Transport for NSW

RVZ-2025-SP0298 JI-1387 - TCS3301 – Upgrading TCS intersection at Homebush Bay Drive, Australia Avenue and Underwood Road

Minor works review of environmental factors

September 2024

transport.nsw.gov.au

NSW GOVERNMENT

Acknowledgement of Country

Transport for NSW acknowledges the traditional custodians of the land on which the Upgrading TCS intersection at Homebush Bay Drive, Australia Avenue and Underwood Road is proposed.

We pay our respects to Elders past and present and celebrate the diversity of Aboriginal people and their ongoing cultures and connections to the lands and waters of NSW.

Many of the transport routes we use today – from rail lines, to roads, to water crossings – follow the traditional Songlines, trade routes and ceremonial paths in Country that our nation's First Peoples followed for tens of thousands of years.

Transport for NSW is committed to honouring Aboriginal peoples' cultural and spiritual connections to the land, waters and seas and their rich contribution to society.

Table of contents

Tables

Figures

1. Introduction

The purpose of the minor works review of environmental factors (REF) is to describe the proposal, to document the likely impacts of the proposal on the environment, to detail mitigation measures to be implemented and to determine whether or not the proposal can proceed. For the purposes of this work Transport for NSW (Transport) is the proponent and determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The description of the proposed works and assessment of associated environmental impacts has been undertaken in the context of section 171 of the Environmental Planning and Assessment Regulation 2021, Guidelines for Division 5.1 Assessments (DPE, 2022), the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act) and the *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)* (EPBC Act).

In doing so the REF helps to fulfil the requirements of section 5.5 of the EP&A Act including that Transport examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF would be considered when assessing:

- Whether the proposal is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act.
- The significance of any impact on threatened species as defined by the BC Act and/or FM Act, in section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report
- The potential for the proposal to significantly impact a matter of national environmental significance, including nationally listed threatened biodiversity matters, or the environment of Commonwealth land. Where a significant impact is considered likely on nationally listed biodiversity matters, either the proposal must be reconsidered or a project REF must be prepared.

2. The proposal

2.1 Description

2.1.1 Proposal location

Table 2-1: Proposal location details

Location details	
Title	JI-1387 - TCS3301 - Upgrading TCS intersection at Homebush Bay Drive, Australia Avenue and Underwood Road
File number	RVZ-2025-SP0298
Road name and number	Homebush Bay Drive, Australia Avenue and Underwood Road
Closest crossroad(s)	-
Chainage of works	-
Local government area	Strathfield and City of Parramatta
Transport for NSW region	Metropolitan Sydney

2.1.2 Proposal description

Fulton Hogan, on behalf of Transport for New South Wales (TfNSW), proposes upgrading the traffic control signals (TCS) to install advanced warning signs, roundabout operating signs and loop detectors at the intersection of Homebush Bay Drive, Australia Avenue and Underwood Road, on the border of Homebush and Sydney Olympic Park. The sign installation is required to provide early notice to road users that traffic lights are in operation. The proposal includes the installation of TCS conduits, electrical pits, and corresponding TCS posts, signs and lanterns. Additionally, the proposed works include the construction of three new pram ramps, footpath and hardstand areas due to the relocation of the pedestrian crossing at the western corner of the roundabout. To finalise works, electrical works and line marking delineation would be performed to suit the new works.

The proposed works are located on the border of the suburbs of Homebush and Sydney Olympic Park which fall within Strathfield Local Government Area (LGA) and City of Parramatta LGA correspondently. The proposal site is zoned as SP2 – Infrastructure, B4 – Mixed Use and E4 – General Industrial. Surrounding land use zonings include RE1 – Public Recreation, C2 - Environmental Conservation, C3 - Environmental Management, R3 – Medium Density Residential and R2 – Low Density Residential. The indicative location of the proposal is shown in Figure 2.1 and the land use zoning map is shown in Figure 2.4.

The proposal site is approximately 15,000 square metres. The proposed works would be delivered across approximately 55 shifts (including 15 additional night shifts as a contingency).

This proposal is required to improve safety for road users and pedestrians by implementing early warning signs and crossing facilities at the intersection of Homebush Bay Drive, Australia Avenue and Underwood Road (roundabout).

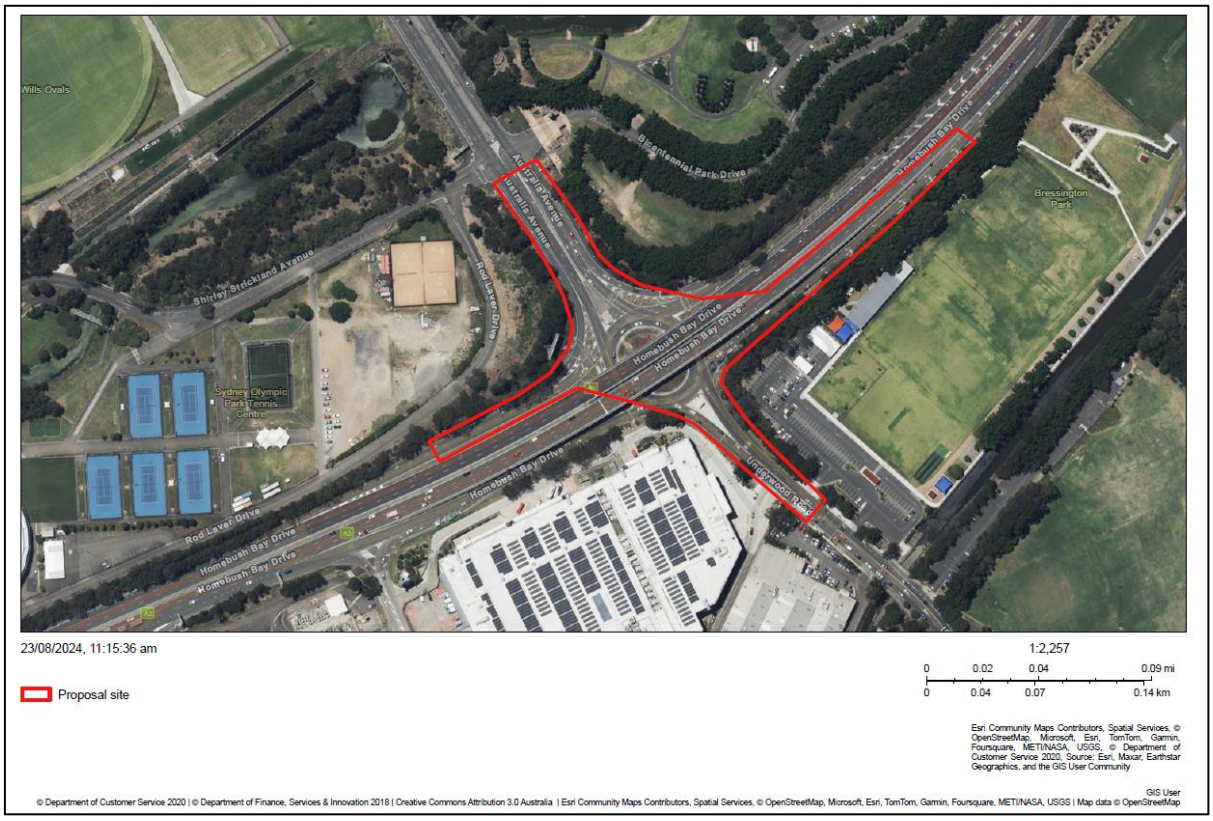


Figure 2.1 - Location of the proposal site

Photos of the proposal site are shown in Figure 2.2.

Key features of the proposal include:

- installation of TCS conduits on the verge, footpath and road
- installation of 16 electrical pits and six loop detectors
- installation of seven new TCS posts and signage (eight electronic roundabout operating signs, two advanced flashing warning signs and two electronic warning signs)
- construction of three new pram ramps and concrete hardstand areas and installation of new pedestrian fences
- electrical works and line marking.

Proposed works at the intersection of Homebush Bay Drive, Australia Avenue and Underwood Road are shown in Figure 2.3.

No property adjustments are required as part of civil works on this proposal.

Design Drawings are provided in Appendix C.

View of Homebush Bay Drive (off ramp) approaching Australia Avenue (looking north)

View of Australia Avenue looking southeast

View of Underwood Road looking east

View of Homebush Bay Drive (off ramp) looking south

Figure 2.2 - Photos of the proposal site

Figure 2.3 - Proposed upgrading works at the intersection of Homebush Bay Drive, Australia Avenue and Underwood Road

Construction methodology

The proposal is anticipated to involve the following work methodology:

Table 2-2: Proposed work methodology, waste management, equipment

Work activity	Equipment	Approximate duration	Waste management	Proposed summary methodology
Utility & existing TCS investigations	• Sucker trucks (Non-destructive Digging Unit – NDD) • Light vehicles • Ground Penetrating Radar (GPR) • Radio detection unit • Lighting towers. • Traffic control vehicles	3 night shift	Excess excavated materials extracted during utility investigation would be removed from the site via a sucker truck and disposed of at a licensed waste management facility.	The proposed works process for existing utility & TCS investigations would be as follows: 1. Establish traffic controls and environmental controls. 2. Use of radio detection unit and Ground Penetrating Radar (GPR). 3. Services would be located in 3D (Level A class search) using NDD (if required). 4. Mark-up services on pavement for reference. 5. Rod and rope existing TCS conduits and infrastructure.
TCS works - Trenching and under boring within the immediate roadside and installing TCS infrastructure (conduits, concrete footings for TCS posts) and post installation	• 5t excavator with jackhammer and bucket attachments • Concrete saw • Concrete trucks • Tippers/ Rigid trucks • Lighting towers • Traffic control vehicles • Hand tools – drills, etc • NDD • Float trucks • Generator • HDD (horizontal directional drill)	22 night shifts	Excess excavated materials will be removed from the site and disposed of at a licensed waste management facility.	The proposed works process for civil works would be as follows: 1. Establish traffic controls and environmental controls. 2. Sawcut and breakout of existing pavement/concrete as required. 3. Remove ground cover where required using an excavator. <u>Trenching works</u> 4. Trench/footing excavated to appropriate depth (approximately 1-1.5 m) using NDD or excavator with bucket attachment. Total length of trenching is approximately 80 m with a width of 450 mm. Each footing is approximately 760 mm in length and 900 mm in width. 5. Conduits laid, trench backfilled and reinstated. 6. TCS footings formed and poured. 7. TCS posts installed on the new footings. <u>Under boring works</u> 8. Under boring to be conducted on the roadside of Homebush Bay Drive (off ramps) using an HDD. 9. Under bore entry and exit pits. Under bore total length is approximately 380 m (Section 1 is 260 m and section 2 is 110 m). 10. The bore pipe size is approximately 110 mm in diameter and the bore pipes are to be installed at approximately 1 m depth. 11. Under bore conduit to be located at pit location and pits constructed and poured.
Kerb works (including footpath, pram ramps, median islands and kerb) and pedestrian fence installation	• Concrete saw • 5t excavator with bucket and jackhammer attachment • Hand power tools • Concrete trucks/ Tippers/ Rigid trucks • Lighting towers • Traffic control vehicles	10 night shifts	Excess excavated materials will be removed from the site and disposed of at a licensed waste management facility.	The proposed works process for civil works would be as follows: 1. Establish traffic controls and environmental controls. 2. Saw cut and break out of concrete hardstand area (kerb, median island and footpath). 3. Excavate the verge area to an appropriate depth (approximately 100 - 150 mm) using the NDD or excavator with a bucket attachment. 4. Install form work. 5. Pour concrete. 6. Asphalt to be placed using the excavator where removed in the footpath.

Work activity	Equipment	Approximate duration	Waste management	Proposed summary methodology
	• NDD • Generator • Asphalt truck • Asphalt paver			7. Install pedestrian fences.
Electrical works, signage and loop installation	• Elevated work platform (EWP) • Hand tools (screw driver) • Lighting towers • Generator. • Traffic control vehicles	4 night shifts	Excess slurry materials extracted during loop cutting would be removed from the site and disposed of at a licensed waste management facility.	The proposed works process would be as follows: 1. Establish traffic controls and environmental controls. 2. Running cables through conduits. 3. Install TCS lanterns and pedestrian lanterns on the new posts. 4. Install two advanced warning signs and posts as per TCS design. 5. Install two electronic warning signs and posts. 6. Install eight electronic roundabout operating signs on existing posts. 7. Saw cut to install loops.
Line marking works	• Lighting towers • Generator • Light vehicles • Road sweeper • Line marking applicators • Traffic control vehicles	1 night shift	N/A	The proposed works process would be as follows: 1. Establish traffic controls and environmental controls. 2. Clean the surface of any loose dirt/debris. 3. Apply line marking at locations specified in the TCS design drawing.

Construction hours

Due to the high traffic volume in the area, and to ensure the safety of the workers, the proposed works would be carried out outside of standard work hours from Sunday to Thursday only, subject to permitted road occupancy licences (ROL).

The proposed working hours are subject to ROL, but generally are as detailed in Table 2-3 below.

