore views to the road (and Bexley Road North construction compound site) would be seen from rooms facing west from their homes as well as from front yards. However, these properties front Bexley Road; a major, four lane road with a somewhat utilitarian character</li> <li>- The moderate to close proximity of the homes to the compound, but with Bexley Road lying between the compound site and the residences</li> <li>- The low numbers of receivers who live within direct viewing distance of the compound</li> <li>- The viewing angle from which the residences to the north of the compound would view it, along the site but closest to the narrowest boundary of the site.</li> </ul> | <p>The magnitude of the change would be High, as the construction compound would comprise a collection of very large built structures surrounded by fencing and noise walls on a previously turfed, undeveloped block. However, it appears that this block has been previously used for construction purposes on other projects, therefore the change to character, although high in comparison to its existing use, may not be as out of character given the context of time.</p> | High - Moderate |
|                                                                   | Road users             | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- The small portion of road affected by the construction works as part of the greater journey along Bexley Road.</li> <li>- Although Bexley Road is a major road with the somewhat utilitarian character of an infrastructure element, it is integrated into the surrounding landscape as it lies at grade, and is fronted by residential homes and parks, among other development types.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                             | <p>The magnitude of the change would be Moderate, as the construction compound would comprise a collection of very large built structures surrounded by fencing and noise walls on a previously turfed, undeveloped block. However, the site is seen as the driver passes by, and is therefore only a small element within the greater road journey.</p>                                                                                                                           | Moderate - Low  |

| Receiver Location                                                         | Receiver               | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |
|---------------------------------------------------------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                                           |                        | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Rating |
| 10. M5 Linear Park, Bexley, north of M5 entry (refer <b>Figure 6-16</b> ) | Pedestrians / cyclists | <p>The sensitivity of pedestrians and cyclists using the M5 Linear Park pathway is High due to:</p> <ul style="list-style-type: none"> <li>- The importance of the quality of the view to recreational users</li> <li>- The moderate number of users who would use the pathway</li> <li>- The slow speed at which the receiver would move through the site, allowing time for the surrounding landscape to be viewed in great detail (especially true of pedestrians)</li> <li>- The receiver would be moving through / past the site, therefore the view seen would only be part of a larger journey</li> <li>- The close proximity from which the viewer would see changes to the site.</li> </ul> | <p>The magnitude of the change would be High, as the construction compound would comprise a collection of very large built structures surrounded by fencing and noise walls on a previously turfed, undeveloped block. The entry to the M5 Linear Park would remain open, but space available to pedestrian and cyclist users of the path would be compressed between existing noise walls and infrastructure associated with the M5 East Motorway, and the noise walls and fencing associated with the Bexley Road North construction compound. Although this view would be seen as a small part of the overall journey of the pedestrian or cyclist, it is situated at the entry to the park, and therefore has some importance as a landmark position within the overall journey.</p> | High   |

| Receiver Location                                                            | Receiver               | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |
|------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
|                                                                              |                        | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Rating            |
| 11. Intersection of Bexley Road and Wolli Avenue (refer <b>Figure 6-17</b> ) | Residential neighbours | <p>The sensitivity of residential neighbours on Bexley Road is Moderate, due to the following:</p> <ul style="list-style-type: none"> <li>- These properties are residential; therefore views to the road (and Bexley Road North construction compound site) would be seen from rooms facing west from their homes as well as from front yards. However, these properties front Bexley Road at the intersection with the M5 East Motorway; two transport corridors. It is anticipated that most homes would not have designed living spaces fronting or opening out onto views of the road, but rather to the more private, quiet backs of the properties.</li> <li>- The low numbers of receivers who live opposite the Compound.</li> </ul> | <p>The magnitude of the change would be Moderate, due to the following:</p> <ul style="list-style-type: none"> <li>- The view from this location is dominated by Bexley Road and the intersection with the M5 East Motorway at this location, the Bexley Road North construction compound site is seen in the middle to back ground to the north of this location.</li> <li>- The compound would comprise a collection of very large built structures surrounded by fencing and noise walls on a previously turfed, undeveloped block.</li> <li>- It is anticipated that this view would not be seen from the living areas of these homes, but would be seen from front gardens and other rooms in the homes during the construction period.</li> <li>- It appears that this block has been previously used for construction purposes on other projects, therefore the change to character, although high in comparison to its existing use, may not be as out of character given the context of time.</li> </ul> | Moderate          |
|                                                                              | Road users             | The sensitivity of road users is Low due the reasons outlined for Receiver Location 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | The magnitude of the change would be Moderate, as the construction compound would comprise a collection of very large built structures surrounded by fencing and noise walls on a previously turfed, undeveloped block. However, the site is seen as the driver passes by, and is therefore only a small element within the greater road journey.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Moderate<br>- Low |



| Receiver Location                                            | Receiver               | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        |
|--------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                              |                        | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rating |
| 12. Flatrock Road / Jones Avenue (refer <b>Figure 6-18</b> ) | Residential neighbours | <p>The sensitivity of the residential neighbours at this location is High, due to the following:</p> <ul style="list-style-type: none"> <li>- These residences front onto quiet, suburban streets, with their back fences sharing a boundary with a vacant block.</li> <li>- Existing views from these residences eastwards would comprise their back gardens, with mature trees and shrubs providing screening to views beyond back fences. The site and Bexley Road would not be seen, with the exception of glimpse views between vegetation from the upstairs rooms of the houses. It is assumed that many of these residences would have living areas backing onto and opening out onto their back yards.</li> </ul> | <p>The magnitude of the change would be High, as the construction compound would contain very tall built elements which would be seen from these residences. The character of the built elements would be in contrast to the views seen from these homes. These views would potentially be seen from living areas and from close proximity.</p> <p>The 4.5 metre noise barrier proposed along the adjoining boundary would also be a change from existing, and would enclose views seen from the properties (currently back fencing is around two metre tall). Built elements would be seen over the top of these noise walls.</p> | High   |



Figure 6-13 The entry / exit ramps to the M5 East Motorway from Bexley Road. Note the noise walls and vegetation that screen views from the M5 to the surrounding landscape.



Figure 6-14 The M5 East Motorway noise walls, with the entry to the M5 Linear Park and the Bexley Road North construction compound to right of frame



Figure 6-15 The view south along Bexley Road from just north of Poole Street, towards the Bexley Road North construction compound



Figure 6-16 The entry to the M5 Linear Park, positioned between noise walls and infrastructure associated with the M5 East Motorway, and the Bexley Road North construction compound to right of frame





Figure 6-17 The entry / exit ramps to the M5 East Motorway from Bexley Road. Note the noise walls and vegetation that screen views from the M5 to the surrounding landscape.



Figure 6-18 Residents backing onto the Bexley Road North construction compound site. Mature trees and large shrubs lie along the boundary of many of these properties.

**Night Lighting Impacts**

Table 6-6 Night Lighting Impact Assessment of Bexley Road North construction compound (C4)

| Receiver Location                     | Receiver               | Visual Impact Assessment           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Rating     |
|---------------------------------------|------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|                                       |                        | Sensitivity                        | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |
| 6. M5 East Motorway                   | Road users             | Low<br>Refer <b>Table 6-5</b>      | It is assumed that lighting levels on the M5 East Motorway would remain unchanged during construction, as the lighting levels must be maintained for road safety. The magnitude of increase to lighting is Negligible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Negligible |
| 9. Bexley Road, north of Poole Street | Residential neighbours | Moderate<br>Refer <b>Table 6-5</b> | The visual setting of the construction compound includes lighting associated with Bexley Road, local streets, and illuminated windows of residential properties. Beaumont Park located directly east of receiver location is predominantly unlit, with the exception of periodic lighting associated with the sports oval. The pedestrian pathway at the entry to the M5 Linear Park which lies between the compound site and the M5 is lit for safety. The existing Bexley Road North site is unlit.<br>Lighting during construction would be associated with the acoustic spoil shed, tunnel shaft, amenities and other structures. As the tunnelling construction activities would occur 24 hours – 7 days a week, there would be constant flow of heavy vehicles entering and exiting the site via Bexley Road. Localised glare and lighting movement from vehicle headlights pointing towards adjoining residential properties would only occur when exiting the site and would otherwise be blocked by the 4 - 4.5 metre hoarding and noise walls surrounding the compound. A generalised increase in light spill upwards into the night sky from the compound is expected. The magnitude of increase to lighting levels is therefore Moderate. | Moderate   |
|                                       | Road users             | Low<br>Refer <b>Table 6-5</b>      | It is assumed that lighting levels on Bexley Road would remain unchanged during construction, as the lighting levels must be maintained for road safety. The magnitude of increase to lighting is Negligible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Negligible |

| Visual Impact Assessment                                    |                        |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |
|-------------------------------------------------------------|------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Receiver Location                                           | Receiver               | Sensitivity                        | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rating     |
| 10. M5 Linear Park, Bexley, north of M5 East Motorway entry | Pedestrians / cyclists | High<br>Refer <b>Table 6-5</b>     | It is assumed that the existing pedestrian pathway that connects the M5 Linear Park would be maintained and well lit for safety, as per the current situation. A generalised increase in light spill upwards into the night sky from the compound is expected. However the close proximity of viewing (with a hoarding / noise barrier minimum four metres in height directly adjacent to the path) would minimise excess light seen from this location.<br>The magnitude of increase to lighting levels is therefore Low.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Moderate   |
| 11. Intersection of Bexley Road and Wolli Avenue            | Residential neighbours | Moderate<br>Refer <b>Table 6-5</b> | The visual setting of the construction compound includes lighting associated with Bexley Road and Wolli Avenue, and illuminated windows of residential properties. The pedestrian pathway at the entry to the M5 Linear Park which lies between the compound site and the M5 East Motorway is lit for safety. The existing Bexley Road North construction compound site is unlit.<br>Lighting during construction would be associated with the acoustic spoil shed, tunnel shaft, amenities and other structures. As the tunnelling construction activities would occur 24 hours – seven days a week, there would be constant flow of heavy vehicles entering and exiting the site via Bexley Road. Localised glare and lighting movement from vehicle headlights pointing towards adjoining residential properties would be blocked by the 4.5 metres noise walls surrounding the compound, with the exception of when trucks exited the site onto Bexley Road. A generalised increase in light spill upwards into the night sky from the compound is expected.<br>The magnitude of increase to lighting levels is Moderate | Moderate   |
|                                                             | Road users             | Low<br>Refer <b>Table 6-5</b>      | It is assumed that lighting levels at the intersection of Bexley Road and Wolli Avenue would remain unchanged during construction, as the lighting levels must be maintained for road safety.<br>The magnitude of increase to lighting is Negligible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Negligible |



| Visual Impact Assessment         |                        |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                 |
|----------------------------------|------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Receiver Location                | Receiver               | Sensitivity                    | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Rating          |
| 12. Flatrock Road / Jones Avenue | Residential neighbours | High<br>Refer <b>Table 6-5</b> | <p>The visual setting of the construction compound includes lighting associated with local streets and illuminated windows of residential properties. The land itself on which the compound would be situated is unlit, with the exception of lights positioned at regular intervals along the pedestrian pathway to the south of the compound at the entry to the M5 Linear Park.</p> <p>Lighting below the 4.5 metres noise walls positioned along the boundary between the residences and the site would be blocked from direct view. A generalised increase in light spill upwards into the night sky from the compound is expected.</p> <p>The magnitude of the increase to lighting is Moderate for the above reasons, coupled with the viewing distance.</p> | High - Moderate |

### **Summary of Potential Impacts**

The Bexley Road North construction compound is seen by a number of sensitive receiver groups, comprising residential neighbours and users of the M5 Linear Park (active recreation: pedestrians and cyclists).

Recreational users of the M5 Linear Park would view the changes from close range, and from an entry point to the park. The visual impact on this group is High. Although the change in night lighting has been assessed as Moderate, it is assumed that fewer receivers would be using the park at night time to view the changes.

The sensitivity of residents of surrounding areas has been assessed as High – Moderate, based on distance to the site, and if the homes were likely to have living areas from which the changes may be seen. Residents with adjoining boundaries were also assessed as having a higher sensitivity to visual changes that may occur along their common boundaries, or be affected by overshadowing from the built elements of the site. As such, residents of Flatrock Road and Jones Avenue who share a common boundary with Bexley Road North construction compound were assessed as having a High impact rating. Night lighting during construction would be designed to minimise light spill and the inclusion of noise barriers during construction would reduce the amount of light trespass into adjoining residential properties.

All road users passing the site are travelling on major road corridors – the M5 East Motorway and Bexley Road. Both these groups were assessed as having a Low sensitivity, and a Low to Moderate - Low overall rating based on distance to the site and the amount of change to the site that would be seen by the driver.

The visual impacts arising from Bexley Road North construction compound are summarised in **Table A - 3**.

#### **6.1.4 Bexley Road South construction compound (C5)**

The Bexley Road South construction compound would be located on the western side of Bexley Road to the south of the existing M5 East Motorway tunnel portals (refer **Figure 6-19**). The site would be used for tunnelling support during construction, and for the Bexley Road South motorway operations complex (MOC2), including emergency smoke extraction facility, during operation.

The construction compound is surrounded by Bexley Road to the east, M5 East Motorway to the north and Wollie Creek to the south and west. The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Hoarding (four metres high) and noise barrier (4.5 metres high) surrounding the site.
- Tunnel shaft
- Acoustic shed
- Electrical substation on mezzanine within acoustic shed
- Water treatment plant
- Sedimentation pond
- Spoil stockpile

Bexley Road South construction compound would include a 4.5 metre high noise barrier erected around the site and spoil activities to occur within an acoustic shed. Spoil removal trucks would enter the site via Bexley Road and once loaded would exit back onto Bexley Road heading west via the M5 East Motorway.

The entry / exit point to the site on Bexley Road would be in operation 24 hours a day, seven days a week, therefore night lighting adequate to support safe construction activity is assumed.

Once construction works are completed, the tunnelling shaft would become part of the permanent motorway operations complex.

Four Receiver Locations have been assessed for this site:

6) M5 East Motorway

- This Receiver Location assesses the impact of construction on users of the M5 East Motorway heading both east and west through / past the MOC2 area. The M5 East Motorway dives into a tunnel under Bexley Road, therefore the M5 East Motorway east and west bound lanes lie below the surrounding ground level between the Bexley Road North and South Compounds. However the on / off ramps intersecting with Bexley Road are at grade with the surrounding area.
- Receivers comprise road users

11) Intersection of Bexley Road and Wolli Avenue

- This Receiver Location assesses the impact of construction on residents and passers-by on Bexley Road at the intersection of Bexley Road and Wolli Avenue (east of the Bexley Road South construction compound).
- Receivers comprise road users and residential neighbours.

13) M5 Linear Park, Bexley, south of M5 East Motorway entry

- This Receiver Location assesses the impact of construction on users of the M5 Linear Park, south of the M5 East Motorway. This entry to the park comprises a pedestrian / cyclist path on the northern edge of the park, and a large expanse of turfed open space sloping down to Wolli Creek, which runs along the southern boundary of the park.
- At present, the park can accommodate both active and passive recreation activities, as it has the cycle pathway as well as open space for passive recreation pursuits. During construction, the turfed area which may be used for passive recreation would be closed to the public; therefore no receivers would be using the space to see views of changes to the site. For this reason, the only receivers assessed at this location are pedestrians and cyclists.