Table 2-3: Summary of proposed work hours

	Monday to Friday	Saturdays	Sundays/Public Holidays
Standard Work Hours (NSW Interim Construction Noise Guideline (2009)) –7 am to 6 pm	Nil	Nil	Nil
Out of Standard Work Hours Sunday to Thursday (Subject to ROL Approval)	Works to be completed during out of hours from Monday to Thursday between 8 pm to 5 am. No works on Friday night.	Nil	Works to be completed during out of hours on Sundays between 8 pm to 5 am. No works on public holidays.

2.1.3 Proposal objectives

The objectives of the proposed works are:

- improve safety for all road users and pedestrians at the intersection of Homebush Bay Drive, Australia Avenue and Underwood Road
- provide adequate crossing facilities for pedestrians, improving their safety during movement across Homebush Bay Drive (off ramp) and Australia Avenue.

2.1.4 Ancillary facilities

Table 2-4: Ancillary facilities

Ancillary facilities

Will the proposal require the use or installation of a compound site? The proposal would not require a compound site.	Yes ☐	No ☒
Will the proposal require the use or installation of a stockpile site? No stockpiling of materials is required as part of this proposal. All materials and equipment would be delivered to the site before the commencement of each shift and removed after the end of each shift. The excavated materials would be placed adjacent to the excavated areas for backfilling or loading into the trucks when it is to be removed from site and disposed of at a licensed waste management facility at the end of each shift.	Yes ☐	No ☒
Are any other ancillary facilities required (e.g., temporary plants, parking areas, access tracks)? No other ancillary facilities would be required for the proposal.	Yes ☐	No ☒

2.1.5 Proposed date of commencement

The proposed date of commencement for the proposed works is mid-September 2024.

2.1.6 Estimated length of construction period

The proposed works would require approximately 55 shifts to complete (including 15 additional night shifts as a contingency), concluding in December 2024 (subject to weather conditions). The estimated length of the construction period is approximately 12 weeks or three months. It is expected that works would be completed within this time frame; however, it would depend on weather conditions or other such minor delays.

2.2 Need and options

This proposal is a request from TfNSW, which aims to deliver upgrades to the existing road network, as a response to concerns raised by the public regarding the safety of using the existing roundabout as well as the lack of a safe crossing on the intersection of Homebush Bay Drive, Australia Avenue and Underwood Road. The proposal is required to improve safety for drivers and pedestrians that transit across the roundabout of Homebush Bay Drive, Australia Avenue and Underwood Road by implementing early warning signs and crossing facilities.

2.2.1 Options considered

The options considered for the proposal included:

- **Option 1: Do nothing**. This option involves leaving the intersection in its current situation and not undertaking any work.
- **Option 2: Upgrade Traffic Control Signals (TCS) to install early warning signs and relocate pedestrian facilities at the intersection of Homebush Bay Drive, Australia Avenue and Underwood Road (the roundabout).** This option proposes to install eight electronic roundabout operating signs, two advanced flashing warning signs, two electronic warning signs and loop detectors, including the installation of TCS conduits and new electrical pits. Additionally, this proposal comprises the construction of three new pram ramps, footpath and hardstand areas due to the relocation of the pedestrian crossing and the installation of pedestrian fences on Homebush Bay Drive (off ramp) approaching Australia Avenue. To finalise works, electrical works and line marking delineation would be performed to suit the new works.

Table 2-5: Evaluation of the options against the proposal objectives

	Objective/development criteria	Option 1: Do nothing	Option 2: Upgrading TCS intersection to install early warning signs and relocate pedestrian facilities at the intersection
	Improve safety for all road users and pedestrians at the intersection of Homebush Bay Drive, Australia Avenue and Underwood Road	Option 1 would not improve safety for any road users or pedestrians as no upgrade works on the roundabout are proposed under this option. The risk associated with incidents on the road would remain unchanged unless addressed through proposed works. Consequently, no safety improvements have been promoted under this option. **Does not meet the objective.**	Option 2 proposes works to upgrade the TCS intersection to install early warning signs, aiming to eliminate unsafe pedestrian crossing and reduce the risk of incidents. This option would provide early notice for motorists who are approaching the roundabout and are required to stop due to traffic lights in operation. As a result, this option would improve safety for all road users and pedestrians. **Meets the objective.**
	Provide adequate crossing facilities for pedestrians, improving their safety during movement across Homebush Bay Drive (off ramp) and Australia Avenue	Option 1 would not provide any adequate crossing facility so no safety improvement on the intersection for pedestrians is associated with this option. The risk associated with unsafe crossing on the intersection would remain unchanged unless addressed through proposed works. **Does not meet the objective.**	Option 2 proposes to build new ramps, footpaths and pedestrian fences to transit across Homebush Bay Drive (off ramp) and Australia Avenue, providing adequate facilities for pedestrians and aiming to eliminate unsafe pedestrian crossing. As a result, this option would improve pedestrian safety. **Meets the objective.**
Development criteria	Minimise environmental impacts on the community	No impacts as no works are proposed. **Meets the development criteria.**	Option 2 may cause minor short-term environmental impacts on the community, such as potential disruption to traffic and noise impacts on residents, however, the potential impacts would be minimised with the implementation of the safeguards as detailed in this REF. **Meets the development criteria.**

Option 1 'Do nothing' would not provide any improvement in road safety and hence is not considered an appropriate option. Option 2 is the preferred option that satisfies all the proposal objectives and development criteria. The preferred option satisfies the proposal objectives by:

- improving safety for all road users and pedestrians at the intersection of Homebush Bay Drive, Australia Avenue and Underwood Road
- providing adequate crossing facilities for pedestrians, improving their safety during movement across Homebush Bay Drive (off ramp) and Australia Avenue.

Additionally, while Option 2 may have some adverse environmental impacts, the proposed works would be minimal and justified by the outcome of the proposal.

2.2.2 Justification for the proposal

The proposal is required to:

- improve safety for all road users and pedestrians at the intersection of Homebush Bay Drive, Australia Avenue and Underwood Road.

2.3 Statutory and planning framework

2.3.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

The State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP (Transport and Infrastructure)) aims to facilitate the effective delivery of infrastructure across the state. This includes roads and road infrastructure facilities.

Section 2.109 of the SEPP (Transport and Infrastructure) permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent. As the proposal is appropriately characterised as development for the purposes of a road or road infrastructure facilities and is to be carried out by or on behalf of Transport, it can be assessed under Division 5.1 of the EP&A Act. Development consent from council is not required.

The proposal is not located on land reserved under the National Parks and Wildlife Act 1974 and does not require development consent or approval under:

- State Environmental Planning Policy (Resilience and Hazards) 2021
- State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021
- State Environmental Planning Policy (Precincts – Central River City) 2021
- State Environmental Planning Policy (Precincts – Western Parkland City) 2021
- State Environmental Planning Policy (Precincts – Regional) 2021
- State Environmental Planning Policy (Planning Systems) 2021.

2.3.2 State Environmental Planning Policy (Biodiversity and Conservation) 2021

Chapter 6 (Water Catchments) of the State Environmental Planning Policy (Biodiversity and Conservation) 2021 relates to the use of land within four regulated catchments as defined in the SEPP:

- the Sydney Drinking Water Catchment
- the Sydney Harbour Catchment
- the Georges River Catchment
- the Hawkesbury-Nepean Catchment.

The proposal is located in Sydney Harbour Catchment.

Sydney Harbour Catchment

Transport has assessed the proposals impact on water quality and quantity, aquatic ecology, flooding, and recreation and public access. An assessment of these factors is provided in Appendix B.

As the proposal is within the Sydney Harbour Catchment a consideration of the relevant factors is provided in Appendix B. The assessment concluded the proposal would have negligible impacts on the Sydney Harbour Catchment.

2.3.3 Other relevant legislation and environmental planning instruments

Parramatta Local Environmental Plan (LEP) 2023 and Strathfield Local Environmental Plan 2012

The proposed works are on the border of the City of Parramatta LGA and Strathfield LGA and are subject to the Parramatta LEP 2023 and Strathfield LEP 2012 correspondently. The proposed works are zoned as SP2 Infrastructure, B4 Mixed Use and E4 - General Industrial, as shown in Figure 2.4 below.

The objectives of the zones in which the proposed works fall are under the Parramatta LEP 2023 and Strathfield LEP 2012 are as follows:

SP2 - Infrastructure

- to provide for infrastructure and related uses
- to prevent development that is not compatible with or that may detract from the provision of infrastructure
- to ensure that development does not have an adverse effect on adjoining land.

B4 - Mixed Use

- to encourage a diversity of business, retail, office and light industrial land uses that generate employment opportunities
- to ensure that new development provides diverse and active street frontages to attract pedestrian traffic and to contribute to vibrant, diverse and functional streets and public spaces
- to minimise conflict between land uses within this zone and land uses within adjoining zones
- to encourage business, retail, community and other non-residential land uses on the ground floor of buildings

- to create opportunities to improve the public domain and pedestrian links.

E4 - General Industrial

- to provide a range of industrial, warehouse, logistics and related land uses
- to ensure the efficient and viable use of land for industrial uses
- to minimise any adverse effect of industry on other land uses
- to encourage employment opportunities
- to enable limited non-industrial land uses that provide facilities and services to meet the needs of businesses and workers
- to minimise fragmentation of valuable industrial land and provide large sites for integrated and large floorplate activities
- to allow for a higher proportion of ancillary office floor space to support high technology, light industrial and small-scale warehouse-related land uses.

Surrounding land use zonings include:

- C2 - Environmental Conservation; C2, Environmental Management
- C3 - Environmental Management
- R2 - Low Density Residential
- R3 - Medium Density Residential
- RE1 - Public Recreation

Surrounding land uses include public recreation land related to Sydney Olympic Park land, parks (Bicentennial, Bressington, and Mason), sports field associated with Bressington and Mason Parks, industrial and commercial land use (stores and warehouses, as well as an electrical substation).

The proposal would upgrade the existing road infrastructure, improving the road safety of the users thus meeting the zones' objectives.

TISEPP removes negative requirements for the development consent from Council. Developments comprising roads are permitted with consent on land zoned SP2.

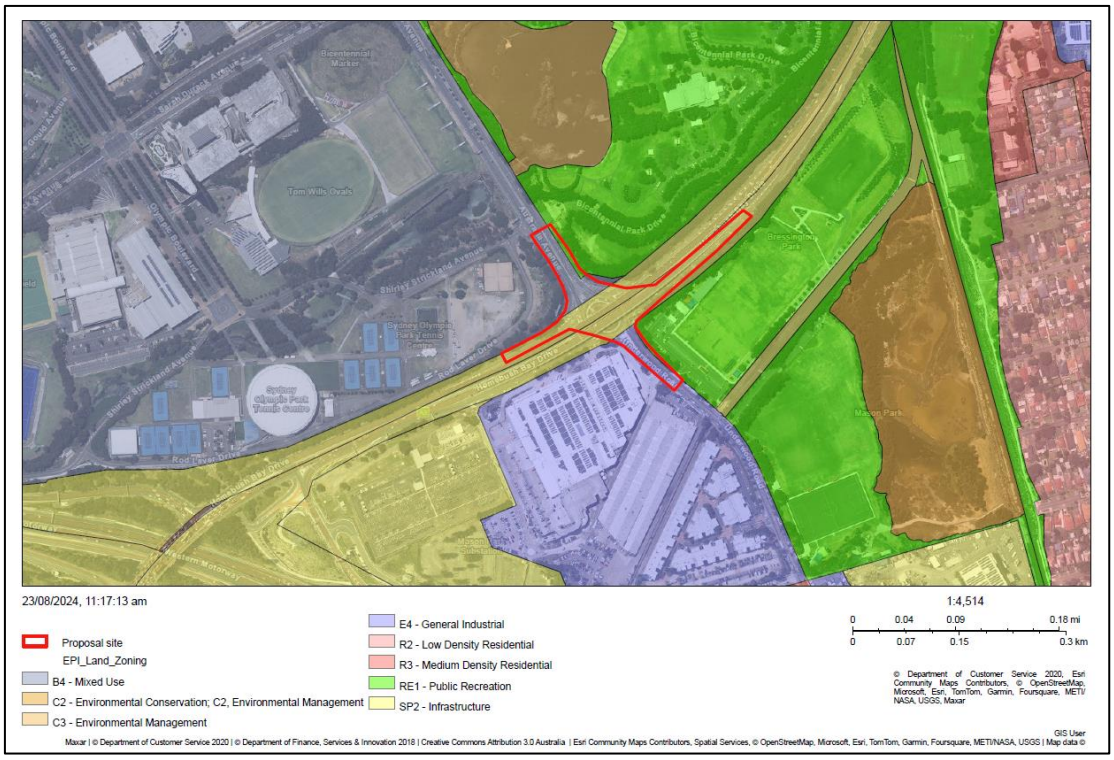


Figure 2.4 - Site land use zones (City of Parramatta and Strathfield LGAs)

Roads Act 1993

The *Roads Act 1993* (Roads Act) sets out the provisions for the roads of NSW. Part 4 of the Roads Act sets out the provisions for the closing of public roads, including notification procedures. A Road Occupancy License (ROL) from the relevant road authority would be required for some of these works.

Protection of the Environment Operations Act 1997 (PoEO Act)

The works to not fall under the definitions of Scheduled Activities or Scheduled Development Works under the PoEO Act. Accordingly, an Environment Protection Licence (EPL) is not required for the proposal.

Under section 115, it is an offence to negligently dispose of waste in a manner that harms the environment. Waste would be managed in accordance with the Waste Avoidance and Resource Recovery Act 2001. The proposal would aim to reduce the environmental impact of dumping waste and include mechanisms to recover resources and reduce the production of waste where possible.

Under section 120, it is an offence to pollute any waters of the State. The MWREF includes safeguards and mitigation measures to ensure that the proposal does not result in pollution of waters.

Fulton Hogan, and/or contractors working on behalf of TfNSW are required to notify the Environment Protection Authority if a 'pollution incident' occurs or 'contaminated soils' are encountered that is likely to result in material harm to the environment.

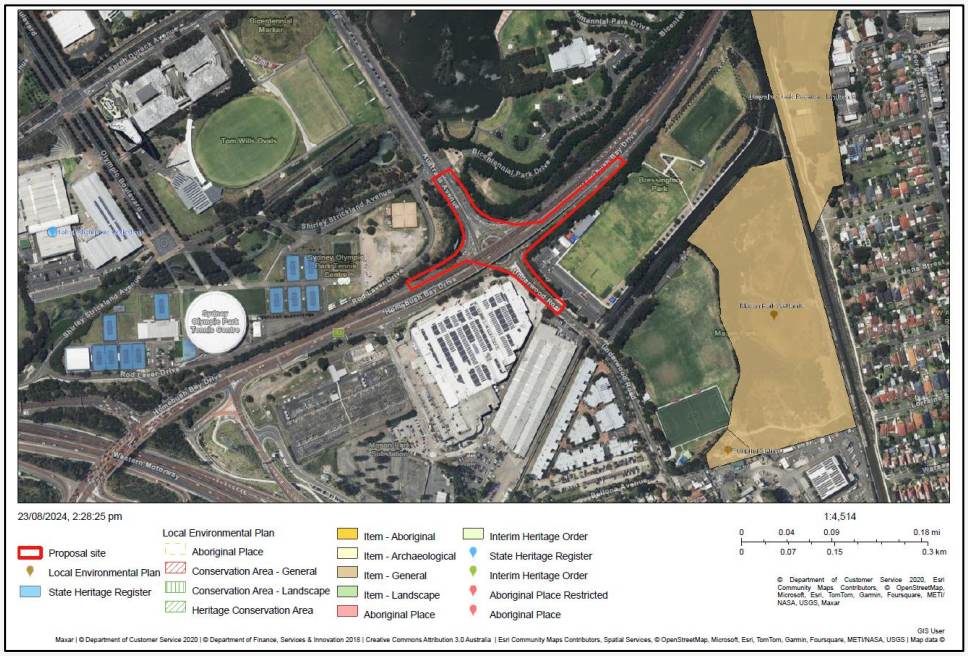
2.4 Community engagement and agency consultation

2.4.1 SEPP (Transport and Infrastructure) consultation

Part 2.2 of the SEPP (Transport and Infrastructure) contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. This is detailed below:

Table 2-6: Consultation required with Council

Is consultation with Council required under sections 2.10 - 2.12 and 2.14 of the SEPP (Transport and Infrastructure)?		
Are the works likely to have a substantial impact on the stormwater management services which are provided by council? The proposed works would not impact the drainage system as the proposal avoids conflict with drainage and underground utility services.	Yes ☐	No ☒
Are the works likely to generate traffic to an extent that will strain the capacity of the existing road system in a local government area? The proposed works would involve partial road closure for the duration of works. However, the works would be conducted at night and hence it would limit the disruption to traffic flow. Additionally, traffic controllers would be on site to direct traffic, overseeing traffic management during working hours. All construction vehicles would be stationed within the confines of the lane closure.	Yes ☐	No ☒
Will the works involve connection to a council owned sewerage system? If so, will this connection have a substantial impact on the capacity of the system? The proposal would not involve connection to a council owned sewerage system.	Yes ☐	No ☒
Will the works involve connection to a council owned water supply system? If so, will this require the use of a substantial volume of water?	Yes ☐	No ☒
Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow?	Yes ☐	No ☒

The pedestrian crossings on the roundabout (intersection of Homebush Bay Drive, Australia Avenue and Underwood Road) and adjacent footpaths would be temporarily restricted during the proposed works. Pedestrian access would be managed during construction by traffic controllers. The pedestrian crossings and footpaths would be accessible during the day and on weekends, therefore the proposal is not expected to cause more than a minor disruption to pedestrian flow.		
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance? The maximum depth of excavation for TCS conduit installation is approximately 1.5 metres. At the end of each shift, trenching across the road would be either reinstated or made safe with the use of steel plates or placement of temporary materials (reusing or imported).	Yes ☐	No ☒
Is there a local heritage item (that is not also a state heritage item) or a heritage conservation area in the study area for the works? If yes, does a heritage assessment indicate that the potential impacts to the heritage significance of the item/area are more than minor or inconsequential? A desktop search for local heritage listed items within the GIS Portal was undertaken on 23 August 2024 for items within a 200 metre buffer of the proposed works. The results indicate that there are no local heritage items within a 200 metre buffer of the proposal site. The closest heritage items are: • H_ID # I49: Mason Park Wetlands (of local significance), approximately 205 metres east of the proposal site. • H_ID # I467: Powell's Creek Reserve – landscape (of local significance), approximately 270 metres east of the proposal site. • H_ID # I50: Pumping Station (of local significance), approximately 330 metres south of the proposal site. Refer to Figure 2.5 for the location of the local heritage items.  **Figure 2.5 -** Local heritage items map for the proposal site It is not expected that the proposed works would have any impact on the local heritage items due to their distances from works and minor works in nature within a disturbed area.		

Is the proposal within the coastal vulnerability area and inconsistent with a certified coastal management program applying to that land? **Note: See interactive map at Coastal management - (nsw.gov.au). Note the coastal vulnerability area has not yet been mapped.** **Note: a certified coastal zone management plan is taken to be a certified coastal management program.**	Yes ☐	No ☒
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent? **Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the Floodplain Development Manual: the management of flood liable land (nsw.gov.au). Refer to the NSW State Emergency Services (NSW SES) for flood mapping.** A desktop search for flood hazards within the GIS portal and NSW SES Flood data portal conducted on 23 August 2024 indicates that the proposed works are not within or in the vicinity of a flood hazard area and there are no NSW SES warnings within this area.	Yes ☐	No ☒

Table 2-7: Consultation with other public authorities

Is consultation with a public authority (other than Council) required under sections 2.13, 2.15 and 2.16 of the SEPP (Transport and Infrastructure)?		
Are the works located on flood liable land? (to any extent) **If so, do the works comprise more than minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance?** **Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the Floodplain Development Manual: the management of flood liable land (nsw.gov.au).** The proposed works are not located on flood liable land as stated in Table 2-6.	Yes ☐	No ☒
Are the works adjacent to a national park, nature reserve or other area reserved under the *National Parks and Wildlife Act 1974*, or on land acquired under that Act? The proposal is not located adjacent to any national park. The closest national park is Newington Nature Reserve (Object ID #594) located approximately 2.4 kilometres north of the proposal site. It is not expected the works would impact upon this nature reserve due to its distance from the proposed works. Refer to Figure 2.6 for the National Parks Map.	Yes ☐	No ☒

Figure 2.6 - National Parks map for the proposal site

Are the works on land in Zone C1 National Parks and Nature Reserves or in a land use zone equivalent to that zone? The proposed works are not within or in the proximity of Zone C1 National Parks and Nature Reserves or a land use zone equivalent to that zone. The closest C3 - Environmental Management is located 90 metres north of the proposed works. The closest C2 -Environmental Conservation is located approximately 170 metres southeast of the proposed works. Refer to Figure 2.7 for the land use zones map. It is not expected the works would impact upon these zones due to minor works in nature, their location and short-term nature of the activities. In addition, safeguards detailed in section 4 will be implemented to minimise the risk of potential impact on the sensitive receiving environment.	Yes ☐	No ☒
Do the works include a fixed or floating structure in or over navigable waters?	Yes ☐	No ☒

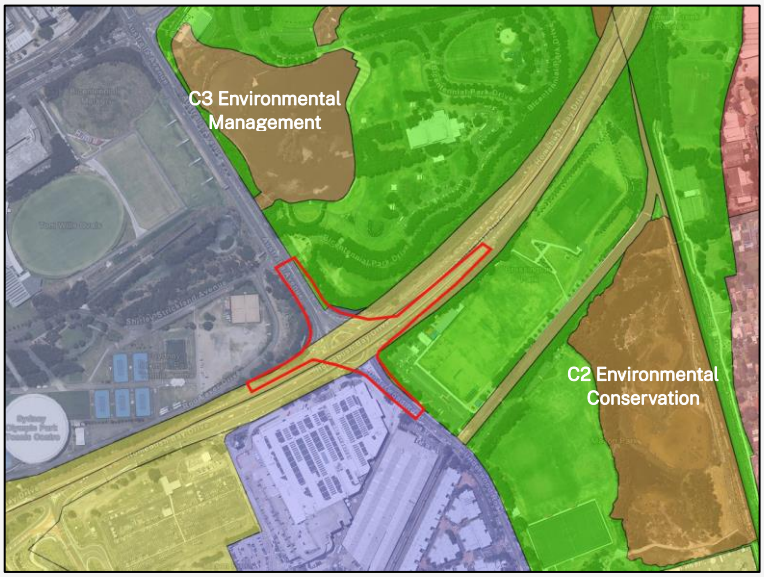


Figure 2.7 – Land Use Zoning Map for the proposal site

Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional facility or group home in bush fire prone land? The works are not for the purpose of residential development, an educational establishment, a health services facility, a correctional facility or a group home in bushfire prone land. A desktop search for Bushfire Prone Land within the GIS Portal conducted on 23 August 2024 indicates that there is no Bushfire Prone Land within a 200 metre buffer of the proposal site.	Yes ☐	No ☒
Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (Note: the dark sky region is within 200 kilometres of the Siding Spring Observatory)	Yes ☐	No ☒
Are the works on buffer land around the defence communications facility near Morundah? (Note: refer to Defence Communications Facility Buffer Map referred to in clause 5.15 of Lockhart LEP 2012, Narrandera LEP 2013 and Urana LEP 2011).	Yes ☐	No ☒
Are the works on land in a mine subsidence district within the meaning of the *Mine Subsidence Compensation Act 1961*? A desktop search for a mine subsidence district within the E-Spatial planning portal conducted on 23 August 2024 indicates that the proposed works are not within or in the vicinity of a mine subsidence district.	Yes ☐	No ☒
Are the works on, or reasonably likely to have an impact on, a part of the Willandra Lakes Region Work Heritage Property?	Yes ☐	No ☒
Are the works within a Western City operational area specified in Schedule 2 of the *Western Parkland City Authority Act 2018* with a capital value of $30 million or more?	Yes ☐	No ☒

Table 2-8: Notification of council and occupiers of adjoining land

Do Council and occupiers of adjoining land need to be notified under section 2.111 of the SEPP (Transport and Infrastructure)?		
Does the proposal include a car park intended for the use by commuters using regular bus services?	Yes ☐	No ☒
Does the proposal include a bus depot?	Yes ☐	No ☒
Does the proposal include a permanent road maintenance depot or associated infrastructure, such as garages, sheds, tool houses, storage yards, training facilities and workers amenities?	Yes ☐	No ☒

2.4.2 Other agency and community engagement

The community would be notified as follows:

Table 2-9: Summary of the proposed work program

Activity	Description	Timeframe

Start of work notification	A4, double-sided notification providing advanced notice of work dates, scope and traffic impacts. The notification would also be emailed to essential stakeholders (council, bus companies, emergency services and nearby businesses). Allows stakeholders to email in with concerns about the work.	Distribute two weeks prior to works commencing
Project update notification	A4, double-sided notification providing updates of work progression and changes to traffic impacts. The notification would also be emailed to essential stakeholders (council, bus companies, emergency services and nearby businesses). Allows stakeholders to email in with concerns about the work.	Distribute on mid-project
Email updates	Email updates to councils/emergency services/businesses who would like to be kept updated on the work schedule.	Weekly or as required
Traffic alert	Describe traffic impacts to alert wider Transport for NSW internal network. This information would be used to inform CJM communications team to upload traffic details on live traffic.	N/A
Variable message signs	Temporary VMS installed along Homebush Bay Drive, Australia Avenue and Underwood Road and strategic locations leading to the work site would display information about the road work and project TMC number.	At least five business days before works commencing

3. Environmental assessment

This chapter provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposal. All aspects of the environmental potentially impacted upon by the proposal are considered. This includes consideration of the factors specified in s171 of the Environmental Planning and Assessment Regulation 2021.

The matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) are also considered in Appendix A. Site-specific safeguards are provided to ameliorate the identified potential impacts.