15) Bexley Road, south of the pedestrian underpass

- This Receiver Location assesses the view seen by passers-by on Bexley Road, directly adjacent to the Bexley Road South construction compound
- Receivers comprise Road Users





Figure 6-19 Bexley Road South construction compound and receiver locations

### Impact Assessment

Table 6-7 Visual Impact Assessment of Bexley Road South construction compound (C5)

| Receiver Location                                | Receiver               | Visual Impact Assessment           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Rating            |
|--------------------------------------------------|------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
|                                                  |                        | Sensitivity                        | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                   |
| 6. M5 East Motorway (refer <b>Figure 6-13</b> )  | Road users             | Low<br>Refer <b>Table 6-5</b>      | The magnitude of the change would be Low, due to the following: <ul style="list-style-type: none"> <li>- The change to views seen by motorists would comprise the tops of taller elements within the compound, seen over the noise walls adjacent to the M5 East Motorway corridor by cars travelling east towards the tunnel entry under Bexley Road</li> <li>- The small portion of road affected within the motorists greater journey</li> <li>- The speed at which they would pass the compound</li> <li>- The utilitarian nature of the M5 East Motorway corridor.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Low               |
| 11. Intersection of Bexley Road and Wolli Avenue | Residential neighbours | Moderate<br>Refer <b>Table 6-5</b> | The magnitude of the change would be Moderate, due to the following: <ul style="list-style-type: none"> <li>- The view from this location is dominated by Bexley Road and the intersection with the M5 East Motorway at this location, the Bexley Road South construction compound site is seen in the middle to background to the south of this location against a dense backdrop of trees.</li> <li>- The compound would comprise a collection of very large built structures surrounded by fencing and noise walls, the character of which would be very different from the existing vegetated, recreational space.</li> <li>- It is anticipated that this view would not be seen from the living areas of these homes, but would be seen from front gardens and as a very oblique view from some rooms in the homes.</li> <li>- It appears that this block has been previously used for construction purposes on other projects, therefore the change to character, although high in comparison to its existing use may not be as out of character given the context of time.</li> </ul> | Moderate          |
|                                                  | Road users             | Low<br>Refer <b>Table 6-5</b>      | The magnitude of the change would be Moderate, as the character of the construction compound would be very different from the existing recreational open space. However, the site is seen as the driver passes by, and is therefore only a small element within the greater road journey.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Moderate<br>- Low |

| Receiver Location                                  | Receiver               | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |
|----------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                    |                        | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rating         |
| 13. M5 Linear Park, Bexley, south of M5 entry      | Pedestrians / cyclists | <p>The sensitivity of pedestrians and cyclists using the M5 Linear Park pathway is High due to:</p> <p>The importance of the quality of the view to recreational users</p> <p>The moderate number of users who would use the pathway</p> <p>The slow speed at which the receiver would move through the site, allowing time for the surrounding landscape to be viewed in great detail (especially true of pedestrians)</p> <p>The receiver would be moving through / past the site, therefore the view seen would only be part of a larger journey</p> <p>The close proximity from which the viewer would see changes to the site.</p> | <p>The magnitude of change to the view would be High. The existing park adjoining the pedestrian / cycle paths which allows views from the path to the Wolli Creek riparian corridor to the south would be fenced off and replaced with views to large sheds, fencing, and construction activity. The site would be temporarily changed from a minor gateway to the M5 Linear Park to a small entry point between two large pieces of infrastructure (i.e. the M5 East Motorway and the Bexley Road South construction compound).</p>                        | High           |
| 15. Bexley Road, south of the pedestrian underpass | Road Users             | <p>The sensitivity of road users is Low due to:</p> <p>The small portion of road affected by the construction works as part of the greater journey along Bexley Road</p> <p>Although Bexley Road is a major road with the somewhat utilitarian character of an infrastructure element, it is integrated into the surrounding landscape as it lies at grade, and is fronted by residential homes and parks, among other development types. It has some more picturesque stretches where the road is fringed by parks or by an intersecting riparian corridor (as per this location).</p>                                                 | <p>The magnitude of the change would be Moderate.</p> <p>The construction compound would comprise a collection of very large built structures surrounded by fencing and noise walls, where the existing site is viewed from this location as a sloping piece of recreational open space attached to the Wolli Creek corridor.</p> <p>Although the change in character of this site would be very different from the existing situation, the site is seen as the driver passes by, and is therefore only a small element within the greater road journey.</p> | Moderate - Low |



**Night Lighting Impacts**

Table 6-8 Night Lighting Impact Assessment of Bexley Road South construction compound (C5)

| Receiver Location                                | Receiver               | Visual Impact Assessment           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Rating         |
|--------------------------------------------------|------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                  |                        | Sensitivity                        | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                |
| 6. M5 East Motorway (refer Figure 6-13)          | Road users             | Low<br>Refer <b>Table 6-7</b>      | It is assumed that lighting levels on the M5 East Motorway would remain unchanged during construction, as the lighting levels must be maintained for road safety. The magnitude of increase to lighting is Negligible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Negligible     |
| 11. Intersection of Bexley Road and Wolli Avenue | Residential neighbours | Moderate<br>Refer <b>Table 6-7</b> | The visual setting of the construction compound includes lighting associated with Bexley Road and Wolli Avenue, and illuminated windows of residential properties. The pedestrian pathway at the entry to the M5 Linear Park which lies between the compound site and the M5 is lit for safety. The existing Bexley Road South construction compound site is unlit.<br>Lighting during construction would be associated with the acoustic spoil shed, tunnel shaft, amenities and other structures. As the tunnelling construction activities would occur 24 hours – 7 days a week, there would be constant flow of heavy vehicles entering and exiting the site via Bexley Road. Localised glare and lighting movement from vehicle headlights pointing towards adjoining residential properties would be blocked by the 4.5m noise walls surrounding the compound, with the exception of when trucks exited the site onto Bexley Road. A generalised increase in light spill upwards into the night sky from the compound is expected.<br>The magnitude of increase to lighting levels is Low. | Moderate - Low |
|                                                  | Road users             | Low<br>Refer <b>Table 6-7</b>      | It is assumed that lighting levels at the intersection of Bexley Road and Wolli Avenue would remain unchanged during construction, as the lighting levels must be maintained for road safety.<br>The magnitude of increase to lighting is Negligible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Negligible     |

| Visual Impact Assessment                           |                        |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |
|----------------------------------------------------|------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Receiver Location                                  | Receiver               | Sensitivity                    | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Rating     |
| 13. M5 Linear Park, Bexley, south of M5 entry      | Pedestrians / cyclists | High<br>Refer <b>Table 6-7</b> | It is assumed that the existing pedestrian pathway that connects the M5 Linear Park would be maintained and well lit for safety, as per the current situation. A generalised increase in light spill upwards into the night sky from the compound is expected. However the close proximity of viewing (with a hoarding / noise barrier minimum four metres in height directly adjacent to the path) would minimise excess light seen from this location.<br>The magnitude of increase to lighting levels is therefore Low. | Moderate   |
| 15. Bexley Road, south of the pedestrian underpass | Road Users             | Low<br>Refer <b>Table 6-7</b>  | It is assumed that lighting levels at the intersection of Bexley Road and Wolli Avenue would remain unchanged during construction, as the lighting levels must be maintained for road safety.<br>The magnitude of increase to lighting is Negligible.                                                                                                                                                                                                                                                                      | Negligible |

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### **Summary of Potential Impacts**

The Bexley Road South construction compound is more visually isolated than the Bexley Road North construction compound, as it is bounded by Bexley Road to the east, Wolli Creek to the south and the M5 East Motorway to the North. The receivers who would be most impacted by visual changes to the site would be pedestrians and cyclists using the existing pathway at the entry to the M5 Linear Park. This user group would pass a construction compound / site where the existing view is to a mature vegetated park and riparian corridor beyond.

Some residential neighbours would view the changes to the site, but the receiver number is low and receivers would see the changes from a moderate distance away, and with a major road and pedestrian overpass between them and the site. Night lighting during construction would be designed to minimise light spill and the inclusion of noise barriers during construction would reduce the amount of light trespass into adjoining residential properties.

Refer **Table A - 4** for a summary of visual impacts from this location.

#### **6.1.5 Bexley Road East construction compound (C6)**

The Bexley Road East construction compound would be located on the eastern side of Bexley Road, south of the intersection with Wolli Avenue. This site would be used mainly for car parking and administrative support activities for the Bexley Road North construction compound (C4) and the Bexley Road South construction compound (C5).

It is located on the eastern side of Bexley Road, with site access proposed from Wolli Avenue. The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Hoarding (four metres high) and noise barrier (4.5 metres high) surrounding the compound
- Two site offices and crib areas
- Ablutions block
- Parking for light vehicles

Bexley Road East construction compound includes site offices, ablution block and parking to service construction works at the Bexley northern and southern compounds. A noise barrier is proposed along the northern and eastern boundaries of the site adjoining residential properties.

The entry / exit point to the site on Wolli Avenue would be in operation 24 hours a day, 7 days a week, therefore night lighting adequate to support safe construction activity is assumed within the compound.

Three Receiver Locations have been assessed for this site:

##### **11) Intersection of Bexley Road and Wolli Avenue**

- This Receiver Location assesses the impact of construction on residents and passers-by on Bexley Road at the intersection of Bexley Road and Wolli Avenue (north of the Bexley Road East construction compound).
- Receivers comprise road users and residential neighbours.

##### **13) M5 Linear Park, Bexley, south of M5 East Motorway entry**

- This Receiver Location assesses the impact of construction on users of the M5 Linear Park, south of the M5 East Motorway. This entry to the park comprises a pedestrian / cyclist path on the northern edge of the park, and a large expanse of turfed open space sloping down to Wolli Creek, which runs along the southern boundary of the park.
- Receivers comprise pedestrians and cyclists, as potential opportunity for passive recreation would not be possible during the construction period.

##### **14) Reserve adjacent to 9 Johnston Street, Bexley**

- This Receiver Location assesses the impact of construction on residents on Johnston Street, which lies east of Bexley Road East construction compound. These residents share a common boundary with this construction compound (their western boundary along their back fence lines), and the homes sit at a higher elevation to the site.
- Receivers comprise residential neighbours.

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Figure 6-20 Bexley Road East construction compound and receiver locations





**Figure 6-21** The view from Bexley Road south of the pedestrian overpass where the pedestrian path that joins Johnston Street to Bexley Road exits, looking back towards the entry of the M5 Linear Park, past the Bexley Road East construction compound situated behind the sandstone wall to the right of frame.

**Impact Assessment****Table 6-9 Visual Impact Assessment of Bexley Road East construction compound (C6)**

| Receiver Location                                | Receiver               | Visual Impact Assessment           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rating         |
|--------------------------------------------------|------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                  |                        | Sensitivity                        | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                |
| 11. Intersection of Bexley Road and Wolli Avenue | Residential neighbours | Moderate<br>Refer <b>Table 6-7</b> | <p>The magnitude of the change would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- The view from this location (from homes fronting Bexley Road) is dominated by Bexley Road and the intersection with the M5 East Motorway at this location, the Bexley Road East construction compound site would only be seen by one home on the corner of Bexley Road and Wolli Avenue.</li> <li>- The most visually prominent element viewed from this location would be the fencing around the site, fronting onto Wolli Avenue. Removal of mature vegetation on the site would also be seen.</li> <li>- It is anticipated that this view would not be seen from the living areas of these homes. It may be seen from the front gardens of a couple of homes north of the Wolli Avenue intersection, and from any windows overlooking Wolli Road from the home on the corner at the intersection.</li> <li>- It appears that this block has been previously used for construction purposes on other projects, therefore the change to character, although high in comparison to its existing use may not be as out of character given the context of time.</li> </ul> | Moderate - Low |
|                                                  | Road users             | Low<br>Refer <b>Table 6-7</b>      | <p>The magnitude of the change would be Low, as the changes seen from the road due to the construction compound would be limited to fencing and potentially some noise walls. Due to the landform and mature vegetation retained on the site adjoining Bexley Road, no other built form would be seen.</p> <p>In addition, the site is seen as the driver passes by, and is therefore only a small element within the greater road journey.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Low            |

| Receiver Location                             | Receiver               | Visual Impact Assessment       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rating   |
|-----------------------------------------------|------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                                               |                        | Sensitivity                    | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |
| 13. M5 Linear Park, Bexley, south of M5 entry | Pedestrians / cyclists | High<br>Refer <b>Table 6-7</b> | <p>The magnitude of change would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- A majority of built structures and fencing would be set up behind the preserved existing sandstone wall and mature planting that front Bexley Road (refer <b>Figure 6-21</b>)</li> <li>- The sloping landform and viewing distance from this Receiver Location would make the Bexley Road East construction compound difficult to see from this location.</li> <li>- Receivers would also be viewing the changes from across the other side of Bexley Road, with the view partially interrupted by the pedestrian overpass.</li> </ul> | Moderate |



| Receiver Location                                                             | Receiver               | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rating          |
|-------------------------------------------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                                                                               |                        | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |
| 14. Reserve adjacent to 9 Johnston Street, Bexley (refer <b>Figure 6-22</b> ) | Residential neighbours | <p>The sensitivity of receivers at this location is High, for the following reasons:</p> <ul style="list-style-type: none"> <li>- The homes on Johnston Street are at the top of a slope, with potential views out over the Bexley Road East construction compound and to the landscape beyond (refer <b>Figure 6-22</b>)</li> <li>- It is likely that many of these homes have living spaces facing west (towards the compound) due to the aspect, potential views, and privacy (the back of the houses faces west)</li> <li>- The close proximity of these receivers to the compound site (they share a boundary with the compound)</li> <li>- However there are low numbers of receivers that would see the view and the rear of many of the properties contain some mature trees.</li> </ul> | <p>The magnitude of change would be Moderate. The Bexley Road East construction compound comprises low rise structures and car parking, surrounded by 4.5 metre noise walls and 4 metre hoarding. The walls and hoardings are likely to be taller than the site offices and ablutions block, with most of the site used for car parking. The tops of structures may be visible due to the viewing angle from residences that sit at a higher level than the site, but most views to site infrastructure would be blocked by the noise walls.</p> <p>The site is undeveloped, with a substantial amount of vegetation in the north-eastern corner of the block, which would be removed. The construction compound would be a change to the existing character of the site, but it would only be seen by a low number of receivers, and is a temporary development.</p> <p>The site appears to have been used for construction purposes for past projects, therefore given the context of time, a construction compound may not be as great a change in character as with the existing and proposed temporary use.</p> | High - Moderate |



**Figure 6-22** View west from the reserve adjacent to 9 Johnston Street. Homes on the western side of Johnston Street sit at the top of a hill, with potential views through existing mature trees over the Bexley Road East construction compound and out to the landscape beyond



**Figure 6-23** View east from the pedestrian exit to the Bexley Road overpass back to the Bexley Road East construction compound. Note the house seen above the stone wall to the right of frame, which is representative of homes on Johnston Street that overlook the compound site

### Night Lighting Impacts

Table 6-10 Night Lighting Impact Assessment of Bexley Road East construction compound (C6)

| Receiver Location                                | Receiver               | Visual Impact Assessment           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rating         |
|--------------------------------------------------|------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                  |                        | Sensitivity                        | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                |
| 11. Intersection of Bexley Road and Wolli Avenue | Residential neighbours | Moderate<br>Refer <b>Table 6-9</b> | The visual setting of the compound includes lighting associated with Bexley Road and Wolli Avenue intersection, the intersection of Bexley Road and the M5 East Motorway, and illuminated windows of neighbouring residential properties.<br>Lighting during construction would be associated with site offices, ablutions block and the parking for light vehicles for construction compounds at Bexley Road North and Bexley South. As the site provides parking for employees working between the three Bexley construction compounds, there would be light vehicles entering and exiting the site via Wolli Avenue periodically throughout the night. Localised glare and lighting movement from vehicle headlights pointing towards adjoining residential properties would only occur when exiting the site and would otherwise be blocked by the noise walls and hoarding surrounding the compound. The receiver numbers at this location is low.<br>The magnitude of increase to lighting levels is Low. | Moderate - Low |
|                                                  | Road users             | Low<br>Refer <b>Table 6-9</b>      | It is assumed that lighting levels at the intersection of Bexley Road and Wolli Avenue would remain unchanged during construction, as the lighting levels must be maintained for road safety.<br>The magnitude of increase to lighting levels is Negligible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Negligible     |
| 13. M5 Linear Park, Bexley, south of M5 entry    | Pedestrians / cyclists | High<br>Refer <b>Table 6-9</b>     | It is assumed that the existing pedestrian pathway that connects the M5 linear Park would be maintained and well lit for safety, as per the current situation. Some light spill may be seen from within the compound up into the night sky.<br>The magnitude of increase to lighting levels is therefore Low.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Moderate       |



| Receiver Location                                 | Receiver               | Visual Impact Assessment       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Rating          |
|---------------------------------------------------|------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                                                   |                        | Sensitivity                    | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |
| 14. Reserve adjacent to 9 Johnston Street, Bexley | Residential neighbours | High<br>Refer <b>Table 6-9</b> | <p>The visual setting of the construction compound includes lighting associated with local streets and illuminated windows of residential properties. The site of the Bexley Road East construction compound is currently unlit.</p> <p>Lighting during construction would be associated with site offices, ablutions block and the parking for light vehicles for construction compounds at Bexley Road North and Bexley South. The extent of light emanating from the construction compound towards the adjacent residential properties is likely to be low, given the screening between the compound and residential receiver. However, many of the adjoining properties sit at a higher level than the compound, and may see some light spill directly over the noise walls, depending on the angle of viewing (e.g. if the receiver is viewing the site from a room in an upper storey of a home).</p> <p>The magnitude of increase to lighting levels is Moderate.</p> | High - Moderate |

### Summary of Potential Impacts

The Bexley Road East construction compound is visually isolated within the landscape due to landform, existing mature vegetation within and surrounding the site, and the existing sandstone walling along the western edge of the site fronting Bexley Road.

The only receivers that may obtain views of built element within the compound are residential neighbours that front onto Johnston Street and Wolli Avenue, whose properties sit at a higher level and may have views into the site. These views may be framed or limited by existing mature vegetation within the back gardens of properties, or on the compound site itself.

Further, the built elements within the compound are low (site offices and ablutions blocks), with a majority of the site used for parking. A four to 4.5 metre noise barrier / hoarding would surround the site and may block some views for these residents. Night lighting during construction would be designed to minimise light spill and the inclusion of noise barriers during construction would reduce the amount of light trespass into adjoining residential properties.

The visual impacts arising from Bexley Road North construction compound are summarised in **Table A - 5**.

#### 6.1.6 Pedestrian and Cyclist Routes – Beverly Hills, Kingsgrove, Bexley

The management of pedestrians and cyclists during construction works is an important consideration to all road users. The key location and likely changes on the movement of pedestrians and cyclists are outlined in **Table 6-11**.

**Table 6-11 Proposed Changes to Pedestrian and Cyclist Routes**

| Pedestrian and cyclists route                                                                                                    | Proposed changes                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| M5 East Motorway Cycleway:<br>- East bound – King Georges Road to Bexley Road<br>- West bound – Bexley Road to King Georges Road | Cyclists would be removed from the motorway as part of the King Georges Road Interchange upgrade. The project would not alter this outcome.                                                          |
| Shared path on southern side of M5 between Karingal Street and Kindilan Underpass                                                | Existing path closed and cyclists detoured to northern side cycleway via Karingal St and Kindilan Underpass                                                                                          |
| Shared path on northern side of M5 between Garema Circuit and Kindilan Underpass                                                 | Existing path closed and cyclists detoured to a new alignment that runs along the rear of the site.                                                                                                  |
| Kindilan Underpass                                                                                                               | Pedestrian and cyclist access maintained. Width of underpass reduced to allow construction vehicle access between Kingsgrove North Construction Compound and Kingsgrove South construction compound. |
| Shared path on southern side of M5, western side of Bexley Road at Bexley Road Construction Compound (C4)                        | Path realigned to allow for site establishment and works associated with Construction Compound (C4).                                                                                                 |

Alternative pedestrian and cycle way routes outlined above are to be provided where existing routes cannot be maintained during construction. These routes would be clearly defined and sign posted to safely manage pedestrian and cyclist activity. Pedestrian and cycleway routes would be protected by hoarding and/or other barriers, be constructed of an all-weather surface and well maintained.

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### Summary of Potential Impacts

Each of the receiver locations assessed below (refer **Table 6-12**) have been assessed as part of the changes seen due to the nearest construction compound. Below, these locations have been reassessed as points within the greater journey of the user. No ratings have changed at these locations due to this assessment.

Overall, the journey along the existing pathway through the M5 Linear Park would be visually disrupted in a number of places due to construction activity. The changes to views near the Kindilan Underpass, Kingsgrove North construction compound, and Bexley Road North and South Compounds constitute High visual impacts, although these must be viewed within the context of being points within the greater journey that the pedestrian / cyclist would pass, and that the changes are temporary.

**Table 6-12 Visual Impact Assessment of pedestrian and cyclist routes**

| Receiver Location                             |                                                     | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Rating |
|-----------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                               |                                                     | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |
| M5 Linear Park: North of the M5 East Motorway | Beverly Grove Park North, adjacent to Glamis Street | Pedestrians are considered recreational users of public open space for the purposes of this assessment. Cyclists may be recreational users of public open space or commuters. Recreational users are considered more sensitive to the quality of the view on their journey; therefore for the purposes of this report, cyclists using off-road paths would be assessed as recreational users.<br>The sensitivity of pedestrians and cyclists is High due to: | At this location, the existing path would be realigned to the northern boundary of the site, between the 2.5 to 4.5 metre noise walls of the Kingsgrove North construction compound and the back fences of adjoining residents.<br>The magnitude of changes to the view during construction at this location is High, as the character of the view would change significantly from the existing parkland to constricted views between noise walls and fences adjoining a construction compound.<br>In addition, pedestrians and cyclists from the southern side of the M5 Linear Park would be diverted to north of the M5 East Motorway under the Kindilan Underpass, and would share the northern path, thereby increasing the numbers of users of this pathway | High   |
|                                               | Beverly Grove Park, adjacent to Kindilan Underpass  | <ul style="list-style-type: none"> <li>- The importance of the quality of the view to recreational users</li> <li>- The moderate number of people who would use the pedestrian and cycle paths</li> <li>- The slow speed at which the receiver would move through the site, allowing time for the surrounding landscape to be viewed in great detail (especially true of pedestrians)</li> </ul>                                                             | <p>At this location the existing path would be maintained, however the path under the underpass would be divided to allow construction vehicle access between Kingsgrove North and South Compounds.<br/>The magnitude of changes to the view at this location would be High, due to the following:</p> <ul style="list-style-type: none"> <li>- The character and scale of the proposed Kingsgrove North construction compound is very different from the existing use of the site as a parkland</li> <li>- Pedestrians and cyclists would be diverted around the edge of the compound, between the 2.5 to four metre high noise barrier and the back fences of adjacent residences</li> </ul>                                                                    | High   |

| Visual Impact Assessment                      |                            |                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        |
|-----------------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Receiver Location                             | Sensitivity                |                                                                                                                                                                                                                                                                                                                                                          | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Rating |
|                                               |                            | <ul style="list-style-type: none"> <li>- The receiver would be moving through / past areas affected by construction activity due to the project, therefore these would be viewed as parts of a greater journey</li> <li>- The close proximity from which the receivers would see changes due to construction activities at certain locations.</li> </ul> | <ul style="list-style-type: none"> <li>- Pedestrians and cyclists from the southern side of the M5 Linear Park would be diverted to north of the M5 East Motorway under the Kindilan Underpass, and would share the northern path, thereby increasing the numbers of users of this pathway</li> <li>- Pedestrians and cyclists would share the Kindilan underpass with construction traffic; therefore the user experience would be altered from existing.</li> </ul>                                                                                                                                                                                                                                                                                                                                                             |        |
|                                               | Bexley Road, entry to park |                                                                                                                                                                                                                                                                                                                                                          | <p>The magnitude of changes to the view at this location would be High, due in part to the size of the built structures, fencing and noise walls of Bexley Road North construction compound, which would be built on an existing turfed, undeveloped block.</p> <p>The entry to the M5 Linear Park would remain open, but space available to pedestrian and cyclist users of the path would be compressed between existing noise walls and infrastructure associated with the M5, and the noise walls and fencing associated with the Bexley Road North construction compound.</p> <p>Although this view would be seen as a small part of the overall journey of the pedestrian or cyclist, it is situated at the entry to the parkland, and therefore has some importance as a landmark position within the overall journey.</p> | High   |
| M5 Linear Park: South of the M5 East Motorway | Bexley Road, entry to park | High<br>Refer <b>Table 6-7</b>                                                                                                                                                                                                                                                                                                                           | The magnitude of change to the view would be High. The existing parkland adjoining the pedestrian / cycle paths which allows views from the path to the Wolli Creek riparian corridor to the south would be fenced off and replaced with views to large sheds, fencing, and construction activity. The site would be transformed from a 'green gateway' to the M5 Linear Park to a small entry point between two large pieces of infrastructure (i.e. the M5 East Motorway and the Bexley Road South construction compound).                                                                                                                                                                                                                                                                                                      | High   |

| Receiver Location | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                | Rating |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                   | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                            | Magnitude                                                                                                                                                                                                      |        |
| M5 East Motorway  | Cyclists using the M5 East Motorway are assessed as commuters. Recreational cyclists may use the M5 East Motorway as well, but these users are more likely to be focussed on the sport of cycling than the views associated with their journey, considering their choice of a large transport corridor for active recreation. The sensitivity of cyclists using the M5 East Motorway is therefore Low. | The magnitude of the change to views within the M5 East Motorway for cyclists is unable to be assessed, as the M5 East Motorway would be closed to cyclists during construction and diverted to another route. | N/A    |



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### 6.1.7 Arncliffe construction compound (C7)

The Arncliffe construction compound would be located on the southern side of Marsh Street, encompassing part of the Kogarah Golf Course (refer **Figure 6-24**). The site would be the main base for the tunnel construction works, emergency smoke extraction facility and operational water treatment plant. The following structures, equipment and construction activities are present on site, some of which are likely to be visible from surrounding Receiver Locations:

- Hoarding (four metres high) and temporary noise barrier (three metres high) surrounding the site
- Car parking
- Tunnel shaft (12 metres diameter)
- Acoustic spoil shed and associated haulage
- Electrical substations and Ausgrid supply points
- Water treatment plants
- Three site offices and crib rooms
- Two ablutions block
- Storage laydown areas
- Concrete testing station
- Sedimentation ponds.

The Arncliffe construction compound would be visible to adjacent free-standing residential development and medium rise residential development to the north. Medium rise residential development would overlook the compound with views including: construction and excavation of two tunnel shafts (one temporary tunnel access and one for permanent ventilation facility) and from the boundary 4 metre high hoarding. Visible works for freestanding development would primarily comprise the northern acoustic shed and hoarding, and potentially tall stacked materials.

The Arncliffe construction compound would complete excavation for the eastbound and westbound tunnel, including stockpiling of material and haulage of spoil.

The entry / exit point to the site on Marsh Street would be in operation 24 hours a day, 7 days a week, therefore requiring night lighting adequate to support safe construction related activity.

Four Receiver Locations have been assessed for this site (refer **Figure 6-24**):

#### 14) M5 East Motorway

- This Receiver Location assesses the impact of construction on users of the M5 East Motorway travelling north and south bound on the M5 East Motorway, past the Arncliffe construction compound
- Receivers comprise road users

#### 15) The intersection of Flora and Marsh Street

- This Receiver Location assesses the visual impact on receivers at the intersection of Marsh Street (a major road corridor) and Flora Street (a smaller, residential development lined street). Marsh Street runs along the northern boundary of the Kogarah Golf Course, while Flora Street runs perpendicular to the site, terminating at Marsh Street opposite the entry to the proposed compound. The Cook Park Trail runs along Marsh Street at this location.
- Receivers comprise residential neighbours (both low density and high density developments, although the closest high density residential building lies one block to the north-east along Marsh Street), road users and pedestrians and cyclists.

16) Eve Street Cycleway

- This Receiver Location assesses the visual impact of the construction compound on users of the Eve Street Cycleway, which makes up part of the Cook Park Trail. This portion of the cycle path runs between the intersection of the M5 East Motorway and Marsh Street in a south-western. There are underpasses at each end of this cycle path, one under Marsh Street and one under the M5 East Motorway at Eve Street. The path runs parallel to the Western Outfall Main Sewer, a heritage listed item.
- Receivers comprise pedestrians and cyclists.

17) Kogarah Golf Course

- This Receiver Location assesses the visual impact of construction on golfers using the course
- Users comprise active recreational users of a semi-public open space.





Figure 6-24 Arncliffe construction compound and receiver locations

### Impact Assessment

Table 6-13 Visual Impact Assessment of changes at Arncliffe construction compound (C7)

| Receiver Location                              | Receiver                                     | Visual Impact Assessment<br>Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rating          |
|------------------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 6. M5 East Motorway                            | Road users                                   | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- The limited views afforded to road users within the M5 East Motorway corridor, with views predominantly along the carriageway itself but not to the surrounding landscape</li> <li>- The small portion of road affected by the construction works as part of a greater journey along the M5 East Motorway</li> <li>- The speed at which road users would view the landscape would preclude any detail views to elements within the road corridor</li> <li>- The utilitarian nature of the M5 East Motorway road corridor as an infrastructure element.</li> </ul>                                                                                                                              | <p>The magnitude of the change would be Negligible, as the compound is unlikely to be seen from the M5 East Motorway due to the following:</p> <ul style="list-style-type: none"> <li>- Screening due to vegetation and landform between the Eve Street Cycleway and the M5 East Motorway (refer <b>Figure 6-25</b>)</li> <li>- Screening vegetation retained along the western boundary of the Kogarah Golf Course</li> <li>- The distance of viewing between the road corridor and the compound, coupled with the 'basin' landform within which the golf course lies.</li> </ul> | Negligible      |
| 15. The intersection of Flora and Marsh Street | Residential neighbours (low density housing) | <p>The sensitivity of residential receivers is Moderate due to:</p> <ul style="list-style-type: none"> <li>- The close proximity of the compound site, but separated from the site by a major roadway</li> <li>- Receivers would be seeing the view from their primary places of residence (eg. front yards or from inside their homes), a view in which the receivers would have a proprietary interest. However due to the busy nature of the road, many residences have installed high front fences and screening vegetation (refer <b>Figure 6-26</b>)</li> <li>- Low numbers of receivers viewing the site at close proximity</li> <li>- The character of the construction compound would be in sharp contrast with the character of the existing land use (a golf course).</li> </ul> | <p>The magnitude of the change to the view would be High. The character of the site would change from one of a green, vegetated recreational space to a construction compound surrounded by noise walls and hoarding, with tall sheds and visible construction activity (including heavy vehicles entering and leaving the site from the Flora Street / Marsh Street intersection)</p> <p>The removal of mature vegetation, including that fringing the road, would also contribute to the significant change in character on the site due to the construction compound.</p>       | High - Moderate |