3.1 Soil

Table 3-1: Soil

Description of existing environmental and potential impacts		
Are there any known occurrences of salinity or acid sulfate soils in the area? A desktop search for acid sulfate soils (ASS) and salinity was undertaken on 23 August 2024 for items within a 200 metre buffer of the proposed works. The results indicate that the proposal site is located within a 200 metres buffer of the following: • X2: Disturbed terrain, elevation 2-4 metres AHD, underlies a small part of the proposal site. • X4: Disturbed terrain, elevation >4 metres AHD, approximately 35 metres north of the proposal site. • HEu1: High probability of occurrence, 1-2 metres below surface, approximately 180 metres east of the proposal site. • Class 5 (within 500 metres on adjacent Class 1, 2, 3 or 4 land that is below 5 metres), underlies part of the proposal site. • Class 2 (likely to be found below the natural ground surface), underlies a small part of the proposal site. • Areas of moderate salinity potential, underlies part of the proposal site. Refer to Figure 3.1 and Figure 3.2 for the Acid Sulfate Soil maps and Figure 3.3 for the salinity potential map. The potential for acid sulfate soils, mapped as Class 2 ASS soils and disturbed terrain, was confirmed through the analytical results completed as part of the geotechnical investigation assessment (conducted by ARUP on behalf of TfNSW, 2023). It reported the presence of potential acid sulfate soils (PASS) within the site, located mainly within Bressington Park, Mason Park, Bicentennial Park along Australia Avenue, and within the mound northwest of the intersection of Australia Avenue and Homebush Bay Drive. The preliminary site investigation, including the geotechnical assessment, is provided in Appendix D. As the proposal site has experienced significant disturbance previously through the construction of the road and adjacent infrastructure and the proposal comprises limited depths of excavation works (up to 1.5 metres), it is unlikely that the works would encounter ASS or saline soil. However, if ASS or saline soils are encountered, works are to cease in the area and the Fulton Hogan Environmental Lead/Manager is to be contacted. See the Acid Sulfate Soils Factsheet in Appendix E for details on how to identify potential ASS on site.	Yes ☒	No ☐

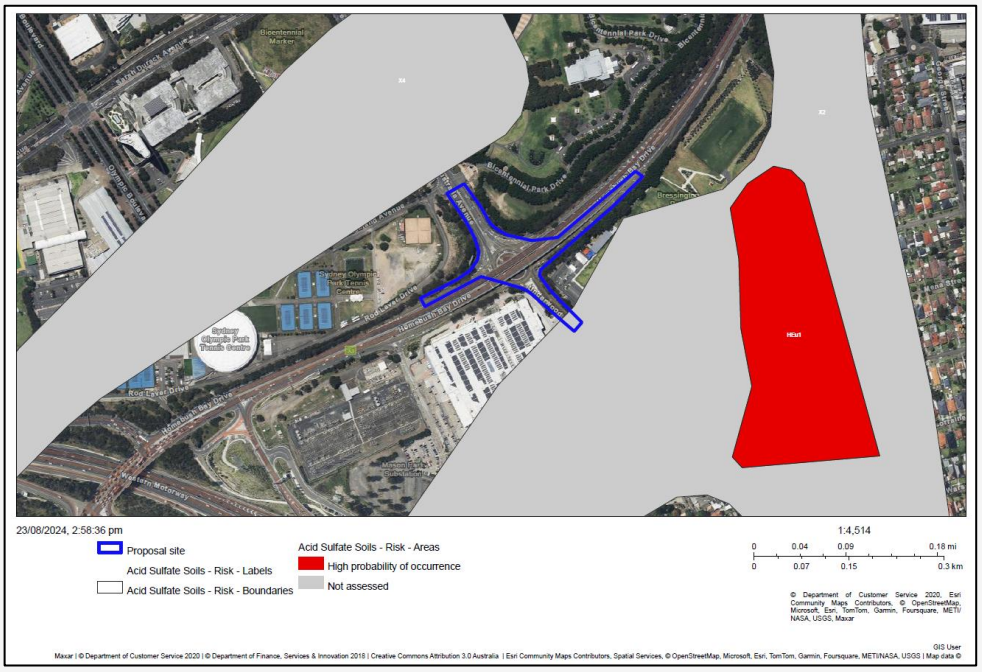


Figure 3.1 – Acid sulfate soils risk map for the proposal site

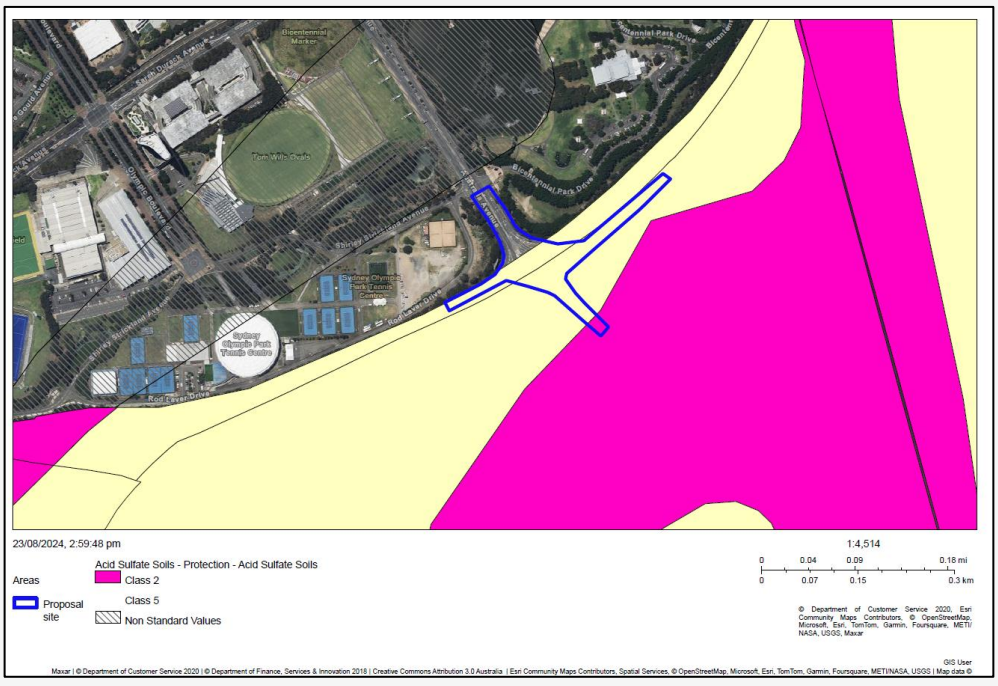


Figure 3.2 – Acid sulfate soils protection map for the proposal site

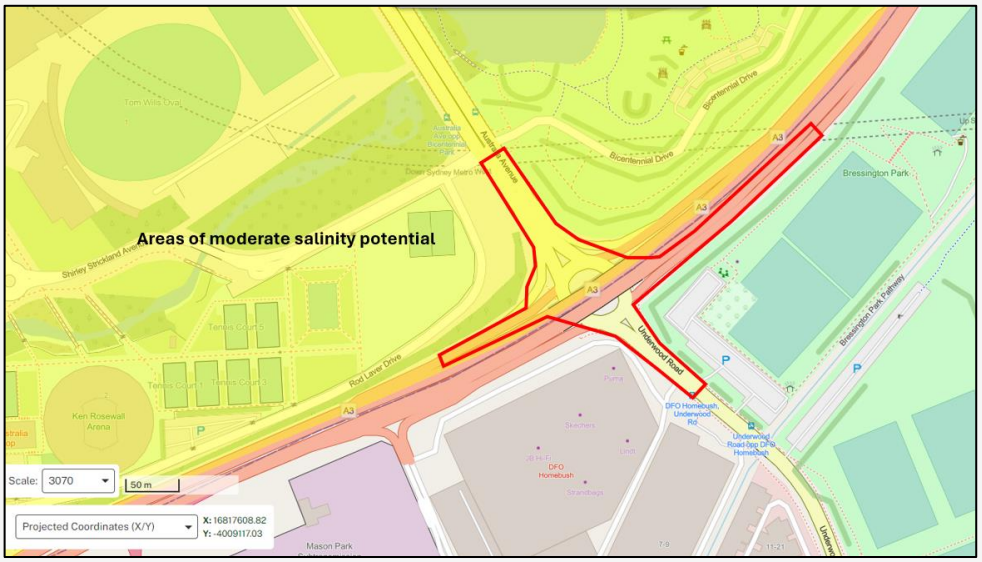


Figure 3.3 - Salinity potential map for the proposal site (in red)

Does the proposal involve the disturbance of large areas (e.g., >2ha) for earthworks?	Yes ☐	No ☒
Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors? The proposal is located within the roadside and central median on roads with a slight incline. However, all excavated areas would be restored at the end of each shift, either by placing temporary materials (reused or imported) or steel plates over the excavated areas. This approach would mitigate any potential impact due to works at the narrow footpath/median areas. Additionally, erosion and sediment controls would be implemented to minimise any impact on the near waterways and drainage network.	Yes ☐	No ☒
Are there any sensitive receiving environments that are located in or nearby the likely proposal area or that would likely receive stormwater discharge from the proposal? **Sensitive receiving environments include (but are not limited to) wetlands, state forests, national parks, nature reserves, rainforests, drinking water catchments).** As shown in Figure 2.7, the proposed works are approximately 90 metres south of C3 - Environmental Management and approximately 170 metres northwest of C2 - Environmental Conservation. There is unlikely to be any impact on those sensitive environments due to the minor nature of works, their distance from the sensitive areas and the short-term nature of the activities. In addition, safeguards described in this section would be put in place to minimise the risk of potential impact on the sensitive receiving environments.	Yes ☐	No ☒
Is there any evidence within or nearby the likely footprint of potential contamination? A search on the EPA list of contaminated sites undertaken on 23 August 2024 indicates that there are no contaminated sites within a 200 metre buffer of the proposal site as shown in Figure 3.4. The closest contaminated sites are *Ausgrid Mason Park Substation* located at 1 Underwood Road, Homebush, approximately 270 metres southwest of the proposal site and *Former Golf Driving Range Landfill* located on Sarah Durack Avenue, Sydney Olympic Park, approximately 400 metres northwest of the proposal site.	Yes ☒	No ☐

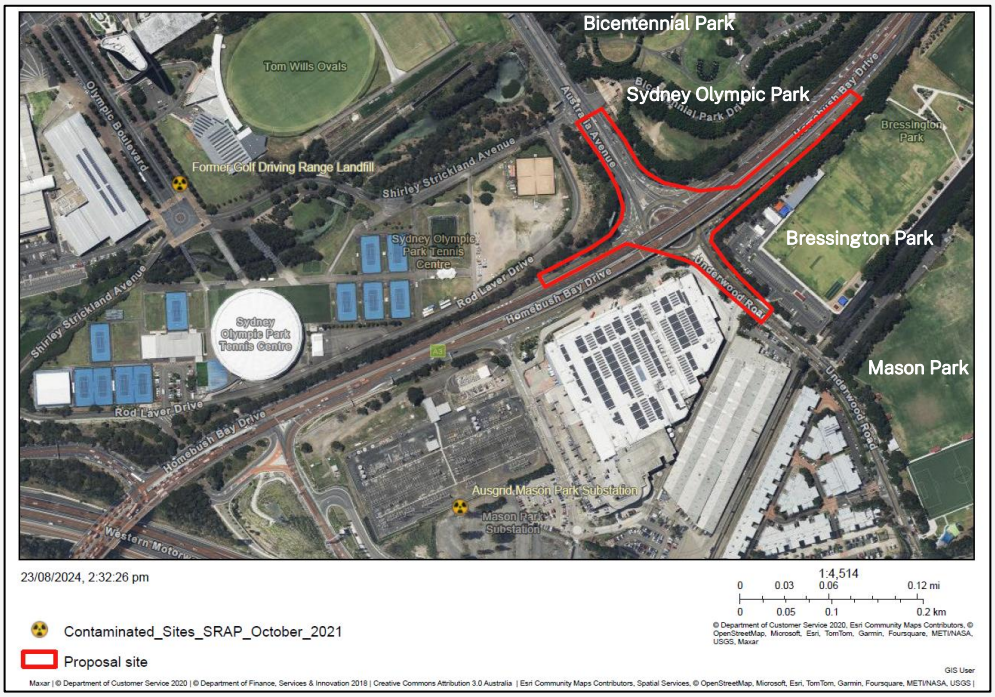


Figure 3.4 - Contaminated sites map for the proposal site

Additionally, there is evidence of potential sources of contamination in the vicinity of the proposal site such as Bicentennial Park Landfill and Former Golf Driving Range (FGDR) Landfill as well as imported fill across the site, along the roadway corridor, Bressington Park, Mason Park, and northwest corner of Australia Avenue and Homebush Bay Drive.