| Receiver Location | Receiver                                      | Visual Impact Assessment<br>Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rating   |
|-------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                   | Residential neighbours (high density housing) | <p>The sensitivity of residential receivers is High due to:</p> <ul style="list-style-type: none"> <li>- The close proximity of a moderate number of residents to the compound site</li> <li>- Receivers would be seeing the view from their primary places of residence, a view in which the receivers would have a proprietary interest. The golf course would make up the foreground of a district view obtained from apartments facing south-east, and seen from elevated locations.</li> <li>- Low to moderate numbers of receivers</li> <li>- The character of the construction compound would be in sharp contrast to the character of the existing land use.</li> </ul> <p>Note: some of the high rise development on and around Marsh Street includes non-residential uses such as airport hotels. Given these receivers are not residents, they are considered to have a lower sensitivity rating given their stay would be short term and they would not have a proprietary interest in the view.</p> | <p>The magnitude of the change to the view would be High. As per above, the character of the site would change from one of a green, vegetated recreational space to a construction compound surrounded by noise walls and hoarding, with tall sheds and visible construction activity. The removal of mature vegetation, including that fringing the road, would also contribute to the significant change in character on the site due to the construction compound. The view would be seen over a period of some three years.</p>                                                                                                                                          | High     |
|                   | Road users                                    | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- The small portion of road affected by the Arncliffe construction compound as part of the greater journey</li> <li>- Marsh Street is a major road with the somewhat utilitarian character of an infrastructure element. However it is integrated into the surrounding landscape as it lies at grade, and is fronted by residential homes and parks, among other development types. Flora Street, although a residential street, only shares one intersection with the boundary of the Arncliffe construction compound.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                    | <p>The magnitude of the change to the view would be High, due to the following:</p> <ul style="list-style-type: none"> <li>- The character of the site would change from a green, vegetated recreational space to a construction compound with large sheds and construction activity surrounded by 3 metre noise walls and 4 metre hoarding</li> <li>- The site is highly visible to motorists on Marsh Street, the road passes alongside the site with no pedestrian verge or buffer between the site and the roadway</li> <li>- The intersection at the entry to the site would change to include heavy vehicles entering and exiting to and from Marsh Street.</li> </ul> | Moderate |



| Receiver Location | Receiver               | Visual Impact Assessment<br>Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Rating          |
|-------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                   | Pedestrians / cyclists | <p>The sensitivity of pedestrians and cyclists using the Cook Park Trail would vary depending on what part of the trail they are using due to the range of environments that the trail passes through (e.g. from waterside park to pedestrian verge alongside busy roads, and through industrial areas).</p> <p>Passive recreational users of public space typically have a high sensitivity, due to:</p> <ul style="list-style-type: none"> <li>- The importance of the quality of the view to recreational users</li> <li>- The slow speed at which the receiver would move through the site, allowing time for the surrounding landscape to be viewed in great detail.</li> </ul> <p>However, at this location, users of the Cook Park Trail would have a Moderate sensitivity, due to:</p> <ul style="list-style-type: none"> <li>- The busy, utilitarian nature of Marsh Street, which lies between the receiver and the construction compound site</li> <li>- The receiver would be moving through / past the site and therefore the view seen may only be a small part of a substantially larger journey</li> <li>- The moderate to high number of users who would use the pathway</li> <li>- The scale and character of the development is in sharp contrast to that of the existing situation</li> <li>- The close proximity from which the viewer would see changes to the site.</li> </ul> | <p>The magnitude of the change to the view would be High, due to the following:</p> <ul style="list-style-type: none"> <li>- The character of the site would change from a green, vegetated recreational space to a construction compound with large sheds and construction activity surrounded by three metre noise walls</li> <li>- The site is highly visible to users of the path at this location, as the road or the Cook Park Trail passes adjacent to the site. However pedestrians and cyclists would be on the opposite side of Marsh Street to the construction compound</li> <li>- The intersection at the entry to the site would change to include heavy vehicles entering and exiting the stream of traffic onto Marsh Street.</li> </ul> | High - Moderate |

| Receiver Location       | Receiver                                       | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
|-------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
|                         |                                                | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rating        |
| 16. Eve Street Cycleway | Pedestrians / cyclists                         | <p>The sensitivity of pedestrians and cyclists using the Cook Park Trail at Eve Street would have a High sensitivity, due to:</p> <ul style="list-style-type: none"> <li>- The importance of the quality of the view to passive recreational users</li> <li>- The slow speed at which the receiver would move through the site, allowing time for the surrounding landscape to be viewed in great detail</li> <li>- The quiet, off road section of path and the Western Outfall Main Sewer, a heritage item (refer <b>Figure 6-27</b>)</li> <li>- The receiver would be moving through / past the site and therefore the view seen may only be a small part of a substantially larger journey</li> <li>- The moderate to high number of users who would use the pathway</li> <li>- The scale and character of the development is in sharp contrast to that of the existing situation</li> <li>- The close proximity from which the viewer would see changes to the site.</li> </ul> | <p>The magnitude of the change to the view would be Moderate, due to the following:</p> <ul style="list-style-type: none"> <li>- The character of the site would change from a green, vegetated recreational space to a construction compound with large sheds and construction activity surrounded by 3 metre noise walls and 4 metre hoardings on the southern sides adjacent to the golf course, but this would likely not be visually prominent for most of the cycleway.</li> <li>- The site is highly visible to users of the path at the northern end of the cycleway</li> <li>- The removal of screening vegetation between the cycle path and the construction compound</li> <li>- The vegetation associated with the existing wetlands in the western corner of the site adjacent to the cycle path would provide some screening to the development.</li> </ul> | High-Moderate |
| 17. Kogarah Golf Course | Active recreation - players on the golf course | <p>The sensitivity of users of the golf course would be High due to the following:</p> <ul style="list-style-type: none"> <li>- The visual amenity of the landscape would be important to those partaking in the recreational activity, although golfers could also be expected to be concentrating on their game</li> <li>- The slow speed at which the receiver would move through the site, allowing time for the surrounding landscape to be viewed in great detail and for prolonged periods of time</li> <li>- The close proximity from which the viewer would see changes to the site</li> <li>- A low to moderate number of users would be anticipated to play on the golf course during the week, but potentially a high number of users would play on the weekends.</li> </ul>                                                                                                                                                                                            | <p>The magnitude of the change to the view would be High, due to the following:</p> <ul style="list-style-type: none"> <li>- The character of the part of the golf course would change from a green, vegetated recreational space to a construction compound with large sheds surrounded by four metre hoardings</li> <li>- The site is highly visible to users of the golf course, and results in a reduction in the size of the course</li> <li>- The removal of screening vegetation between the golf course and the construction compound.</li> </ul>                                                                                                                                                                                                                                                                                                                 | High          |



Figure 6-25 The view south-west along the Eve Street Cycleway showing the M5 East Motorway (right of frame), screening vegetation, the Western Outfall Main Sewer and the Kogarah Golf course to left of frame



Figure 6-26 The view looking north-east along Marsh Street, showing examples of housing with screening vegetation and fencing fronting Marsh Street





Figure 6-27 The view looking north-east over Kogarah Golf Course from the Eve Street Cycleway (seen to right of frame)

### *Night Lighting Impacts*

Table 6-14 Night Lighting Visual Impact Assessment at the Arncliffe construction compound (C7)

| Receiver Location   | Receiver   | Visual Impact Assessment       |                                                                                                                                                                                                                        | Rating     |
|---------------------|------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|                     |            | Sensitivity                    | Magnitude                                                                                                                                                                                                              |            |
| 6. M5 East Motorway | Road users | Low<br>Refer <b>Table 6-13</b> | The magnitude of lighting increase is Negligible, as lighting levels on the M5 East Motorway would remain unchanged during construction and the construction compound is screened from view from the M5 East Motorway. | Negligible |

| Receiver Location                              | Receiver                                      | Visual Impact Assessment            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |
|------------------------------------------------|-----------------------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                                                |                                               | Sensitivity                         | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Rating   |
| 15. The intersection of Flora and Marsh Street | Residential neighbours (low density housing)  | Moderate<br>Refer <b>Table 6-13</b> | <p>The magnitude of lighting increase is Moderate due to the following:</p> <ul style="list-style-type: none"> <li>- The visual setting of the construction compound includes lighting associated with Marsh Street, Flora Street and surrounding residences. The construction compound is situated on private recreational land which is predominantly unlit</li> <li>- It is assumed that the construction compound would be lit at night time to facilitate construction due to the tunnelling activity. There would be constant flow of heavy vehicles entering and exiting the site, as well as truck movement within the compound. This may result in: <ul style="list-style-type: none"> <li>• an increased generalised light spill up into the night sky from the compound</li> <li>• some localised lighting movement from vehicle headlights entering and leaving the compound.</li> </ul> </li> </ul> | Moderate |
|                                                | Residential neighbours (high density housing) | High<br>Refer <b>Table 6-13</b>     | <p>The magnitude of lighting increase is High due to the following:</p> <ul style="list-style-type: none"> <li>- The visual setting of the construction compound includes lighting associated with Marsh Street, Flora Street and surrounding residences. The construction compound is situated on private recreational land which is predominantly unlit</li> <li>- The construction compound would be lit at night time to facilitate construction due to the tunnelling activity. There would be constant flow of heavy vehicles entering and exiting the site, as well as truck movement within the compound. These changes to lighting levels would be clearly seen from neighbours in surrounding medium rise buildings, which would look down into the site.</li> <li>- The view would be seen over a period of years.</li> </ul>                                                                         | High     |

| Receiver Location       | Receiver                                       | Visual Impact Assessment            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |
|-------------------------|------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                         |                                                | Sensitivity                         | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Rating   |
|                         | Road users                                     | Low<br>Refer <b>Table 6-13</b>      | <p>The magnitude of change to the lighting levels as seen by road users would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- The lighting levels to Marsh Street and Flora Street would remain unchanged</li> <li>- The increase in lighting due to the headlights of heavy vehicles entering and leaving the compound at the intersection of Marsh and Flora Streets would be seen as characteristic part of an active road corridor</li> <li>- The increased light spill above the noise walls adjacent to Marsh Street is well below the level of the motorist, and would not be a noticeable change to the driver, who could be expected to have his concentration centred on driving.</li> </ul>                                                                                                                                                                                                          | Low      |
|                         | Pedestrians / cyclists                         | Moderate<br>Refer <b>Table 6-13</b> | <p>The magnitude of lighting increase is Moderate due to the following:</p> <ul style="list-style-type: none"> <li>- The visual setting of the construction compound includes lighting associated with Marsh Street, Flora Street and surrounding residences. The construction compound is situated on private recreational land which is predominantly unlit</li> <li>- It is assumed that the construction compound would be lit at night time to facilitate construction due to the tunnelling activity. There would be constant flow of heavy vehicles entering and exiting the site, as well as truck movement within the compound. This may result in: <ul style="list-style-type: none"> <li>- an increased generalised light spill up into the night sky from the construction compound</li> <li>- Some localised lighting movement from vehicle headlights entering and leaving the construction compound.</li> </ul> </li> </ul> | Moderate |
| 16. Eve Street Cycleway | Pedestrians / cyclists                         | High<br>Refer <b>Table 6-13</b>     | At present there is no lighting provided on the Eve Street Cycleway. Therefore it is assumed that pedestrians and cyclists would not use this path at night time and no assessment can be made regarding the change in lighting as seen by these receivers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A      |
| 15. Kogarah Golf Course | Active recreation - players on the golf course | High<br>Refer <b>Table 6-13</b>     | As per the Eve Street Cycleway, the golf course would not be available for play at night; therefore no receivers would be present to view any changes to lighting levels.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | N/A      |



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### **Summary of Potential Impacts**

The significant change in character of this site from a green open space to a construction compound with associated construction activity and removal of mature vegetation, coupled with the sensitivity of residents to change in views to their environment has resulted in a number of High / High – Moderate ratings for visual impact at this location. Further study into the possible retention of mature trees, particularly along the boundary of the golf course, would assist in mitigating the visual impact for surrounding neighbours and users of the Cook Park Trail.

Night lighting during construction would be designed to minimise light spill, which would reduce the amount of light trespass onto adjoining residential properties. Further, construction lighting would need to be managed to no conflict with Sydney Airport's operational aviation requirements.

Refer **Table A - 6** for a summary of visual impacts from this location.

#### **6.1.8 Canal Road construction compound (C8)**

The Canal Road construction compound would be located on the north-eastern side of Canal Road and the southern side of the Princes Highway; St Peters (refer **Figure 6-28**). The compound is broken up into two areas:

- Area A, situated on the corner of Canal Road and Princes Highway
- Area B, which lies behind the commercial complexes fronting Princes Highway along the north-western site boundary.

The site would be used to construct the eastern portal cut and cover structure, tunnel excavation and permanent ventilation facilities. The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Chain-link fence and temporary noise barrier (2.5 metre high) surrounding the site
- Site carpark
- Spoil stockpile
- Electrical substations and Ausgrid supply point
- Water treatment plant
- Site offices (including one double stacked office), workshop area and ablutions block
- Storage laydown areas
- Sedimentation pond.

The entry / exit point to the site on Canal Road would be in operation 24 hours a day, 7 days a week, therefore night lighting adequate to support safe construction activity is assumed.

Three Receiver Locations have been assessed for this site (refer **Figure 6-28**):

##### **18) The intersection of Princes Highway and Canal Road**

- This Receiver Location assesses the impact of the construction compound on receivers at the Southern Cross Hotel (refer **Figure 6-29**), a heritage item situated on the corner of Canal Road and the Princes Highway, as well as passers-by travelling through this intersection
- Receivers comprise hotel patrons, workers and customers of surrounding commercial businesses (commercial neighbours), and road users

##### **19) Commercial complexes backing onto the St Peters interchange site (refer **Figure 6-30**)**

- This Receiver Location assesses the impact of the compound on workers and visitors to the commercial buildings / complexes that front onto the Princes Highway, but share a back boundary with the St Peters interchange site, near the Canal Road construction compound B. These commercial enterprises comprise fast food outlets and hotels (including car parking), and factory complexes
- Receivers comprise commercial neighbours

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Figure 6-28 Canal Road construction compound receiver locations



20) Industrial buildings on the Princes Highway (refer **Figure 6-31**)

- This Receiver Location assesses the impact of construction on workers, visitors and passers-by to the industrial buildings on the Princes Highway
- Receivers comprise industrial neighbours and road users

21) The St Peters Anglican Church (refer **Figure 6-32**)

- This Receiver Location assesses the impact of the compound on visitors to the St Peters Anglican Church and associated facilities. The church is a heritage item and is flanked by a church hall on the grounds to the west of the main building
- Receivers comprise church visitors (including worshippers and visitors for special occasions, considered commercial neighbours for the purposes of assessment).



Figure 6-29 The Southern Cross Hotel on the corner of the Princes Highway and Canal Road



Figure 6-30 The view from within the St Peters Anglican Church grounds towards the Princes Highway and commercial complexes (including food outlets and hotel accommodation) on the Princes Highway



Figure 6-31 View looking south-west along Princes Highway, showing industrial buildings on the northern side of the highway. The Southern Cross Hotel and Dynamo building can be seen in the background to the left of frame



Figure 6-32 The heritage listed St Peters Anglican Church, which sits on a localised hill on the northern side of the Princes Highway, but set back from the highway amongst a park setting of turf and trees.



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### Impact Assessment

Table 6-15 Visual Impact Assessment of changes due to the Canal Road construction compound (C8)

| Receiver Location                                      | Receiver              | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |
|--------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                        |                       | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Rating |
| 18. The intersection of Princes Highway and Canal Road | Commercial neighbours | <p>Receivers at this location comprise workers and customers at the heritage listed hotel surrounding commercial businesses. The sensitivity of the user group is assessed based on the most sensitive of these users, which would be hotel patrons at this location. The sensitivity of this user group is Low, due to the following:</p> <ul style="list-style-type: none"> <li>- Visiting the hotel would be a recreational pursuit, therefore patrons could be assumed to have a heightened appreciation for the visual amenity of their surrounds, although this focus would be internal to the building rather than to the landscape</li> <li>- The hotel does have an outside balcony ('Verandah Bar', refer <b>Figure 6-33</b>), but views from this bar are screened by a tall, solid balcony rail with potted plants</li> <li>- Although there are limited windows and a small balcony fronting onto Canal Road (towards the site), the blinds are drawn during the day</li> <li>- The hotel is situated on the intersection of two major roads</li> <li>- The anticipated change to the view would be broadly within the existing character of the view</li> <li>- Street trees along Canal Road would be retained, which would assist in screening any changes (refer <b>Figure 6-34</b>).</li> </ul> | <p>The magnitude of change to the view from this location would be Low. The view from the hotel towards the compound site is seen across a busy intersection, with the most prominent elements (the Dynamo building and the street trees) to be retained. Other elements along Canal Road are utilitarian with an industrial character, therefore the 2.5 metre noise walls and smaller constructed elements (e.g. site offices) which may be seen are not uncharacteristic within the view.</p> <p>The Dynamo building fronts the Princes Highway and Canal Road intersection, with its 'back' to the site, limiting views to changes due to construction activity and maintaining this heritage element within the view.</p> | Low    |

| Receiver Location                                                    | Receiver              | Visual Impact Assessment<br>Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Rating |
|----------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                                      | Road users            | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- Low scenic value of the utilitarian road corridors of the Princes Highway and Canal Road at this location</li> <li>- The small portion of road affected by the construction works as part of the greater journey</li> <li>- The character of the construction compound as seen from these road ways would be broadly in keeping with the existing character of the site.</li> </ul> <p>Although these are major roads with a somewhat utilitarian character of an infrastructure element, they are integrated into the surrounding landscape in that they lie at grade and are fronted by commercial and industrial businesses, among other development types.</p>                                                          | <p>The magnitude of the change would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- Only one of the two areas of the construction compound would be seen from this intersection (Canal Road construction compound), and would visually comprise 2.5 metres noise walls, site entry points and the tops of the site office. Trees and the Dynamo building would be retained, therefore the change in character to the northern site would not be a significantly different to that existing</li> <li>- The site is seen as the driver passes by, and is therefore only a small element within the greater road journey</li> <li>- The site is situated on a busy intersection, with many pieces of road infrastructure associated with the intersection (eg traffic lights, signage, etc) punctuating views from the road.</li> </ul> | Low    |
| 19. Commercial complexes backing onto the St Peters interchange site | Commercial neighbours | <p>The sensitivity of users at this location would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- The commercial buildings either front onto the Princes Highway, or have internal courtyards / car parks but have limited views to the St Peters interchange or Canal Road construction compound site</li> <li>- The utilitarian (industrial / commercial) character of the area (i.e. emphasis on function rather than scenic amenity)</li> <li>- Changes to the site due to the construction compounds would not be a significant change in the character of the view</li> <li>- Moderate numbers of viewers (predominantly workers in the surrounding buildings, who could be assumed to have their attention focused on their work activities rather than on the landscape).</li> </ul> | <p>The magnitude of the change in views from this location would be Low, due to:</p> <ul style="list-style-type: none"> <li>- The limited existing views to the site from these commercial properties (refer <b>Figure 6-35</b>)</li> <li>- The changes to the site would not result in a significant change in character of the view.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Low    |



| Receiver Location                               | Receiver              | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                        |        |
|-------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                 |                       | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                              | Rating |
| 20. Industrial buildings on the Princes Highway | Industrial neighbours | <p>The sensitivity of users at this location would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- Changes to the site due to construction would not be a significant change in the character of the view (views to the existing site comprise noise walls with advertising billboards between industrial and commercial buildings, refer <b>Figure 6-36</b>)</li> <li>- The site would be seen with the busy Princes Highway in the foreground</li> <li>- The utilitarian (industrial / commercial) character of the area (i.e. emphasis on function rather than scenic amenity)</li> <li>- Moderate numbers of viewers (predominantly workers in the surrounding buildings, who could be assumed to have their attention focused on their work activities rather than on the landscape) working from buildings with limited opportunities for viewing the landscape.</li> </ul> | <p>The magnitude of the change in views from this location would be Low, due to:</p> <ul style="list-style-type: none"> <li>- Limited opportunities for viewing the landscape from inside these industrial buildings</li> <li>- The changes to the site would not result in a significant change in character of the view.</li> </ul>                                                                                                  | Low    |
|                                                 | Road users            | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- Low scenic value of the utilitarian road corridor of the Princes Highway</li> <li>- The small portion of road affected by the construction works as part of the greater journey</li> <li>- The character of the construction compound as seen from these road ways would be broadly in keeping with the existing character of the site.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>The magnitude of the change would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- Limited opportunities for viewing the construction compound are available from the Princes Highway</li> <li>- The site is seen as the driver passes by, and is therefore only a small element within the greater road journey</li> <li>- The site is situated on a busy road, with a utilitarian character.</li> </ul> | Low    |

| Receiver Location                 | Receiver              | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                               |            |
|-----------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|                                   |                       | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Magnitude                                                                                                                                                                                                                                     | Rating     |
| 21. The St Peters Anglican Church | Commercial neighbours | <p>The sensitivity of users at this location would be Moderate, due to the following:</p> <ul style="list-style-type: none"> <li>- Visitors to the church would be either worshippers or guests at weddings and other occasional events (eg christenings and funerals). Although the majority of the activity would be internally focused, the landscape setting surrounding the church would be important to visitors, especially considering the scenic nature of the building, heritage listing and position of the church on a hillside</li> <li>- A moderate number of receivers would be expected to visit the site, particularly on weekends. Community groups also use the main church and church hall during week days</li> <li>- Only glimpse views to the site are seen with the Princes Highway in the foreground, and between a series of commercial complexes on the southern side of the Highway (refer <b>Figure 6-37</b>).</li> </ul> | The magnitude of the change to the view due to the Canal Road construction compound is Negligible, as the elements within the compound are unlikely to be seen due to screening by commercial buildings, landform, and fencing / noise walls. | Negligible |



Figure 6-33 The Veranda Bar, situated at the rear of the Southern Cross Hotel. Note the high balcony railing and potted plants that screen views from the bar to the landscape



Figure 6-34 View south along Canal Road from the outside the Southern Cross Hotel. Note the existing street trees along the road, which would assist in screening any changes to the view during construction



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**Figure 6-35** The view south towards the St Peters interchange site from the Macdonalds car park, fronting Princes Highway. Glimpse views of the site can be seen above existing fencing and between commercial buildings.



Figure 6-36 View to the fencing and advertising billboards that border the site, as seen from industrial buildings on the Princes Highway



Figure 6-37 The view looking south from the St Peters Anglican Church grounds



**Night Lighting Impacts****Table 6-16 Night Lighting Visual Impact Assessment of changes due to the Canal Road construction compound (C8)**

| Receiver Location                                                    | Receiver              | Visual Impact Assessment |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Rating     |
|----------------------------------------------------------------------|-----------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|                                                                      |                       | Sensitivity              | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |
| 18. The intersection of Princes Highway and Canal Road               | Commercial neighbours | Low                      | <p>The visual setting at this location includes lighting associated with Princes Highway and Canal Road, and illuminated windows and external lighting to the Southern Cross Hotel. The site itself is unlit at night.</p> <p>Night lighting adequate to support safe construction activity within the compound is assumed, and there would be constant flow of heavy vehicles entering and exiting the site via Canal Road. Localised glare and lighting movement from vehicle headlights pointing towards neighbouring properties would be expected, as well as a generalised increase in light spill upwards into the night sky from the compound. However these increases in lighting levels would be experienced within the already well lit environment of the intersection between two major road corridors.</p> <p>The magnitude of increase to lighting levels is Low.</p> | Low        |
|                                                                      | Road users            | Low                      | <p>As above, the visual setting at this location includes lighting on the Princes Highway and Canal Road, lighting associated with the Southern Cross Hotel.</p> <p>Night lighting within the compound is assumed, in addition to a constant flow of heavy vehicles entering and exiting the site via Canal Road (including localised glare and lighting movement from moving vehicles). A generalised increase in light spill upwards into the night sky from the compound would be experienced, but from within the already well lit environment of the intersection between two major road corridors.</p> <p>Lighting levels on the roads themselves would be maintained as is, therefore the magnitude of increase to lighting levels is Negligible.</p>                                                                                                                        | Negligible |
| 19. Commercial complexes backing onto the St Peters interchange site | Commercial neighbours | Low                      | <p>The visual setting at this location includes lighting associated with Princes Highway and illuminated windows and external lighting associated with the commercial complexes and adjoining car parks. The site itself (seen over the back fences of some complexes, but blocked from view from others) is unlit at night.</p> <p>Night lighting adequate to support safe construction activity within the compound is assumed, as well as localised glare and lighting movement from vehicle headlights within the compound expected.</p> <p>The magnitude of increase to lighting levels is Low.</p>                                                                                                                                                                                                                                                                            | Low        |

| Receiver Location                               | Receiver              | Visual Impact Assessment |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Rating     |
|-------------------------------------------------|-----------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|                                                 |                       | Sensitivity              | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |
| 20. Industrial buildings on the Princes Highway | Industrial neighbours | Low                      | The visual setting at this location includes lighting of the Princes Highway, as well as lighting associated with commercial complexes and car parks along the Highway. Night lighting associated with the construction compound seen from this location would be limited to a generalised increase in light spill upwards into the night sky seen above the noise walls surrounding the compound. However this change would be seen with the Princes Highway corridor in the foreground, which is a well-lit, major road corridor. Limited night time activity is anticipated from these industrial properties. The magnitude of change to lighting levels as seen from this location is Low. | Low        |
|                                                 | Road users            | Low                      | A generalised increase in light spill upwards into the night sky from the compound would be experienced, but seen from within the already well lit environment of the major road corridor. Lighting levels on the roads themselves would be maintained as is, therefore the magnitude of increase to lighting levels is Negligible.                                                                                                                                                                                                                                                                                                                                                            | Negligible |
| 21. The St Peters Anglican Church               | Commercial neighbours | Moderate                 | No night time services or other activities are listed as occurring at the church; therefore no assessment has been made due to a lack of receivers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A        |

### Summary of Potential Impacts

The Canal Road construction compound lies within an area of low scenic value due to the surrounding land use of industrial and commercial enterprise, and flanked by two major roads. The sensitivity of visitors to local heritage items is reduced due to the utilitarian character of the surrounding area. Parts of the site on which the compound is situated is an enclosed, visually inaccessible area with a high level of existing construction activity, due to its existing use as a landfill. All these factors influence the low visual impact ratings for changes occurring on the site.

Refer **Table A - 7** for a summary of visual impacts from this location.

#### 6.1.9 Campbell Road construction compound (C9)

The Campbell Road construction compound would be located on the southern side of Campbell Road between Woodley Street and Harber Street, St Peters. The site would service the construction of the St Peters interchange and local road works. The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Chain-link fence and temporary noise barrier (2.5 metre high) to the north-eastern boundary of the compound
- Stockpile of materials generated from St Peters interchange and local road excavation
- Site offices
- Site carpark
- Storage laydown areas
- Sedimentation pond.

One Receiver Location has been assessed for this site (refer **Figure 6-38**):

22) Campbell Road, between Woodley Street and Harber Street:

- This Receiver Location assesses the visual impact on receivers at Campbell Road, which is a local road bounding Sydney Park, and with a small portion of fringing residential development. Residential and industrial buildings on the southern side of Campbell Road would be demolished as part of the widening of Campbell Road
- Receivers comprise residential neighbours, road users and recreational users of Sydney Park.



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Figure 6-38 Campbell Road and landfill closure construction compound receiver locations

### Impact Assessment

Table 6-17 Visual Impact Assessment of Campbell Road construction compound (C9)

| Receiver Location | Receiver                                           | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |        |
|-------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                   |                                                    | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Rating |
| 22. Campbell Road | Residential neighbours (refer <b>Figure 6-39</b> ) | <p>The sensitivity of residential receivers is High due to:</p> <ul style="list-style-type: none"> <li>- The moderate proximity of the construction compound boundary to residents on the northern side of Campbell Road (within 150 metres of compound site boundary)</li> <li>- Receivers would be seeing the view from their primary places of residence (e.g. from inside their homes), a view in which the receivers would have a proprietary interest</li> <li>- The scale and character of the development is very different from the existing situation</li> <li>- However there are a relatively low number of receivers that live within this bank of terrace houses on Campbell Road.</li> </ul> | <p>The magnitude of change due to the development is High, due to:</p> <ul style="list-style-type: none"> <li>- The change in character of the view to Campbell Road and the development on the southern side of the street, from a vegetated streetscape with mature street trees and industrial buildings, to a construction compound and cleared construction site</li> <li>- The visibility of the construction compound and noise walls from the residential neighbours due to the demolition of existing industrial buildings and mature street trees that currently provide a visual buffer.</li> </ul> <p>In addition, the site would be seen in conjunction with the construction activity associated with the widening of Campbell Road, which would increase the cumulative impact during construction for these receivers.</p> | High   |

| Receiver Location | Receiver   | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 |
|-------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                   |            | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Rating          |
|                   | Road users | <p>The sensitivity of road users is Moderate due to:</p> <ul style="list-style-type: none"> <li>- The significant portion of road affected by the construction works as part of the greater journey along Campbell Road</li> <li>- The mature street and established gardens of residential housing that soften the character of the street (refer <b>Figure 6-40</b>)</li> <li>- The utilitarian nature of Campbell Road corridor as an infrastructure element with some fringing industrial development.</li> </ul> | <p>The magnitude of the change to the view at the construction compound would be High, due to the following:</p> <ul style="list-style-type: none"> <li>- The character of the site would change from an established industrial complex to a construction compound with associated construction activity, including heavy vehicle movement</li> <li>- The site would be highly visible to motorists on Campbell Road when the existing industrial buildings are demolished. The road passes adjacent to the site with no pedestrian verge or buffer between the site and the road way</li> <li>- The compound would be seen in conjunction with changes associated with the widening of Campbell Road, including the demolition of industrial and residential development on the southern side of the road.</li> </ul> | High - Moderate |



| Receiver Location | Receiver                              | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |
|-------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                   |                                       | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Rating   |
|                   | Recreational users within Sydney Park | <p>Recreational users of Sydney Park would include visitors engaging in both active (e.g. pedestrians and cyclists, or people engaging in informal sports) and passive recreation activities (e.g. people BBQing or picnicking). Both groups would typically have a high sensitivity, due to:</p> <ul style="list-style-type: none"> <li>- The importance of the quality of the view to recreational users</li> <li>- The slow speed at which the receivers engaged in active recreation (e.g. walking) would move through the site, allowing time for the surrounding landscape to be viewed in great detail.</li> <li>- The moderate to high number of users who would use this regionally important</li> <li>- The scale and character of the development is in sharp contrast to that of the existing situation</li> </ul> <p>However, the sensitivity of this receiver group is downgraded to Moderate, due to the following:</p> <ul style="list-style-type: none"> <li>- Only a small proportion of users of Sydney Park would see the changes, as much of Sydney Park has a visually inward focus, with landform and planting encouraging inward looking views towards focal points such as wetlands and a playground, or blocking views to the surrounding streets altogether</li> <li>- There are no picnic tables, BBQs or other facilities that have views to the compound site</li> <li>- Campbell Road has a busy, utilitarian character and lies between the receiver and the construction compound site.</li> </ul> | <p>The magnitude of change due to the development is Moderate, due to:</p> <ul style="list-style-type: none"> <li>- The change in character of the site from one with industrial buildings and established street trees to a construction compound and cleared construction site</li> <li>- The visibility of the construction compound and noise walls from the boundary of the park, however within the park views to the compound would be screened by landform and vegetation</li> <li>- The compound would be seen in conjunction with changes associated with the widening of Campbell Road, including the demolition of industrial and residential development on the southern side of the road.</li> </ul> | Moderate |



Figure 6-39 Residential neighbours on Campbell Road, opposite the Campbell Road construction compound



Figure 6-40 View looking west along Campbell Road to industrial and residential development on the southern side of the street, showing mature street trees and established gardens in front of the residential properties

### Night Lighting Impacts

Table 6-18 Night Lighting Impact Assessment of Campbell Road construction compound (C9)

| Receiver Location | Receiver                          | Visual Impact Assessment               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Rating          |
|-------------------|-----------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                   |                                   | Sensitivity                            | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |
| 22. Campbell Road | Residential neighbours            | High<br>Refer to <b>Table 6-17</b>     | <p>The magnitude of lighting increase is Moderate due to the following:</p> <ul style="list-style-type: none"> <li>- The existing visual setting of the construction compound is a predominantly unlit industrial site, but seen across the lit environment of Campbell Road</li> <li>- It is assumed that the construction compound would predominantly be minimally lit at night as no construction activity would occur (based on vehicular movement hours listed in the Environmental Impact Report). Short term use of the compound during periods of night works would result in the site being lit at night with lighting levels adequate to support construction activity, as well as heavy vehicles entering and exiting the site. This may result in: <ul style="list-style-type: none"> <li>• an increased generalised light spill up into the night sky from the compound</li> <li>• localised lighting movement from vehicle headlights entering and leaving the compound.</li> </ul> </li> </ul> | High - Moderate |
|                   | Road users                        | Moderate<br>Refer to <b>Table 6-17</b> | It is assumed that lighting levels on Campbell Road would remain relatively unchanged during construction, as the lighting levels must be maintained for road safety, and any increase in lighting to the compound would only be visible for a small part of the longer journey. Changes in lighting due to temporary night road works would be due to the road works rather than the construction compound.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Negligible      |
|                   | Recreational users of Sydney Park | Moderate<br>Refer to <b>Table 6-17</b> | At present there is no lighting provided within Sydney Park in the vicinity of the Campbell Road construction compound. Therefore it is assumed that visitors would not use this area at night time and therefore no assessment can be made regarding the change in lighting as seen by receivers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | N/A             |

### Summary of Potential Impacts

Although the Campbell Road construction compound is situated back from Campbell Road, the industrial buildings fronting the road would be demolished, which would allow views to the compound from the road and land beyond it. Two sensitive receiver groups are present: residents in a row of heritage listed terrace homes opposite the compound, and visitors to Sydney Park. Although residents would get uninterrupted views to the compound from their homes, views from the internal areas of Sydney Park are substantially screened by mature vegetation and landform.