According to the environmental site investigation as part of the geotechnical investigation works conducted by ARUP on behalf of TfNSW (May, 2023), soil contamination is confirmed to potentially exist within and in the proximity of the proposed works. The results of the investigation were:

- Exceedances of adopted site assessment criteria (human health and ecological) were reported across the data set, including for lead, copper, zinc, total recoverable hydrocarbons (TRH) (>C_{16}-C_{34}) and Benzo(a)pyrene (B(a)P). These exceedances should not only be considered when assessing suitability of excavated materials for onsite reuse/retention but also in the context of site suitability for the proposed land use exposure scenario. Whilst the ecological criteria exceedance is noted, the material is confined within the fill/road base material, which is continued as part of the proposal works; therefore, there is no perceived risk arising from this criteria exceedance, due to the lack of potential ecological receptors.
- The contaminant concentrations observed in soils in the southeast vicinity of the site (within Bressington and Mason Parks), including carcinogenic Polycyclic Aromatic Hydrocarbons (PAHs) and TRH (>C_{16}-C_{34}) exceeding adopted human health criteria as well as waste classification guidelines (NSW EPA 2014a, 2016) appear to be indicative of an area of previous industrial activities, including infilling/earthwork observed within the parks.
- Asbestos was not identified within any sampling locations assessed as part of this investigation. However, asbestos has been identified in the Coffey 2021 investigation, in the southeast portion of the site, within Bressington Park from one sample (TP06_0.0_0.1) and was identified in one fragment collected from TP06 at an approximate depth of 0.6 metres. It is likely that asbestos containing materials within the fill profile within the site exist, specifically in area within Bressington Park.
- Landfilling was observed adjacent to the proposal site related to the historical Bicentennial Park and FGDR landfills that likely presents potential hazardous ground gas risk to human health.

The preliminary site investigation is provided in Appendix D. Due to the close proximity of contaminated areas and the potential soil contamination within the proposal site area and adjacent lands, safeguards would be implemented to mitigate any impact on humans or ecological receptors if contaminated soils are encountered during works.		
Is the likely proposal footprint in or nearby highly sloping landform? A desktop search for Landslide Risk Land within the GIS Portal was undertaken on 23 August 2024 for items within a 200 metre buffer of the proposal site. The results indicate that there is no Landslide Risk Land in or nearby the proposed works.	Yes ☐	No ☒
Is the proposal likely to result in more than 2.5ha (area) of exposed soil? The proposal would not require more than a minor excavation as the maximum depth of excavation is approximately 1.5 metres during trenching for the installation of TCS conduits. It is not expected that soil impacts would be a concern as works would be limited to the disturbed zone during a short-term period with all excavations being backfilled at the end of each shift. Works would not proceed during periods of inclement weather. The drainage pits and concrete kerbs located within the proposal site may be impacted by the proposed works. However, erosion and sediment control measures would be implemented prior to the proposed works and are not to be removed until the work areas are stabilised. This approach would mitigate any potential impact upon the drainage network and near sensitive receiving environments due to works.	Yes ☐	No ☒

Safeguards

Safeguards to be implemented are:

E1. Erosion and sediment control measures are to be implemented and maintained to:

- minimise sediment moving off-site and sediment laden water entering any watercourse, drainage lines, or drain inlets
- reduce water velocity and capture sediment on site
- minimise the amount of material transported from site to surrounding pavement surfaces
- divert clean water around the site.

Drainage protection would be used during proposed works to prevent discharge of sediment laden water to receiving drainage array.

E2. Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request.

E3. Erosion and sediment control measures are not to be removed until the works are complete, and areas are stabilised.

E4. Road pavement to be swept at end of each shift to remove any sediment present on the road pavement.

E5. Excavation on roads will be restored at the end of each shift, either by placing temporary materials (reusing or imported) or steel plates.

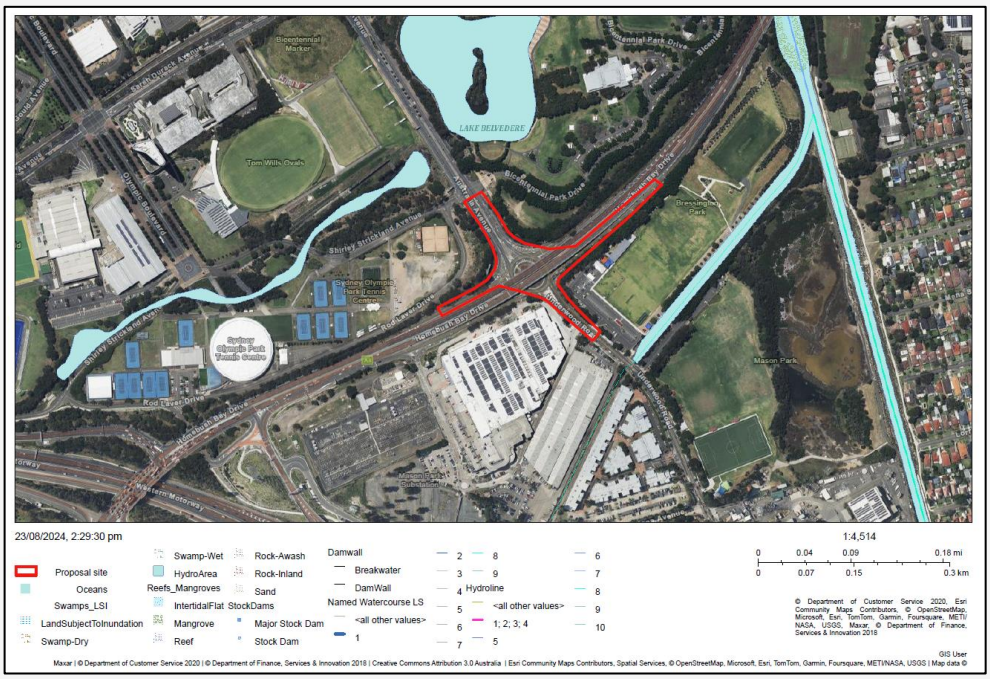
E6. If Acid Sulfate Soils or saline soils are encountered, works are to cease in the area and the Fulton Hogan Environmental Lead/Manager is to be contacted who in turn would contact TfNSW environmental representatives.

E7. In the event that indications of contamination are encountered (known and unexpected, such as odorous or visually contaminated materials), work in the area will cease until a certified contaminated land practitioner can assess the area. Fulton Hogan Environmental Lead/Manager is to be contacted and Unexpected Contaminated Land Finds Protocol is to be followed.

E8. All workers will be communicated about soil safeguards during prestart toolbox, emphasising the potential of encountering contaminated soil during works.

3.2 Waterways and water quality

Table 3-2: Waterways and water quality

Description of existing environmental and potential impacts		
Is the proposal located within, adjacent to or near a waterway? A desktop search for hydrological items within the GIS Portal was undertaken on 23 August 2024 for waterways within a 200 metre buffer of the proposal site. The results indicate that the proposed works are located within 200 metre buffer of the following: • Unnamed watercourse (perennial and 1st order watercourse), approximately 70 metres northwest of the proposal site. • Unnamed watercourse (perennial and canal-drain), approximately 70 metres southeast of the proposal site. • Lake Belvedere (perennial), approximately 90 metres north of the proposal site. See Figure 3.5 - Hydrography map.  **Figure 3.5 -** Hydrography map for the proposal site As the proposed works are minor in nature and limited to the construction footprint, there would be unlikely to have any impact upon any waterbodies, drainage lines, or drain inlets. However, the proposal comprises concrete works, so there would be a potential risk of waste concrete and/or slurry moving off-site and entering the drain inlets and/or drainage lines. Impacts associated with this risk would be unlikely after the implementation of safeguards with ongoing monitoring and maintenance during construction works.	Yes ☒	No ☐
Is the location known to flood or be prone to water logging? The proposed works are not located within or in the proximity of flood prone land as stated in Table 2-6.	Yes ☐	No ☒
Is the proposal located within a regulated catchments covered by chapter 6 of State Environmental Planning Policy (Biodiversity and Conservation) 2021 (SEPP (Biodiversity and Conservation))? Note: See maps here	Yes ☒	No ☐

The proposal is located in the Sydney Harbour Catchment.		
Would the proposal be undertaken on a bridge or ferry?	Yes ☐	No ☒
Is the proposal likely to require the extraction of water from a local water course (not mains)?	Yes ☐	No ☒

Safeguards

Safeguards to be implemented are:

W1. Controls must be implemented to prevent the release of dirty water into drainage lines and/or waterways. Refer to safeguards described in E1 for further information.

W2. Water quality control measures are to be used to prevent any materials (e.g., concrete, sediment, etc.) entering drain inlets or waterways.

W3. Excess debris from cleaning and washing is removed using hand tools.

W4. Excess excavated material extracted would be removed from site and disposed of at a licenced waste management facility.

W5. No concrete washout is to occur on site. Chutes are to be cleaned using a bucket and sponge with excess concrete being returned to the batching plant.

W6. Concrete waste material (i.e. concrete slurry) would be cleaned and vacuumed before the completion of every shift.

R1. Refuelling of plant and equipment is to occur in impervious areas located a minimum of 50 metres from drainage lines or waterways.

R2. An emergency spill kit is to be kept on-site at all times and maintained throughout the construction work. The spill kit must be appropriately sized for the volume of substances at the work site. Plant with a high potential to have hydraulic leaks are to have appropriate spill kits on board during operations.

R3. If an incident (for example, a spill) occurs, the Transport Environmental Incident Classification and Reporting Procedure is to be followed and the Fulton Hogan Environmental Manager notified as soon as practicable.

R4. Emergency contacts will be kept in an easily accessible location on vehicles and plant. All workers will be advised of these contact details and procedures.

R5. All workers will be advised of the location of the spill kit and trained in its use.

R6. Vehicles and plant must be properly maintained and regularly inspected for fluid leaks.

3.3 Noise and vibration

Table 3-3: Noise and vibration

Description of existing environmental and potential impacts		
Are there any residential properties or other noise sensitive areas near the location of the proposal that may be affected by the work (i.e., church, school, hospital)? The existing environment is primarily composed of commercial and recreational areas and infrastructure zones. The existing noise environment as experienced by nearby residents is primarily road traffic noise associated with the road network. The nearest sensitive receivers are located on Underwood Road and Bellona Avenue, approximately 350 metres south of the proposed works as shown in Figure 3.6. No hospitals, schools or places of worship are within the immediate vicinity of the proposed works. Sydney Olympic Park is located in the immediate vicinity of the proposed works.	Yes ☐	No ☒

There are no non-residential receivers within the recommended notification distances that are open during construction hours.

Figure 3.6 - Proposal site and the closest sensitive receivers

Is the proposal going to be undertaken only during standard working hours? **Standard working hours** **Monday-Friday: 7:00am to 6.00pm** **Saturday: 8.00am to 1.00pm** **Sunday and Public Holidays: no work** As described in Section 2.1 the works would be undertaken outside of standard construction hours to minimise traffic disruption and to provide a safe work environment for the contractor.	Yes ☐	No ☒
Is any explosive blasting required for the proposal?	Yes ☐	No ☒
Would construction noise or vibration from the proposal affect sensitive receivers? <u>Noise assessment</u> The proposed works would take approximately 55 shifts to complete (including 15 additional night shifts as a contingency). During construction, the use of equipment would cause construction noise and noise impacts may affect nearby residences. The equipment to be used is provided in Table 2-2. As the proposed works are planned to be carried out outside of standard working hours, nearby residents would be impacted by temporary sleep disturbance due to noisy activities. The EPA Road Noise Policy advises that noise events above the background noise level, rather than the peak background noise levels are likely to cause sleep disturbance. Noise characteristics that influence sleep disturbance are considered to be the number of noisy events heard distinctly above background level, and the peak level and emergence of these events. The work would have intermittent noise impacts. Noisiest activities (such as concrete sawing, jackhammering and drilling) would be carried out prior to midnight, to minimise noise impacts and potential for sleep disturbance to nearby residents during construction. Portable noise blankets are to be utilised during noise intrusive activities such as jackhammering and concrete sawing to further mitigate noise emissions. The works would be scheduled for up to five consecutive nights, Sunday to Thursday.	Yes ☒	No ☐

Given:

- the urban nature of the site
- Homebush Bay Drive at the site location being a 6 lane road with a speed limit of 80 km/h carrying approximately 80,746 Annual Average Daily Traffic (AADT) estimated in 2024 (Transport for NSW)
- Australia Avenue being a six lane road with a speed limit of 60 km/h
- Underwood Road being a four lane road with a speed limit of 50 km/h
- M4 Motorway being located 460 metres south of the proposal site.

A noise area category of R4 has been selected. Given the selected noise area category the criteria for construction noise are presented in Table 3-3.1 below:

Table 3-3.1: Noise area criteria for nominated construction noise as a result of the proposed works.

Noise area category		R4
RBL or LA90 Background level (dB(A))	Day	55
	Evening	50
	Night	45
LAeq(15minute) Noise Management Level (dB(A))	Day	65
	Day (OOHW)	60
	Evening	55
	Night	50

A noise impact assessment using the Transport's Construction Noise Calculator Tool has been completed for the following activity variants and are attached as Appendix F:

- The distance-based assessments (Concrete saw and 5T Excavator with hammer noisiest plant) have been selected for the site. Horizontal directional drill (HDD) to be used for under boring work is equivalent to a 5T Excavator with hammer as it generates similar noise levels.
- developed settlements (urban and suburban) for night period
- behind substantial solid barrier.