Refer **Table A - 8** for a summary of visual impacts from this location.

### 6.1.10 Landfill Closure construction compound (C10)

The Landfill Closure construction compound would be located on the southern side of Campbell Road, west of the Campbell Road construction compound, St Peters. The site would service the construction of the St Peters interchange and local road works. The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Hardstand areas for site offices, amenities, laydown and material storage
- Site fencing, barriers and demolition of existing buildings
- Land closure works consisting of earthworks, foundation treatment and capping

One Receiver Location has been assessed for this site (refer to **Figure 6-38**):

20) Industrial complex accessed from the Princes Highway:

- This Receiver Location assesses the impact of construction on workers, visitors and passers-by to the industrial complex which is accessed from the Princes Highway. As the factory units within the complex are accessed from an internal courtyard, the built form of the complex screens the Landfill Closure construction compound from the Princes Highway
- Receivers comprise industrial neighbours.

#### Impact Assessment

Table 6-19 Visual Impact Assessment of Landfill Closure construction compound (C10)

| Receiver Location                                        | Receiver              | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                       |        |
|----------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                          |                       | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Magnitude                                                                                                                                                                                                                                                                                                                             | Rating |
| 20. Industrial complex accessed from the Princes Highway | Industrial neighbours | <p>The sensitivity of users at this location would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- The utilitarian (industrial/commercial) character of the area (i.e. emphasis on function rather than scenic amenity)</li> <li>- Moderate numbers of viewers (predominantly workers in the surrounding buildings, who could be assumed to have their attention focused on work activities rather than views) working from buildings with limited opportunities for viewing the landscape</li> <li>- However the factory units within the complex 'face' inwards to a central carpark / driveway, therefore limited views to the compound are anticipated</li> <li>- Changes to the site due to construction compound would not be a significant change the character of the view</li> </ul> | <p>The magnitude of the change in views from this location would be Low, due to:</p> <ul style="list-style-type: none"> <li>- Limited opportunities for viewing the landscape from inside these industrial buildings</li> <li>- The changes to the site would not result in a significant change in character of the view.</li> </ul> | Low    |



### Night Lighting Impacts`

Table 6-20 Night Lighting Impact Assessment of Landfill Closure construction compound (C10)

| Receiver Location                                        | Receiver              | Visual Impact Assessment          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Rating |
|----------------------------------------------------------|-----------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                                                          |                       | Sensitivity                       | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |
| 20. Industrial complex accessed from the Princes Highway | Industrial neighbours | Low<br>Refer to <b>Table 6-19</b> | <p>The visual setting at this location includes lighting of the Princes Highway, as well as lighting associated with commercial complexes and car parks along the highway. It is assumed that the construction compound would predominantly be minimally lit at night as no construction activity would occur (based on vehicular movement hours listed in the EIS). Short term use of the compound during periods of night works would result in the site being lit at night with lighting levels adequate to support construction activity, as well as heavy vehicles entering and exiting the site. This may result in:</p> <ul style="list-style-type: none"> <li>- An increased generalised light spill up into the night sky from the construction compound</li> <li>- Localised lighting movement from vehicle headlights entering and leaving the construction compound.</li> </ul> <p>However views to the compound from the industrial complex would be limited. Limited night time activity is anticipated from these industrial properties. The magnitude of change to lighting levels as seen from this location is Low.</p> | Low    |

### Summary of Potential Impacts

The Landfill Closure construction compound is visually inaccessible from areas external to the St Peters interchange site. Only glimpse views at best may be seen, and the view to the compound would not be uncharacteristic within the overall industrial / construction environment.

Refer **Table A - 9** for a summary of visual impacts from this location.

#### 6.1.11 Burrows Road construction compound (C11)

The Burrows Road construction compound would be located on the northern side of Burrows Road, west of the intersection with Campbell Road, St Peters. The site would service the construction of local road works along Campbell Road and Euston Road at the eastern end of the project. The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Demolition of existing buildings
- Hardstand areas for overflow car parking
- Laydown and storage areas for materials.

Receiver Locations that have been assessed for this site (refer **Figure 6-41**) include:

23) Burrows Road:

- This Receiver Location assesses the visual impact on receivers at Burrows Road, a busy road corridor which adjoins the St Peters interchange site and connects Campbell Road with Canal Road. The road is flanked by industrial development, the eastern side of which backs onto the Alexandra Canal.
- Receivers comprise industrial neighbours and road users.



Figure 6-41 Burrows Road, Campbell Road bridge and Gardeners Road bridge construction compound receiver locations

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**Impact Assessment****Table 6-21 Visual Impact Assessment of Burrows Road construction compound (C11)**

| Receiver Location | Receiver              | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                        |        |
|-------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                   |                       | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Magnitude                                                                                                                                                                                                                                                                                                                                                              | Rating |
| 23. Burrows Road  | Industrial Neighbours | <p>The sensitivity of receivers at this location would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- The construction compound site is directly opposite the St Peters interchange site, with no industrial neighbours seeing the compound as it addresses the road from 'front on'</li> <li>- The only receivers that would see the site from their place of work would be from the industrial buildings adjoining the site on either side. Views from these properties would therefore difficult to see and be at an oblique angle</li> <li>- The construction compound would be seen within the context of an industrial area(i.e. emphasis on function rather than scenic amenity), and fronting the busy Burrows Road including a heavy vehicular traffic</li> <li>- Changes to the site due to construction would not be a significant change in the character of the view (views to the existing site include fencing and car parking associated with the industrial buildings).</li> </ul> | <p>The magnitude of the change in views from this location would be Low, due to:</p> <ul style="list-style-type: none"> <li>- Limited to no opportunities for viewing the landscape from inside the neighbouring industrial buildings</li> <li>- The changes to the site would not result in a significant change to the utilitarian character of the view.</li> </ul> | Low    |



| Receiver Location | Receiver  | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                          |        |
|-------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                   |           | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Magnitude                                                                                                                                                                                                                                                                                                                                                                | Rating |
|                   | Road User | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- The low scenic value of the utilitarian road corridor of Burrows Road at this location</li> <li>- The small portion of road affected by the construction works as part of the greater journey</li> <li>- The character of the construction compound as seen from these road ways would be broadly in keeping with the existing character of the site.</li> </ul> <p>Although Burrows Road has the utilitarian character of an infrastructure element flanked by industrial development, it is integrated into the surrounding landscape as it lies at grade and fronted by industrial buildings.</p> | <p>The magnitude of the change would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- The change in character to the western side of Burrows Road would not be significantly different to that existing</li> <li>- The site is seen as the driver passes by, and is therefore only a small element within the greater road journey.</li> </ul> | Low    |

## Night Lighting Impacts

Table 6-22 Night Lighting Impact Assessment of Burrows Road construction compound (C11)

| Receiver Location | Receiver              | Visual Impact Assessment          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Rating     |
|-------------------|-----------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|                   |                       | Sensitivity                       | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |
| 23. Burrows Road  | Industrial Neighbours | Low<br>Refer to <b>Table 6-21</b> | <p>The existing site is unlit at night. The visual setting at this location would include lighting along Burrows Road, as well as limited lighting associated with industrial buildings flanking the road.</p> <p>It is assumed that the construction compound would predominantly be minimally lit at night as no construction activity would occur (based on vehicular movement hours listed in the EIS). Short term use of the compound during periods of night works would result in the site being lit at night with lighting levels adequate to support construction activity, as well as heavy vehicles entering and exiting the site. This may result in:</p> <ul style="list-style-type: none"> <li>- An increased generalised light spill up into the night sky from the compound</li> <li>- Localised lighting movement from vehicle headlights entering and leaving the compound.</li> </ul> <p>The magnitude of change to lighting levels as seen from this location is Low.</p> <p>Limited night time activity is anticipated from the surrounding industrial properties, meaning few receivers would experience the change.</p> | Low        |
|                   | Road User             | Low<br>Refer to <b>Table 6-21</b> | <p>A generalised increase in light spill upwards into the night sky from the compound would be experienced, but seen from within the already well lit environment of the major road corridor.</p> <p>However, lighting levels on Burrows Road would be maintained as is; therefore the magnitude of increase to lighting levels is Negligible.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Negligible |

## Summary of Potential Impacts

As per the nearby Campbell Road bridge construction compound, the Burrows Road construction compound is situated within an existing industrial area with low visual amenity and a low sensitivity of surrounding receivers. It has a limited visual impact on its surrounds, and would be in keeping with the character of the area. Night lighting is anticipated to be limited to safety lighting to the compound, as no construction activity would be conducted out of regular construction hours.

Refer **Table A - 10** for a summary of visual impacts from this location.

### 6.1.12 Campbell Road bridge construction compound (C12)

The Campbell Road bridge construction compound would be located on the southern side of Burrows Road, opposite the intersection with Campbell Road, St Peters (refer **Figure 6-42**). The site would service the construction of the bridge over Alexandra Canal and would be the main entry point for bridge work components.

The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Crib room and ablutions block
- Car parking
- Minor stockpiles of materials
- Laydown and storage of permanent materials for bridge works.

One Receiver Location has been assessed for this site (refer **Figure 6-41**):

23) Burrows Road:

- This Receiver Location assesses the visual impact on receivers at Burrows Road, a major road corridor which adjoins the St Peters interchange site and connects Campbell Road with Canal Road. The road is flanked by industrial development, the eastern side of which backs onto the Alexandra Canal.
- Receivers comprise industrial neighbours and road users.

### Impact Assessment

Table 6-23 Visual Impact Assessment of Campbell Road bridge construction compound (C12)

| Receiver Location | Receiver              | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                       |        |
|-------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                   |                       | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Magnitude                                                                                                                                                                                                                                                                                                                                             | Rating |
| 23. Burrows Road  | Industrial neighbours | <p>The sensitivity of receivers at this location would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- The site would be seen with the busy Burrows Road in the foreground, which would include a steady stream of heavy vehicular traffic</li> <li>- The utilitarian (industrial) character of the area (i.e. emphasis on function rather than scenic amenity)</li> <li>- Moderate number of viewers (predominantly workers in the surrounding buildings, who could be assumed to have their attention focused on their work activities rather than on the landscape) working from buildings with limited opportunities for viewing the landscape</li> <li>- Changes to the site due to construction would not be a significant change in the character of the view (views to the existing site include fencing and car parking associated with the industrial buildings).</li> </ul> | <p>The magnitude of the change in views from this location would be Low, due to:</p> <ul style="list-style-type: none"> <li>- Limited opportunities for viewing the landscape from inside these industrial buildings</li> <li>- The changes to the site would not result in a significant change to the utilitarian character of the view.</li> </ul> | Low    |

| Receiver Location | Receiver   | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                          |        |
|-------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                   |            | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Magnitude                                                                                                                                                                                                                                                                                                                                                                | Rating |
|                   | Road users | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- The low scenic value of the utilitarian road corridor of Burrows Road at this location</li> <li>- The small portion of road affected by the construction works as part of the greater journey</li> <li>- The character of the construction compound as seen from these road ways would be broadly in keeping with the existing character of the site.</li> </ul> <p>Although Burrows Road has the utilitarian character of an infrastructure element flanked by industrial development, it is integrated into the surrounding landscape as it lies at grade and fronted by industrial buildings.</p> | <p>The magnitude of the change would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- The change in character to the eastern side of Burrows Road would not be significantly different to that existing</li> <li>- The site is seen as the driver passes by, and is therefore only a small element within the greater road journey.</li> </ul> | Low    |



**Figure 6-42** The view to the Campbell Road bridge construction compound from Burrows Road, with the Alexandra Canal in the background



### Night Lighting Impacts

Table 6-24 Night Lighting Impact Assessment of Campbell Road bridge construction compound (C12)

| Receiver Location | Receiver              | Visual Impact Assessment          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Rating     |
|-------------------|-----------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|                   |                       | Sensitivity                       | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |
| 23. Burrows Road  | Industrial Neighbours | Low<br>Refer to <b>Table 6-23</b> | <p>The existing site is unlit at night. The visual setting at this location includes lighting along Burrows Road, as well as lighting associated with industrial buildings flanking the road</p> <p>It is assumed that the construction compound would predominantly be minimally lit at night as no construction activity would occur (based on vehicular movement hours listed in the EIS). Short term use of the compound during periods of night works would result in the site being lit at night with lighting levels adequate to support construction activity, as well as heavy vehicles entering and exiting the site. This may result in:</p> <ul style="list-style-type: none"> <li>- An increased generalised light spill up into the night sky from the compound</li> <li>- Localised lighting movement from vehicle headlights entering and leaving the compound.</li> </ul> <p>The magnitude of change to lighting levels as seen from this location is Low.</p> <p>Limited night time activity is anticipated from these industrial properties.</p> | Low        |
|                   | Road users            | Low<br>Refer to <b>Table 6-23</b> | <p>A generalised increase in light spill upwards into the night sky from the compound would be experienced, but seen from within the already well lit environment of the major road corridor.</p> <p>However, lighting levels on Burrows Road would be maintained as is; therefore the magnitude of increase to lighting levels is Negligible.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Negligible |

### Summary of Potential Impacts

The Campbell Road bridge construction compound is situated within an existing industrial area with low visual amenity and a low sensitivity of surrounding receivers. It has a limited visual impact on its surrounds, and would be in keeping with the character of the area.

Refer **Table A - 11** for a summary of visual impacts from this location.

#### 6.1.13 Gardeners Road bridge construction compound (C13)

The Gardeners Road bridge construction compound would be located on the southern side of Burrows Road in St Peters. The site would service the construction of the bridge over Alexandra Canal. The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Minor stockpiles of materials
- Laydown and storage of permanent materials for bridge works.

One Receiver Location has been assessed for this site (refer **Figure 6-41**):

24) Burrows Road near the proposed compound:

- This Receiver Location assesses the visual impact on receivers at Burrows Road, a major road corridor which adjoins the St Peters interchange site and connects Campbell Road with Canal Road. The road is flanked by industrial development, the eastern side of which backs onto the Alexandra Canal.
- Receivers comprise industrial neighbours and road users.

### Impact Assessment

Table 6-25 Visual Impact Assessment of Gardeners Road bridge construction compound (C13)

| Receiver Location | Receiver              | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |
|-------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                   |                       | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Rating |
| 24. Burrows Road  | Industrial Neighbours | <p>The sensitivity of users at this location would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- The most uninterrupted views to the construction compound would be from the industrial buildings on the opposite side of Burrows Road. Views from this location would be seen with the busy Burrows Road in the foreground</li> <li>- The utilitarian (industrial) character of the area (i.e. emphasis on function rather than scenic amenity)</li> <li>- Moderate number of viewers (predominantly workers in the surrounding buildings, who could be assumed to have their attention focused on their work activities rather than on the landscape) working from buildings with limited opportunities for viewing the landscape</li> <li>- Changes to the character of the site due to the construction compound would not be significant within the greater the view and context of the area (views to the existing site include fencing and car parking associated with the industrial buildings).</li> </ul> | <p>The magnitude of the change in views from this location would be Low, due to:</p> <ul style="list-style-type: none"> <li>- Limited opportunities for viewing the landscape from inside the industrial buildings opposite (but to the south of the construction compound, as the area directly opposite the compound on Burrows Road is the St Peters interchange site itself)</li> <li>- The changes to the site would not result in a significant change in the character of the view.</li> </ul> | Low    |

| Receiver Location | Receiver  | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                             |        |
|-------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                   |           | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                               | Magnitude                                                                                                                                                                                                                                                                                                                                                                   | Rating |
|                   | Road User | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- Low scenic value of the utilitarian road corridor of Burrows Road at this location</li> <li>- The small portion of road affected by the construction works as part of the greater journey</li> <li>- The character of the construction compound as seen from these road ways would be broadly in keeping with the existing character of the site.</li> </ul> | <p>The magnitude of the change would be Low, due to the following:</p> <ul style="list-style-type: none"> <li>- The change in character to the eastern side of Burrows Road would not be significantly different to what is existing</li> <li>- The site is seen as the driver passes by, and is therefore only a small element within the greater road journey.</li> </ul> | Low    |

### Night Lighting Impacts

Table 6-26 Night Lighting Impact Assessment of Gardeners Road bridge construction compound (C13)

| Receiver Location | Receiver              | Visual Impact Assessment                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |
|-------------------|-----------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                   |                       | Sensitivity                                  | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Rating |
| 24. Burrows Road  | Industrial Neighbours | <p>Low</p> <p>Refer to <b>Table 6-23</b></p> | <p>The existing site is unlit at night. The visual setting at this location includes lighting along Burrows Road, as well as lighting associated with the industrial buildings flanking the road.</p> <p>It is assumed that the construction compound would predominantly be minimally lit at night as no construction activity would occur (based on vehicular movement hours listed in the EIS). Short term use of the construction compound during periods of night works would result in the site being lit at night with lighting levels adequate to support construction activity, as well as heavy vehicles entering and exiting the site. This may result in:</p> <ul style="list-style-type: none"> <li>- An increased generalised light spill up into the night sky from the construction compound</li> <li>- Localised lighting movement from vehicle headlights entering and leaving the construction compound.</li> </ul> <p>Limited night time activity is anticipated from these industrial properties.</p> <p>The magnitude of change to lighting levels as seen from this location is Low.</p> | Low    |

| Receiver Location | Receiver   | Visual Impact Assessment             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Rating     |
|-------------------|------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|                   |            | Sensitivity                          | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |
|                   | Road Users | Low<br>Refer to<br><b>Table 6-23</b> | <p>It is assumed that the construction compound would predominantly be minimally lit at night as no construction activity would occur. Short term use of the compound during periods of night works would result in the site being lit at night with lighting levels adequate to support construction activity, which may result in:</p> <ul style="list-style-type: none"> <li>- An increased generalised light spill up into the night sky from the construction compound</li> <li>- Localised lighting movement from vehicle headlights entering and leaving the construction compound.</li> <li>- However these changes would be seen within the already well lit road corridor.</li> </ul> <p>Lighting levels on the roads themselves would be maintained as is; therefore the magnitude of increase to lighting levels is Negligible.</p> | Negligible |

### Summary of Potential Impacts

The Gardeners Road Bridge Compound is situated within an existing industrial area with low visual amenity and a low sensitivity of surrounding receivers. It has a limited visual impact on its surrounds, and would be in keeping with the character of the area. Night lighting is anticipated to be limited to safety lighting to the compound, as no construction activity would be conducted out of regular construction hours.

Refer **Table A - 12** for a summary of visual impacts from this location.

#### 6.1.14 Sydney Park construction compound (C14)

The Sydney Park construction compound would be located on the northern side of Campbell Road in Sydney Park, St Peters. The site would service the construction of the shared path ramps and bridge across Campbell Road. The following structures, equipment and construction activities are likely to be visible from surrounding Receiver Locations:

- Establishment works associated with construction of shared path, bridge and ramps.
- Laydown and storage of permanent materials for bridge works.
- Construction of bridge across Campbell Road
- Construction of shared path in Sydney Park

Three Receiver Locations have been assessed for this site (refer **Figure 6-43**):

##### 22) Campbell Road, between Road between Woodley Street and Harber Street

- This Receiver Location assesses the visual impact on receivers at Campbell Road, which is a local road bounding Sydney Park with a small portion of fringing residential development.
- Receivers comprise residential neighbours and road users.

##### 25) Sydney Park

- This Receiver Location assesses the visual impact on visitors to Sydney Park, a regionally important park
- Receivers comprise active and passive recreational users of the park.

##### 26) Barwon Park Road

- This Receiver Location assesses the visual impact on residents in medium density housing on the corner of Barwon Park Road and Campbell Road
- Receivers comprise residents without boundaries adjoining the compound site.



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Figure 6-43 Sydney Park construction compound receiver locations

### Impact Assessment

Table 6-27 Visual Impact Assessment of changes due to the Sydney Park construction compound (C14)

| Receiver Location | Receiver               | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |
|-------------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                   |                        | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Rating          |
| 22. Campbell Road | Residential neighbours | <p>The sensitivity of residential receivers is High due to:</p> <ul style="list-style-type: none"> <li>- The close proximity of the construction compound boundary to residents on Campbell Road (within 50m of compound site boundary)</li> <li>- Receivers would be seeing the view from (or directly in front of) their primary places of residence (e.g. from inside their homes), a view in which the receivers would have a proprietary interest, however most of these residents would not get a direct view from inside their homes</li> <li>- The scale and character of the development is very different from the existing situation.</li> </ul> <p>There are a relatively low number of receivers that live within this bank of terrace houses on Campbell Road.</p> | <p>The magnitude of change to the view seen from this Receiver Location due to the development is Moderate.</p> <p>Although there would be a significant change in character of the compound site from a vegetated park edge with mature trees, garden beds and grassed mounds, to a cleared construction compound with associated construction activity, these changes would predominantly be screened from the residences due to the oblique viewing angle and screening vegetation. Views to the compound would be seen when the receivers entered or left their homes.</p> <p>Construction activity on Campbell Road would more likely be seen from these residences e.g. the construction of the pedestrian bridge and widening of the road.</p> | High - Moderate |
|                   | Road users             | <p>The sensitivity of road users is Moderate due to:</p> <ul style="list-style-type: none"> <li>- The significant portion of road affected by the construction works as part of the greater journey along Campbell Road</li> <li>- The mature street trees, Sydney Park and established gardens of residential housing that soften the character of the street</li> <li>- The utilitarian nature of Campbell Road corridor as an infrastructure element with some fringing industrial.</li> </ul>                                                                                                                                                                                                                                                                                | <p>The magnitude of the change to the view at the construction compound would be High, due to the following:</p> <ul style="list-style-type: none"> <li>- The construction compound lies within Sydney Park, which would constitute a significant change in character, from a green open space to a construction compound with associated construction activity,</li> <li>- The site would be highly visible to motorists on Campbell Road</li> <li>- The construction compound would be seen in conjunction with changes associated with the widening of Campbell Road, including the demolition of industrial and residential development on the southern side of the road.</li> </ul>                                                              | High - Moderate |

| Receiver Location | Receiver                                          | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |
|-------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                   |                                                   | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Rating          |
| 25. Sydney Park   | Active and passive recreational users of the park | <p>Recreational users of Sydney Park would include visitors engaging in both active (eg. pedestrians and cyclists, or people engaging in informal sports) and passive recreation activities (e.g. people BBQing or picnicking). Both groups would typically have a high sensitivity, due to:</p> <ul style="list-style-type: none"> <li>- The importance of the quality of the view to recreational users</li> <li>- The slow speed at which the receivers engaged in active recreation (eg. walking) would move through the site, allowing time for the surrounding landscape to be viewed in great detail.</li> <li>- The moderate to high number of users who would use this regionally important</li> <li>- The scale and character of the development is in sharp contrast to that of the existing situation</li> </ul> <p>However, the sensitivity of this receiver group is downgraded to Moderate, due to the following:</p> <ul style="list-style-type: none"> <li>- Only a small proportion of users of Sydney Park would see the changes, as much of Sydney Park has a visually inward focus, with landform and planting encouraging inward looking views towards focal points such as wetlands and a playground, or blocking views to the surrounding streets altogether</li> <li>- There are no picnic tables, BBQs or other facilities that have views to the compound site</li> <li>- Campbell Road has a busy, utilitarian character and lies between the receiver and the construction compound site.</li> </ul> | <p>The magnitude of change would be High, due to:</p> <ul style="list-style-type: none"> <li>- The change in character of the site from established parkland edge to a construction compound</li> <li>- The visibility of the construction compound and noise walls from within parts of the park, however within the park views to the compound would be screened by landform and vegetation</li> <li>- The compound would be seen in conjunction with other construction activity, including the construction of the pedestrian overpass and widening of Campbell Road.</li> </ul> | High - Moderate |



| Receiver Location    | Receiver               | Visual Impact Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                   |        |
|----------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                      |                        | Sensitivity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Magnitude                                                                                                                                                                                                                                                                                                                         | Rating |
| 26. Barwon Park Road | Residential neighbours | <p>The sensitivity of residential receivers is High due to:</p> <ul style="list-style-type: none"> <li>- The close proximity of the construction compound boundary to residents on Barwon Park Road</li> <li>- Residents with apartments facing onto Barwon Park Road would get uninterrupted views to the compound from their primary places of residence (e.g. from inside their homes), a view in which the receivers would have a proprietary interest. Some residents on upper floors would potentially see into the compound from balconies and living areas</li> <li>- The scale and character of the development is very different from the existing situation.</li> </ul> | <p>The magnitude of the change in view from this Receiver Location would be High. The view from some residences would change from one of a mature parkland to a construction compound with associated construction activity. This constitutes a significant but temporary change in character of the view from this location.</p> | High   |

### Night Lighting Impacts

Table 6-28 Night Lighting Impact Assessment of Sydney Park construction compound (C14)

| Receiver Location | Receiver                                          | Visual Impact Assessment            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Rating     |
|-------------------|---------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
|                   |                                                   | Sensitivity                         | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |
| 22. Campbell Road | Residential neighbours                            | High<br>Refer <b>Table 6-27</b>     | <p>The magnitude of lighting increase is Low due to the following:</p> <ul style="list-style-type: none"> <li>- The existing visual setting of the construction compound is unlit, with no lighting provided in Sydney Park in the vicinity of the residences or the compound</li> <li>- It is assumed that the construction compound would predominantly be minimally lit at night as no construction activity would occur (based on vehicular movement hours listed in the Environmental Impact Report). Short term use of the compound during periods of night works would result in the site being lit at night with lighting levels adequate to support construction activity, as well as heavy vehicles entering and exiting the site. This may result in: <ul style="list-style-type: none"> <li>• An increased generalised light spill up into the night sky from the compound</li> <li>• Localised lighting movement from vehicle headlights entering and leaving the compound.</li> </ul> </li> <li>- However, views to the compound would be predominantly screened from these residences, with receivers only obtaining the view when they left their homes.</li> </ul> | Moderate   |
|                   | Road users                                        | Moderate<br>Refer <b>Table 6-27</b> | It is assumed that lighting levels on Campbell Road would remain relatively unchanged during construction, as the lighting levels must be maintained for road safety, and any increase in lighting to the compound would only be visible for a small part of the longer journey. Changes in lighting due to temporary night road works would be due to the road works rather than the construction compound.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Negligible |
| 25. Sydney Park   | Active and passive recreational users of the park | Moderate<br>Refer <b>Table 6-27</b> | At present there is no lighting provided within Sydney Park in the vicinity of the Campbell Road construction compound. Therefore it is assumed that visitors would not use this area at night time and therefore no assessment can be made regarding the change in lighting as seen by receivers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | N/A        |

| Receiver Location    | Receiver               | Visual Impact Assessment        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |
|----------------------|------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
|                      |                        | Sensitivity                     | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Rating |
| 26. Barwon Park Road | Residential neighbours | High<br>Refer <b>Table 6-27</b> | The magnitude of change in lighting levels seen at the Sydney Park construction compound is High. The existing site is unlit at night.<br>Although lighting within the compound would be minimised to lighting for safety for a majority of the time (with some construction lighting required during short periods for night construction activity), this lighting may be seen from residential apartments on upper floors of the apartment block. These receivers may get views into the compound from above. | High   |

### **Summary of Potential Impacts**

The Sydney Park construction compound lies within an existing, regionally important parkland surrounded by a number of sensitive receiver groups. Overall, the visual impact ratings for Receiver Locations associated with this compound are relatively high, which in part is due to receiver sensitivity, but also due to the significant change in character of views to the site, from an established parkland corner to a construction compound.

Receivers who would experience the greatest change to the views and lighting levels are residents living in the apartments on the corner of Campbell Road and Barwon Park Road. These receivers currently have views into Sydney Park that would change to views to the construction compound. These changes are temporary, and the site would be returned to park on completion of the project.

Refer **Table A - 13** for a summary of visual impacts from this location.

#### **6.1.15 Western surface works – Construction activity within the roadway**

To ensure the capacity on the existing M5 East Motorway is maintained whilst construction work is in progress, the western surface works would be constructed over the traffic stages outlined below:

- Stage 1: Road alignment maintains two 3.5 metre wide lanes in both directions. New works to be commenced (refer to **Figure 6-44**) include:
  - Construction of the new eastbound cut and cover dive structures/portals.
  - Construction of the new Kindilan underpass.
  - Construction of retaining walls for new east and westbound carriageways.
- Stage 2: Alignment switches eastbound traffic onto the new eastbound carriageway constructed in previous stage and retains westbound traffic on the existing westbound carriageway. New works to be undertaken (refer to **Figure 6-45**) include:
  - Installation of pavement drainage.
  - Construction of new pavement between the new and old east and westbound carriageways.
- Stage 3: This is the permanent alignment that has east and westbound traffic using the final carriageways. Works to be completed in this stage (refer to **Figure 6-46**) include:
  - Completion of the westbound dive structure and new M5 Main Works bypass lane to King Georges Road Interchange.
  - Pavement re-sheeting and line marking to four lanes west of the new dive structure.
  - Finishing works, including signage, landscaping and noise barrier installation.