The results of the construction noise assessment are summarised below in Tables 3-3.2 and 3-3.3. To visualise the affected receivers, noise catchment areas are shown in Figure 3.7 and Figure 3.8 below.

Concrete saw – Noisiest plant

Table 3-3.2: Predicted noise impacts from construction activities.

Catchment distances	NML, dB(A)	Predicted noise levels, dB(A)	Recommended additional mitigation measures
NCA1 (35 m) – line of sight	50	75	AA, N, PC, SN, R2, DR
NCA2 (35 m) – behind of buildings	50	65	N, PC, SN, R2, DR
NCA3 (105 m) - behind row of buildings	50	55	N, R2, DR
NCA4 (155 m) - behind row of buildings	50	50	N

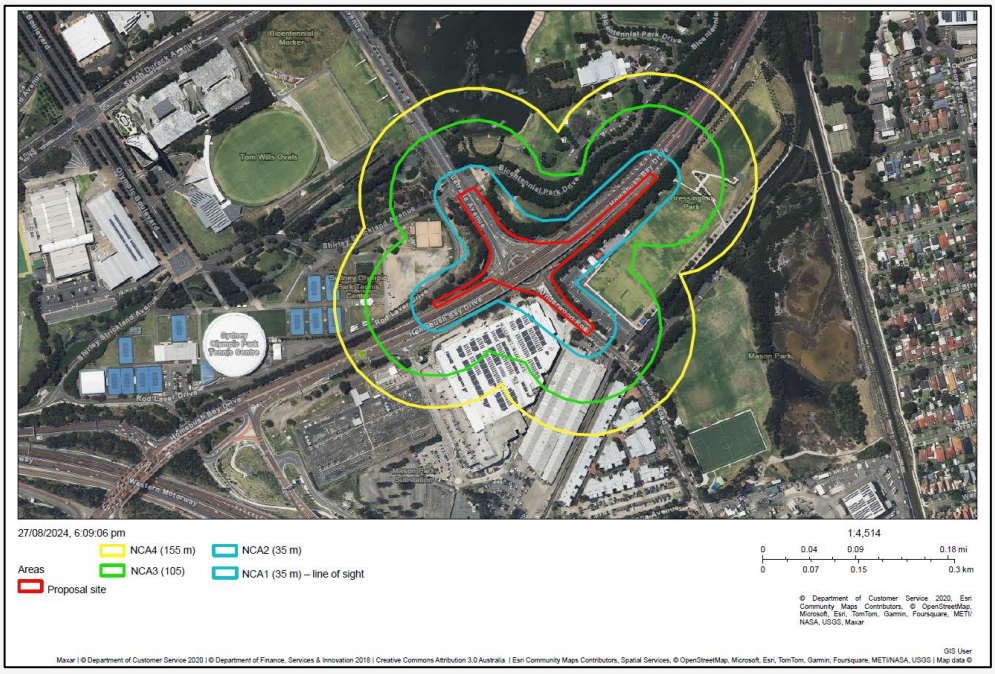


Figure 3.7 - Noise catchment areas and construction impacts - Concrete saw

There are no residential receivers within the noise catchment areas. The closest receivers are located on Underwood Road and Bellona Avenue, approximately 350 metres south from works. Bearing in mind that noise assessment is based on one of the noisiest plant during works (Concrete saw) and its impacts would be intermittent. Likewise, the mitigation measures identified in this MWREF are considered to mitigate construction noise impacts as far as is reasonable and feasible and aim to minimise the risk of sleep disturbance to nearby residents.

5T Excavator with hammer – Noisiest plant

Table 3-3.3: Predicted noise impacts from construction activities.

Catchment distances	NML, dB(A)	Predicted noise levels, dB(A)	Recommended additional mitigation measures
NCA1 (50 m) - line of sight	50	75	AA, N, PC, SN, R2, DR
NCA2 (50 m) - behind row of buildings	50	65	N, PC, SN, R2, DR
NCA3 (135 m) - behind row of buildings	50	55	N, R2, DR
NCA4 (200 m) - behind row of buildings	50	50	N

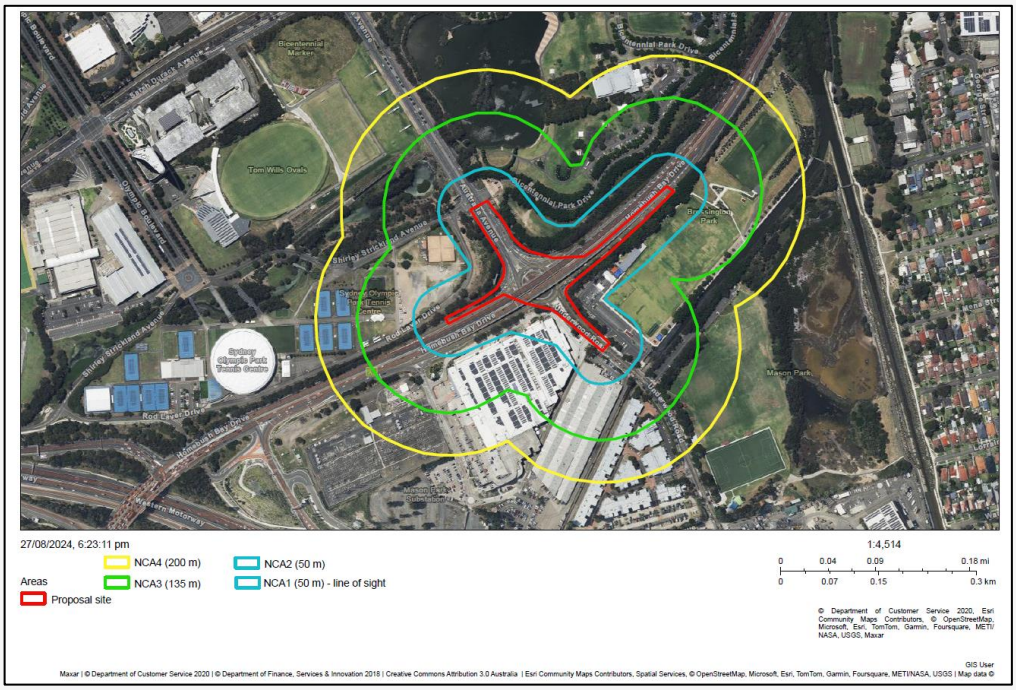


Figure 3.8 - Noise catchment areas and construction impacts - 5T Excavator with hammer

There are no residential receivers within the noise catchment areas. The closest receivers are located on Underwood Road and Bellona Avenue, approximately 350 metres south from works. Bearing in mind that noise assessment is based on the noisiest plant during works (5T Excavator with Hammer) and its impacts would be intermittent. Likewise, the mitigation measures identified in this MWREF are considered to mitigate construction noise impacts as far as is reasonable and feasible and aim to minimise the risk of sleep disturbance to nearby residents.

Transport for NSW's Construction Noise Calculator Tool for the site has been completed and results are attached as Appendix F.

An Out of hours work application (OOHWA) would be developed according to the template attached in Appendix G to be approved by TfNSW prior to undertaking any Out of Hours Work.

<u>Vibration assessment</u>

A vibration assessment was not conducted for the proposal due to the minor nature of the works and distance to the heritage items and other vibration sensitive receivers.

Would operation of the proposal alter the noise environment for sensitive receivers? This might include, but not be limited to, altering the line or level of an existing carriageway, changing traffic flow, adding extra lanes, increasing traffic volume, increasing the number of heavy vehicles, removing obstacles that provide shielding including changing the angle of view of the traffic, changing the type of pavement, increasing traffic speeds by more than 10 kilometres per hour or installing audio-tactile line markings. No receivers would be impacted by the proposed works during the operation phase.	Yes ☐	No ☒
Would the proposal result in vibration being experienced by any surrounding properties or infrastructure during operation?	Yes ☐	No ☒

Safeguards

Safeguards to be implemented are:

N1. Noise impacts are to be minimised in accordance with Transport for NSW Construction Noise Estimator and Construction Noise and Vibration Guidelines. This includes implementing the following measures to minimise noise impacts:

- Work generating high noise and/or vibration levels such as jackhammering and concrete sawing (mechanical impact devices) should be carried out prior midnight.
- Noise blankets are to be used for road sawing, jackhammering or any other noise intrusive activities. Blankets must be overlapping with logo facing out for maximum effectiveness.
- Noisy equipment will be substituted in favour of alternative low noise process (e.g., hand tooling instead of excavator for service investigation).
- Plant and equipment will be correctly operated and maintained, with engine access covers closed.
- Minimise concurrent operation of dominant noise-generating plant to reduce noise impacts.
- Use manually adjustable or ambient noise sensitive reversing alarms on plant (i.e., Quakers).
- Avoid shouting, slamming doors and use of loud radios.
- Operating machines at low speed or power and switching off when not being used rather than left idling for prolonged periods.
- Control and place excavated materials in trucks so that the excavated material does not create excessive noise when it hits the metal trailer.
- Minimise vehicle movements outside working hours, including loading and unloading operations.
- Plant will not be allowed to warm up outside working hours.
- The induction will identify all OOHW requirements and restrictions.

N2. An Out of Hours Work (OOHW) application will be prepared prior to the start of work. The OOHW application will identify any sensitive receivers that would be 25 dB(A) above the Noise Management Level (NML). The OOHW Application will also determine which activities would trigger the 25dB(A) above NML.

The following additional mitigation measures will be applied:

N3. Letterbox drop (N = notification) for receivers within:

- 200 metres radius of proposed works.

Notifications should be detailing work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night-time period, any operational noise benefits from the works (where applicable) and contact telephone number. Notification will be sent a minimum of 7 calendar days prior to the start of works.

3.4 Air quality

Table 3-4: Air quality

Description of existing environmental and potential impacts		
Is the proposal likely to result in large areas (>2ha) of exposed soils?	Yes ☐	No ☒
Are there any dust-sensitive receivers located within the vicinity of the proposal during the construction period? There are no residential properties within the vicinity of the intersection of Homebush Bay Drive, Australia Avenue and Underwood Road (proposal site). No other dust sensitive receivers have been identified in the vicinity of the proposal as the majority of surrounding areas are recreational and commercial zones. According to this and given the scope of works and minor area of likely disturbance for the proposal, dust related impacts are predicted to be negligible at all receivers from excavation activities.	Yes ☐	No ☒

Is there likely to be an emission to air during construction? The proposed works have the potential to generate short-term discharges of emissions from: • Vehicle (exhaust) emissions (diesel engines) • Dust from the removal of sections of central median/footpath as well as concrete sawing. However, the impact on air quality would be minimal and mitigation measures will be put in place to reduce the impact even further.	Yes ☒	No ☐

Safeguards

Safeguards to be implemented are:

A1. Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust.

A2. Works (including the spraying of paint and other materials) are not to be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely.

A3. Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transportation.

A4. Construction plant and equipment would be well maintained and regularly serviced so that vehicular emissions remain within relevant air quality guidelines and standards.

3.5 Aboriginal cultural heritage

Table 3-5: Aboriginal cultural heritage

Description of existing environmental and potential impacts		
Would the proposal involve disturbance in any area that has not been subject to previous ground disturbances?	Yes ☐	No ☒
Has an online Aboriginal Heritage Information Management System (AHIMS) search been completed? • **Roads and Maritime section 170 register** • **NSW Heritage database** • **Commonwealth EPBC heritage list** • **Australian Heritage Places Inventory** • **Local Environmental Plan(s) heritage items.** A basic search of the Aboriginal heritage sites using the Aboriginal Heritage Information Management System (AHIMS) was undertaken on 27 August 2024 for the proposal site. The results indicate that there are no Aboriginal heritage sites located within a 500 metre buffer of the proposal site. Refer to Figure 3.9 for the Aboriginal heritage map.	Yes ☒	No ☐

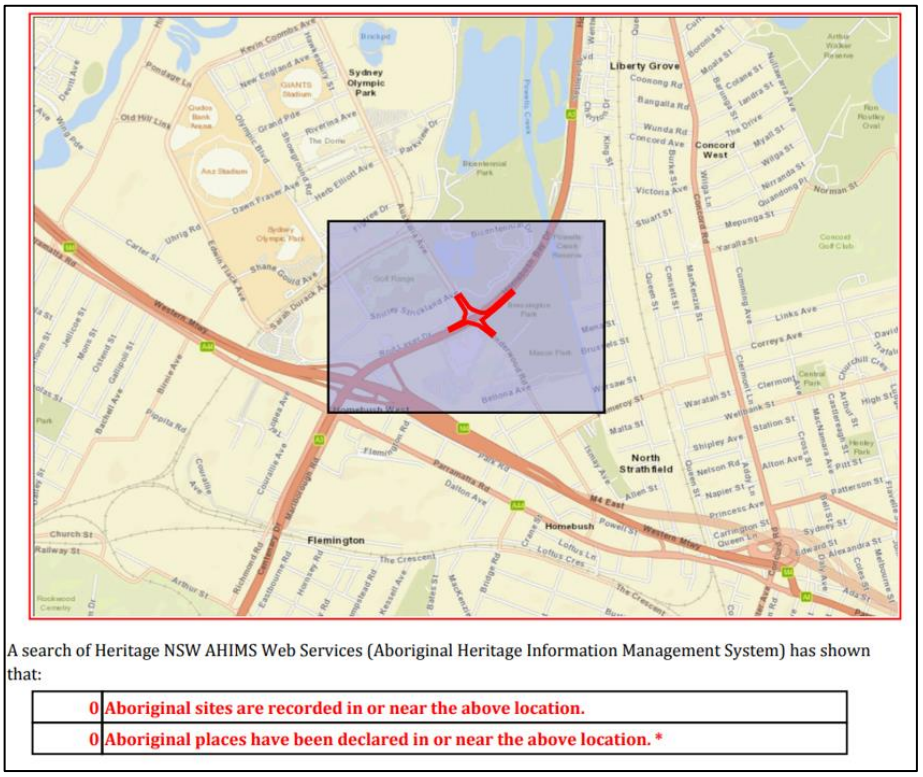


Figure 3.9 - Aboriginal heritage map for the proposal site (in red)

Is there potential for the proposal to impact on any items of Aboriginal cultural heritage? As the proposed works would be undertaken within the disturbed area with a minimum distance of two kilometres from the closest Aboriginal heritage sites, no impact upon any Aboriginal heritage sites would be expected.	Yes ☐	No ☒
Would the proposal involve the removal of mature native trees?	Yes ☐	No ☒
Is the proposal consistent with the requirements of Transport's *Procedure for Aboriginal cultural heritage consultation and investigation* (PACHCI)? A PACHCI assessment has not been undertaken for the site as no Aboriginal heritage sites have been identified within immediate proximity to the works and works are also occurring within the disturbed area with minor excavation area. As such, no further consultation and investigations are required for the works.	Yes ☒	No ☐

Safeguards

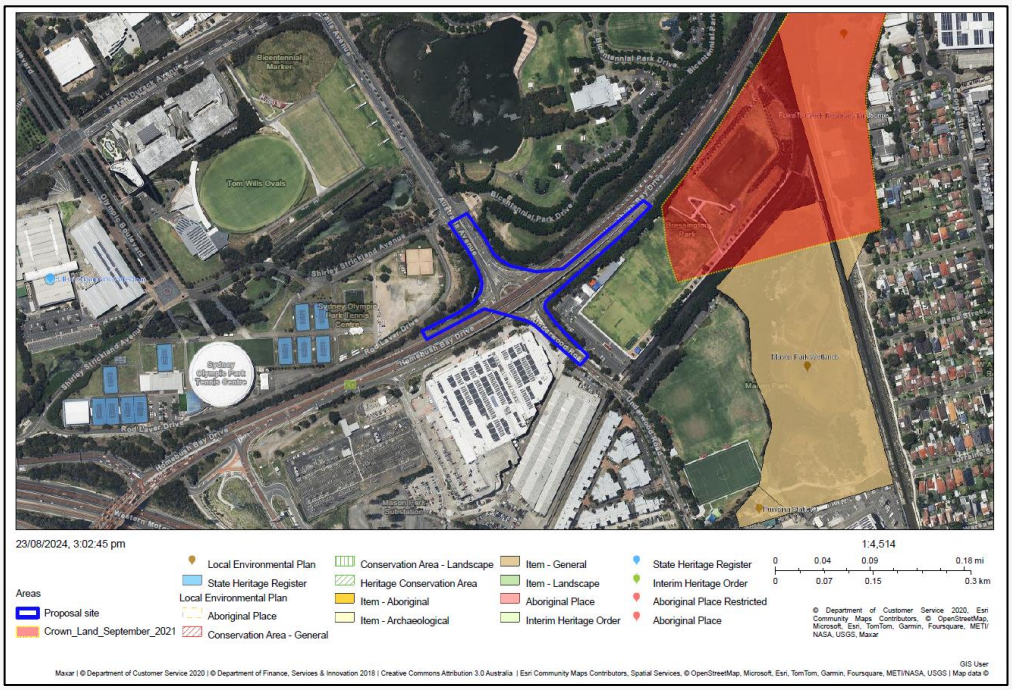
Safeguards to be implemented are:

B1. If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the TfNSW Aboriginal cultural heritage officer and regional environment manager contacted immediately. Steps in the TfNSW Standard Management Procedure: Unexpected Heritage Items must be followed.

3.6 Non-Aboriginal heritage

Table 3-6: Non-Aboriginal heritage

Description of existing environmental and potential impacts

Have online heritage database searches been completed? • **Transport (including legacy Roads and Maritime) section 170 register** • **NSW Heritage database** • **Commonwealth Heritage List, established under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)** • **Maritime heritage database** • **Australian Heritage Places Inventory** • **Local Environmental Plan(s) heritage items.** A desktop search for heritage registers and Crown Land within the GIS Portal was undertaken on 23 August 2024 for items within a 300 metre buffer of the proposed works. The results indicate that the proposed works are located within 300 metres of the following: • Crown Land: Lot 118 DP752023, approximately 25 metres east of the proposal site. • H_ID # I49: Mason Park Wetlands (of local significance), approximately 205 metres east of the proposal site. • H_ID # I467: Powell's Creek Reserve – landscape (of local significance), approximately 270 metres east of the proposal site. Refer to Figure 3.10 for the non-Aboriginal heritage and Crown Land map.  **Figure 3.10** - Non-Aboriginal heritage and Crown Land map It is not expected that the proposed works would have any impact on the listing heritage items or Crown Land due to their distances from works and minor work in nature within a disturbed area.	Yes ☒	No ☐
Are there any items of non-Aboriginal heritage or heritage conservation areas listed on relevant heritage databases/registers that are located within the vicinity of the proposal? No potentially heritage significant kerb has been identified within or in the vicinity of the proposal site.	Yes ☐	No ☒
Is the proposal likely to impact trees that form part of a heritage listing or have other heritage value?	Yes ☐	No ☒
Is the proposal likely to occur in or near features that indicate potential archaeological remains?	Yes ☐	No ☒

Safeguards

Safeguards to be implemented are:

H1. If unexpected heritage items are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in the TfNSW Standard Management Procedure: Unexpected Heritage Items must be followed. TfNSW Senior Environment Specialist - Heritage must be contacted immediately.

3.7 Biodiversity

Table 3-7: Biodiversity

Description of existing environmental and potential impacts		
Have relevant database searches been carried out? Desktop searches have been performed on 23 August 2024 for the proposal site of the following databases: • Critically Endangered Ecological Communities (CEEC) • Threatened Ecological Communities (TEC) • Plant Community Types (PCTs) • Native Vegetation Protection Areas • Bionet Species Sightings database (Vulnerable or threatened species) • EPBC Protected Matters. Details of the Protected Matters Report are provided in Appendix H for the proposal site.	Yes ☒	No ☐
Did the database searches identify any endangered ecological communities, threatened flora and/or threatened or protected fauna, or migratory species in or within the vicinity of the proposed works? Both Commonwealth and State listed matters must be considered. *Plant Community Type (PCT) and Threatened Ecological Communities (TEC)* The results indicate that the closest Plant Community Types (PCT) and Threatened Ecological Communities (TEC) are located at a minimum distance of 170 metres from works. The PCTs and TECs within a 200 m buffer of the proposal site are: • **PCT 4028:** Estuarine Swamp Oak Twig-rush Forest, located approximately 170 metres southeast of the proposal site. • **PCT 4097:** Samphire Saltmarsh, located approximately 180 metres southeast of the proposal site. • **TEC (OBJECTID #28900):** Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions, located approximately 170 metres southeast of the proposal site. • **TEC (OBJECTID # 24460):** Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner bioregions, located approximately 180 metres southeast of the proposal site. Refer to Figure 3.11 for the Plant Community Type (PCT) and Threatened Ecological Communities (TEC) map.	Yes ☐	No ☒

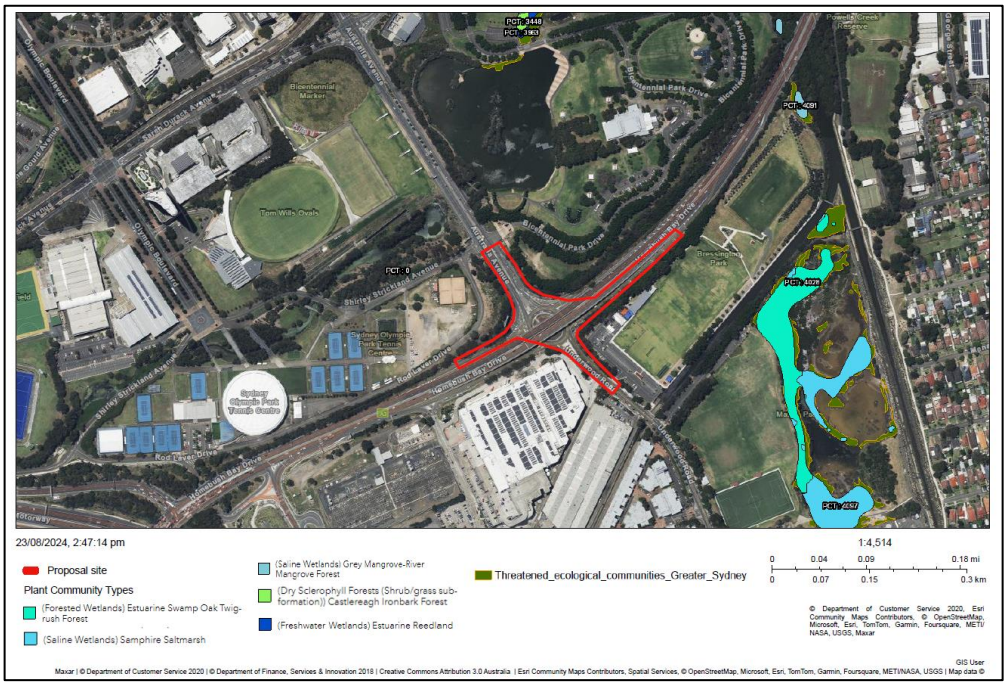


Figure 3.11 - Plant Community Type (PCT) and Threatened Ecological Communities (TEC) map for the proposal site

Biodiversity values

The results indicate that threatened species or communities have been identified within a 200 metres buffer of the proposal site, this being:

- OBJECTID# 210987, Threatened species or communities with potential for serious and irreversible impacts, located approximately 90 metres southeast of the proposal site.

Refer to Figure 3.12 for the biodiversity values map.

Figure 3.12 - Biodiversity values map for the proposal site

As the proposed works do not require tree removal or trimming and would not disturb any vegetation that may serve as habitat for threatened species or communities as well as works

are minor in nature and being within the disturbed area, there is unlikely to have an impact upon any PCTs, TECs or biodiversity values listed above.

Bionet Species Sightings database (Threatened species)

The majority of all Bionet species sightings in or within proximity to the proposal site (within a 200 metre buffer) were categorised as 'Not listed' with the exception of three fauna species categorised as 'Vulnerable' as shown in Table 3-7.1. Threatened species maps are seen in Figure 3.13.

Table 3-7.1: Threatened fauna assessed as potentially occurring within the proposal site.

Scientific and common name	Status	Type of listing (BC Act or EPBC Act)	Distance from works	Potential impacts
Mammals				
Pteropus poliocephalus (Grey-headed Flying-fox)	Vulnerable	BC Act/ EPBC Act	Within the proposal site and approximately 25 m southeast of the excavation works.	None
Gallinago hardwickii (Latham's Snipe)	Vulnerable	BC Act/ EPBC Act	Approximately 150 m west of the proposal site.	None
Gallinago hardwickii (Latham's Snipe)	Vulnerable	BC Act/ EPBC Act	Approximately 175 m west of the proposal site.	None

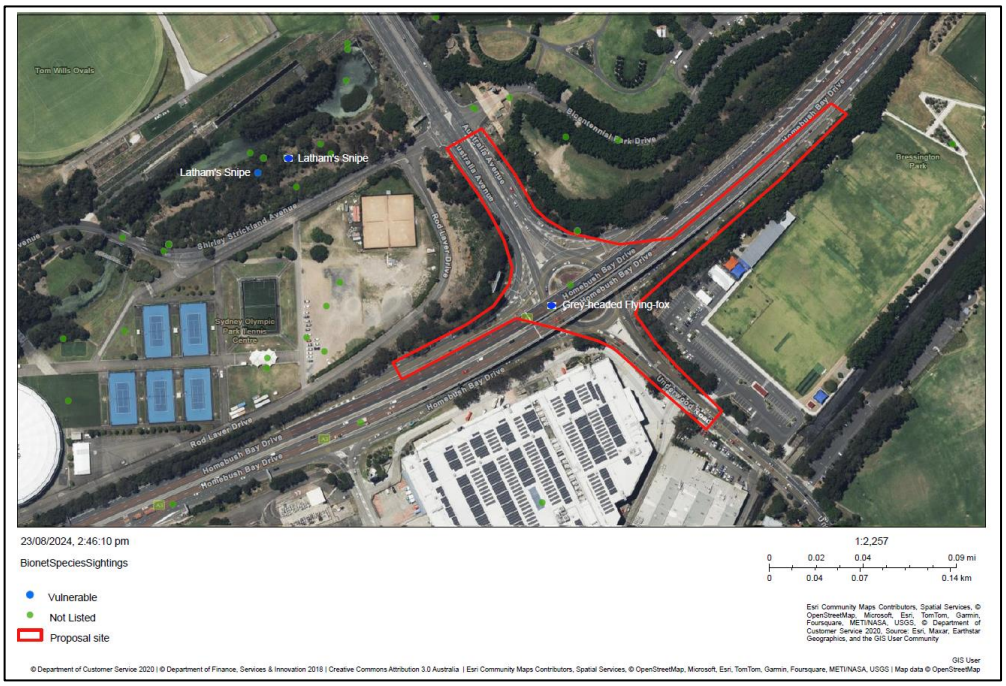


Figure 3.13 - Threatened species map for the proposal site

Migratory species

The proposal site may provide a habitat for migratory bird species. These species may forage and move through the vegetation within the site as well as the airspace above them as part of their migratory patterns. Seven migratory terrestrial species were identified in the EPBC Act Protected Matters Search Tool as potentially occurring in the locality based on the distributional range of the species and modelled habitat.

The proposal is not likely to impact threatened species, ecological communities or migratory species due to the nature of the activities (minor works) and no vegetation trimming or

removal required. Biodiversity safeguards would be implemented to mitigate any potential impact.		
Does the proposal involve pruning, trimming or removal of any tree/s? No tree trimming or removal is required as part of the proposal. The arboricultural impact assessment provided in Appendix I indicated that only 14 trees would be subject to minor encroachment with the proposed works; however, none of them require to be removed. The methodology for the installation of TCS conduits on Homebush Bay Drive (off ramps) approaching Underwood Road/Australia Avenue would be under boring using a Horizontal directional drill (HDD) as opposed to trenching in close proximity to trees as shown in Figure 2.3. This method would minimise any impact on adjacent trees. Additionally, safeguards would be implemented to mitigate any potential risk of impact on any species.	Yes ☐	No ☒
Is the proposal likely to impact nationally listed threatened species, ecological communities or migratory species? Due to the minor nature and short duration of the works, nationally listed threatened species, ecological communities or migratory species are not expected to be impacted. As: • The ecological connectivity has previously been impacted by the construction of the road corridor and adjacent infrastructure. • No tree trimming or removal is required. The proposed works would not have any further impacts on the ecological connectivity of the surrounding environment.	Yes ☐	No ☒
Would the proposal require the removal of any other vegetation?	Yes ☐	No ☒
Would the proposal require the removal of any tree hollows?	Yes ☐	No ☒
Are there any known areas of outstanding biodiversity value or areas mapped as 'littoral rainforest' or 'coastal wetland' under chapter 2 of SEPP (Resilience and Hazards) in or within the vicinity of the proposed work?	Yes ☐	No ☒
Would the proposal provide any additional barriers to the movement of wildlife?	Yes ☐	No ☒
Would the proposal disturb any natural waterways or aquatic habitat?	Yes ☐	No ☒
Would the proposal impact (directly or indirectly) any potential microbat roosting or breeding habitat such as on bridges and culverts?	Yes ☐	No ☒

Safeguards

Safeguards to be implemented are:

F1. If unexpected threatened fauna or flora species are discovered, stop works immediately and follow the Transport for NSW Services Unexpected Threatened Species Find Procedure in the Transport for NSW Services Biodiversity Guidelines 2011 – Guide 1 (Pre-clearing process).

F2. There is to be no disturbance or damage to threatened species or areas of outstanding value outside of the construction footprint.

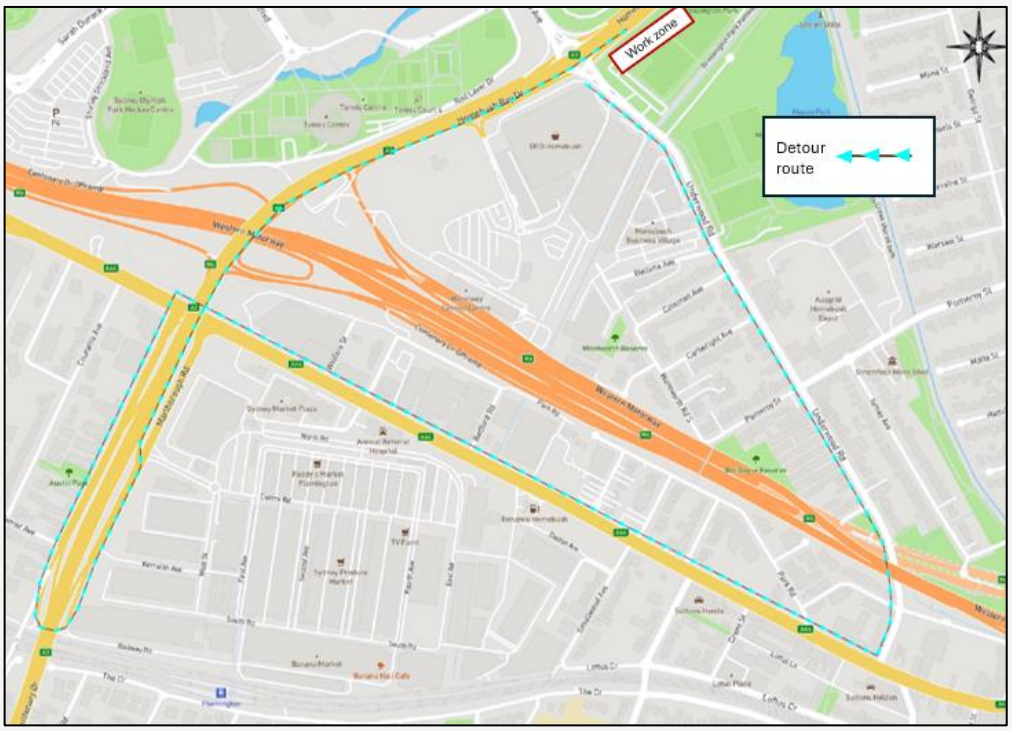
F3. Parking and movement of vehicles and storage of plant/equipment is to occur on existing paved areas and outside of tree protection zones (TPZ). Where this is not possible, vehicles and plant/equipment are to be kept away from environmentally sensitive areas and outside the dripline of trees.

F4. No machine excavation or trenching works are to occur within tree protection zones (TPZ).

F5. All workers will be communicated about biodiversity safeguards during prestart toolbox, emphasising tree protection zones to minimise any potential impact on adjacent trees.

3.8 Traffic and transport

Table 3-8: Traffic and transport

Description of existing environmental and potential impacts		
Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during construction? Access to the site would be from the northbound or southbound lanes of Homebush Bay Drive or from the eastbound or westbound lanes of Australia Avenue/Underwood Road depending on the shift. Traffic controllers would be on site to direct traffic and pedestrians to ensure access is maintained throughout the construction period. Construction would be undertaken under Road Occupancy Licenses (ROLs). There would be disruption to traffic through partial lane closures, traffic control, TCS blackout and reduced speed limits. Traffic controls would be removed after the end of each shift to stop the disruption of traffic flow during the daytime and weekends. Road closure would be required as part of this proposal, but it would be at a later stage, during the advanced warning signage installation on Homebush Bay Drive off ramps. Each off ramp (southbound and northbound) would be closed for a maximum of two night shifts. Proposed detour routes are provided in Figure 3.14 and Figure 3.15.  **Figure 3.14** - Proposed southbound detour	Yes ☒	No ☐

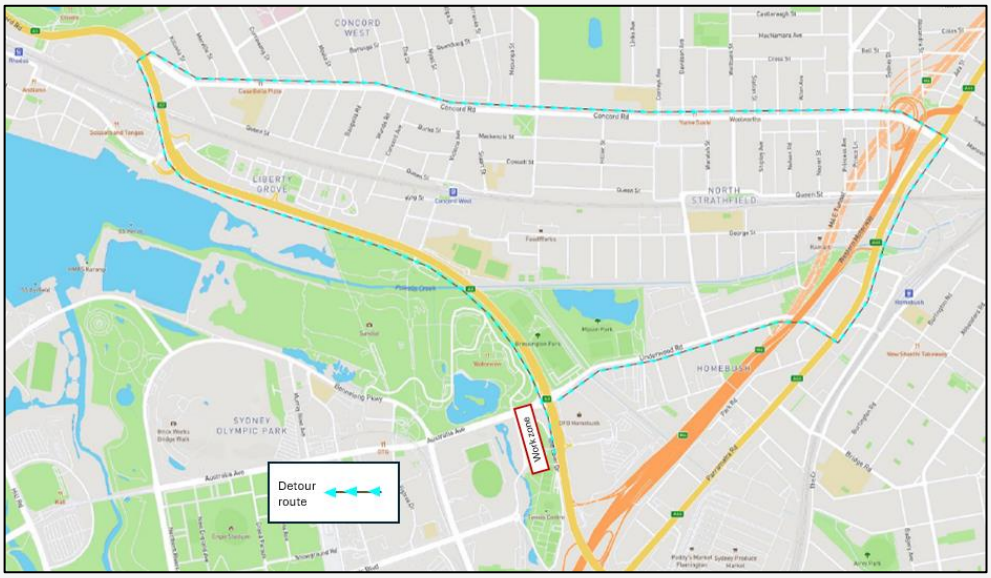


Figure 3.15 - Proposed northbound detour

Cyclists and pedestrians

The proposal would not impact any cyclists' movements during construction, as there are no dedicated cycling facilities in this intersection, nor are there any known cycle routes. As the proposal includes working within the pedestrian crossings and footpaths, minor diversions would be required, however, this would be minimal as all works would be conducted during night shifts. Pedestrian access would be managed during construction by traffic controllers. The pedestrian crossings and footpaths would be accessible during the day and on weekends, therefore the proposal is not expected to cause more than a minor disruption to pedestrian flow.

Public Transport

The site on Underwood Road/Australia Avenue caters for one bus service (Route 526) and there are three bus stops near the proposal site, at a minimum distance of 30 metres south of the proposal site as shown in Figure 3.16. The bus stops would not be impacted during works. However, the bus services may be impacted due to lane closure, as the last scheduled bus departing from these bus stops is approximately at midnight. However, as the proposed works are all outside of standard working hours and involve short-term activities, it is not anticipated that this disruption would cause a major impact on the bus users and the three bus stops would remain accessible to commuters for the duration of works. Further, consultation with the bus companies would occur to inform them of the construction program.

Figure 3.16 - Bus services and bus stop location near the proposal site

Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation?	Yes ☐	No ☒
Is the proposal likely to affect any other transport nodes or transport infrastructure (e.g., bus stops, bus routes) in the surrounding area? Or result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation?	Yes ☐	No ☒

Safeguards

Safeguards to be implemented are:

T1. Current traffic movements and property accesses are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary traffic delays.

T2. Traffic control to be implemented as per approved site-specific traffic control plan to minimise traffic delays on the road. Works to be conducted under approved Traffic Guidance Schema.

T3. Work area will be reinstated to trafficable conditions at the completion of every shift.

3.9 Socio-economic

Table 3-9: Socio-economic

Description of existing environmental and potential impacts		
Is the proposal likely to impact on local business? The proposal would not have any impact on local businesses. DFO Outlet which is located on the southern corner of the proposal would not be impacted by the works as the accesses would be maintained at all times during the works. Additionally, all works would be conducted during night shifts and DFO closes at 6 pm from Mondays to Sundays (8 pm on Thursdays).	Yes ☐	No ☒
Is the proposal likely to require any property acquisition?	Yes ☐	No ☒

Is the proposal likely to alter any access for properties (either temporarily or permanently)? The proposal does not require altering access for properties as there are no residents within the proximity to the proposed works.	Yes ☐	No ☒
Is the proposal likely to alter any on-street parking arrangements (either temporarily or permanently)? Parking of plant and equipment would be within the lane closure and light vehicles would potentially use on-street parking or public car parks located near the proposal site. High availability of parking has been identified in the immediate vicinity of the proposal site (adjacent to Bressington Park). As all works would be conducted at night, there is unlikely to be an impact on users of on-street parking.	Yes ☐	No ☒
Is the proposal likely to change pedestrian movements or pedestrian access (either temporarily or permanently)? The proposal would positively improve the pedestrian movement at the intersection of Homebush Bay Drive (off ramp) and Australia Avenue/Underwood Road as the proposed works include the relocation of the pedestrian crossing and the installation of advanced warning signs. The proposal includes the installation of three new pram ramps, footpath, pedestrian fences and pedestrian lanterns at the western corner of the roundabout. As a result, the proposal would provide adequate facilities for pedestrians, aiming to eliminate unsafe pedestrian crossing. Additionally, the installation of early warning signs would improve safety not only for road users but also for pedestrians