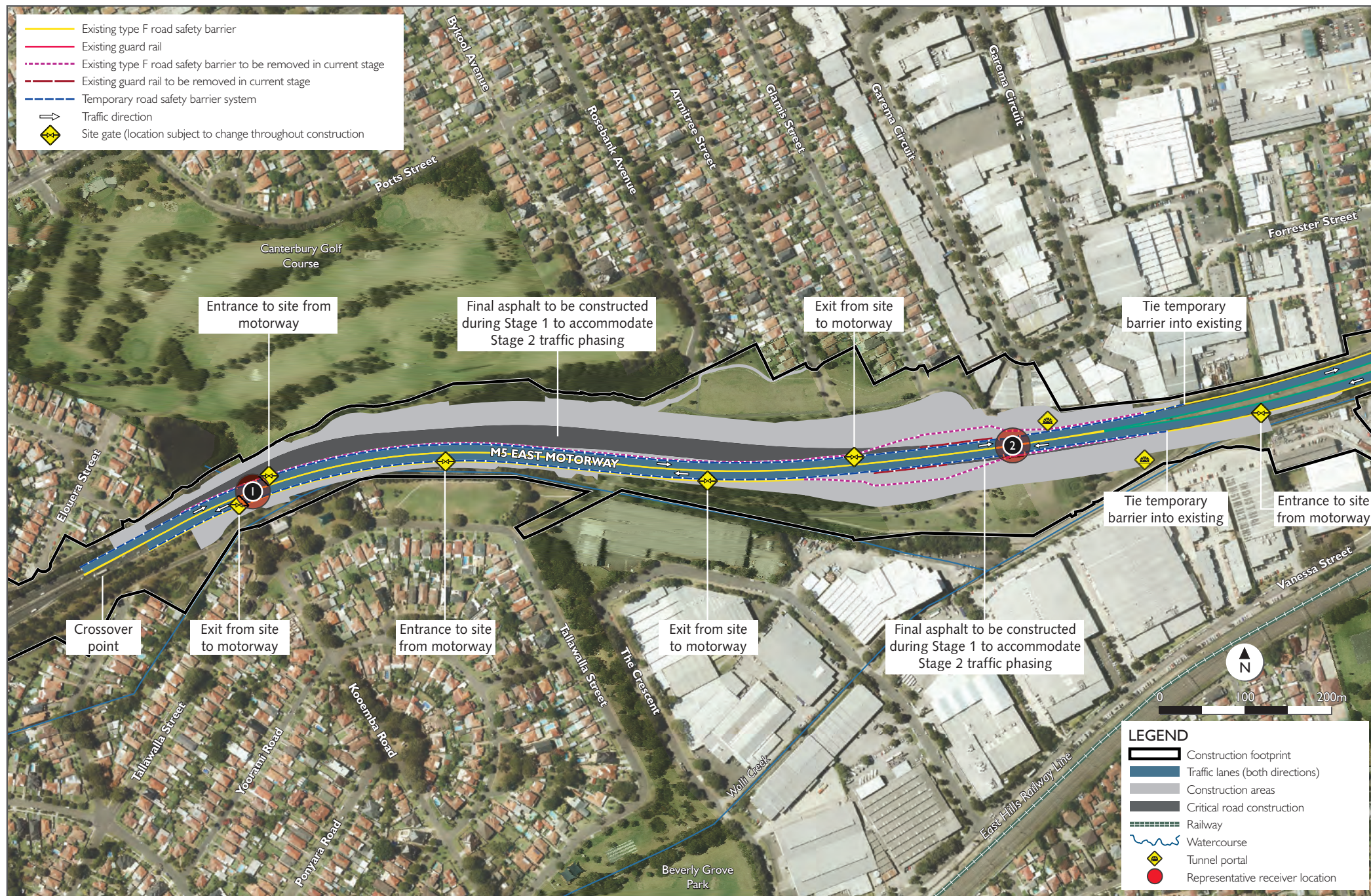
Motorists would be subject to road construction works over a period of up to around three years. During this time, the following structures, equipment and construction activities are likely to be visible for motorists travelling along the M5 East Motorway:

- Earthworks including cuttings/fill embankments and construction of cut and cover dive structures/portals.
- Temporary noise walls and concrete barriers along the M5 East Motorway.
- Fencing around the site
- Vehicle access and egress directly to and from the M5 East Motorway.
- The receivers would be road users (motorists).



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**Figure 6-44 Receiver locations for Stage 1 of the western surface works - construction activity within the roadway**



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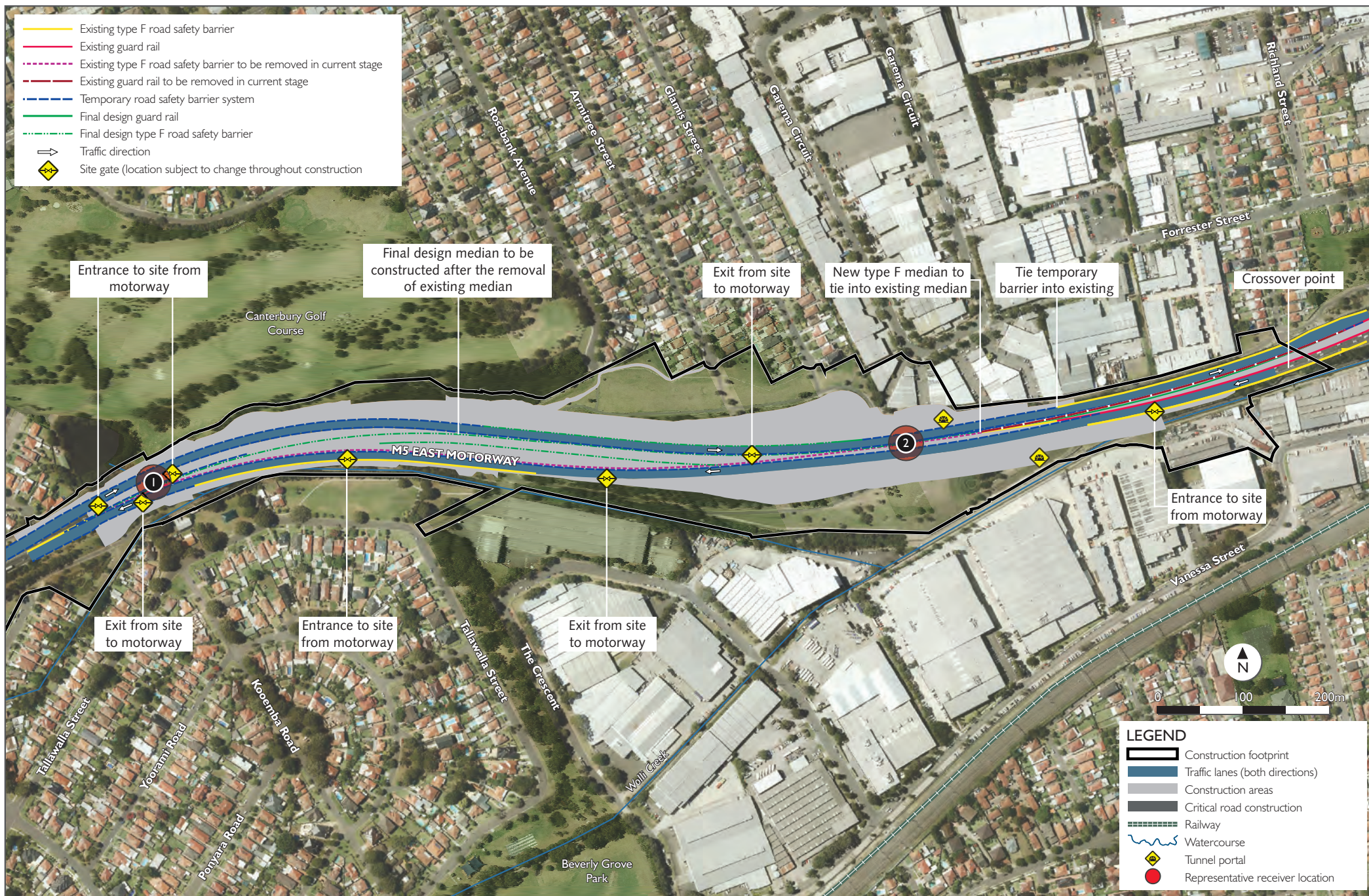


Figure 6-45 Receiver locations for Stage 2 of the western surface works - construction activity within the roadway



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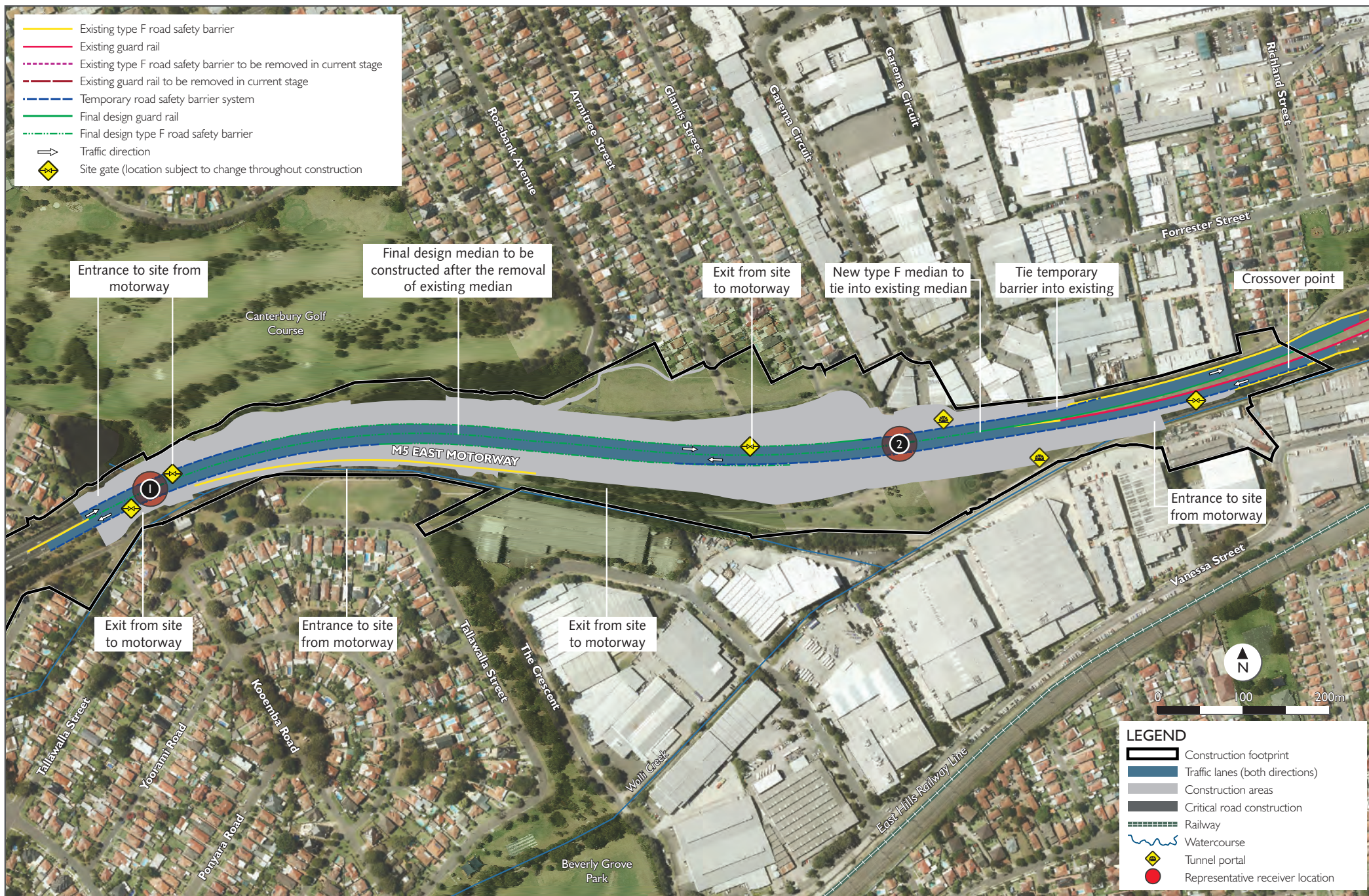


Figure 6-46 Receiver locations for Stage 3 of the western surface works - construction activity within the roadway



### Impact Assessment

Table 6-29 Visual Impact Assessment of changes due to western surface works - Construction activity within the roadway

| Receiver Location                                  | Stage | Visual Impact Assessment                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Rating         |
|----------------------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                    |       | Sensitivity                                                                                                                                                                                                                                                                                                          | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |
| 1. M5 East Motorway – Adjacent to Coolongatta Road | 1     | <p>The sensitivity of road users is Low due to:</p> <ul style="list-style-type: none"> <li>- The utilitarian nature of the M5 East Motorway road corridor as an infrastructure element</li> <li>- The small portion of the road affected by the project within the greater length of the M5 East Motorway</li> </ul> | <p>Works predominantly occur north of the M5 East Motorway and would therefore predominantly affect eastbound traffic. Motorists would have views to construction activity, including views to hoardings, fencing and increased heavy vehicle movement. The speed limit for travel within construction zones would decrease during construction.</p> <p>The magnitude of the visual impact would be High, particularly with regard to the duration of the works.</p>                      | Moderate       |
|                                                    | 2     | <ul style="list-style-type: none"> <li>- The speed at which road users would view the landscape</li> <li>- Views are generally contained within the road corridor within the M5 East Motorway due to level changes, noise walls and screening vegetation</li> </ul>                                                  | <p>East and westbound carriageways are separated during this stage, with construction activity visible on either side of each carriageway. The speed limit for travel within construction zones would decrease during construction.</p> <p>The magnitude of the visual impact would be High, particularly with regard to the duration of the works.</p>                                                                                                                                   | Moderate - Low |
|                                                    | 3     | <ul style="list-style-type: none"> <li>- The attention of the road user would be primarily on the activity of driving.</li> </ul>                                                                                                                                                                                    | <p>East and westbound carriageways realigned to meet as per the existing situation, and permanent alignment for east and westbound traffic is finalised. Final construction activity (such as road sheeting and landscaping) is undertaken. The speed limit for travel within construction zones would decrease during construction.</p> <p>The magnitude of the visual impact would be Moderate, considering the duration of the works (nearing the end of the construction period).</p> | Moderate - Low |

| Receiver Location             | Stage | Visual Impact Assessment                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Rating         |
|-------------------------------|-------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                               |       | Sensitivity                                                              | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                |
| 2. East of Kindilan Underpass | 1     | The sensitivity of road users is Low, as outlined in Receiver Location 1 | Both east and westbound traffic would be affected at this location. Motorists would have views to construction activity, including views to hoardings, fencing and increased heavy vehicle movement. Motorists would also have views to activity associated with Kingsgrove North and South Construction Compounds. The speed limit for travel within construction zones would decrease during construction.<br>The magnitude of the visual impact would be High, particularly with regard to the duration of the works.                                                                                                                                                                                          | Moderate       |
|                               | 2     |                                                                          | East and westbound carriageways are separated during this stage, with construction activity visible on either side of each carriageway. The speed limit for travel within construction zones would decrease during construction.<br>The magnitude of the visual impact would be High, particularly with regard to the duration of the works.                                                                                                                                                                                                                                                                                                                                                                      | Moderate       |
|                               | 3     |                                                                          | East and westbound carriageways realigned to meet as per the existing situation, and permanent alignment for east and westbound traffic is finalised. Final construction activity (such as road sheeting and landscaping) is undertaken. Construction compounds either side of the M5 East Motorway would be winding down, with the Kingsgrove North construction compound being decommissioned and Kingsgrove South construction compound would have the MOC1 constructed. The speed limit for travel within construction zones would decrease during construction.<br>The magnitude of the visual impact would be Moderate, considering the duration of the works (nearing the end of the construction period). | Moderate - Low |



***Night Lighting Impacts***

Table 6-30 Visual Impact Assessment of changes to night lighting due to Western Surface Works - Construction activity within the roadway

| Receiver Location                                  | Stage | Visual Impact Assessment       |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |
|----------------------------------------------------|-------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                    |       | Sensitivity                    | Magnitude                                                                                                                                                                                                                                                                                                                                                                                                                                  | Rating         |
| 1. M5 East Motorway – Adjacent to Coolongatta Road | All   | Low<br>Refer <b>Table 6-29</b> | The visual setting of the construction works along the M5 East Motorway would predominantly comprise lighting associated with the M5 East Motorway. Lighting during construction would be associated with night time road works and would remain unchanged through the duration of the project, as lighting levels must be maintained for road safety.<br>The magnitude of change to night lighting would be Moderate during construction. | Moderate - Low |
| 2. East of Kindilan Underpass                      |       |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |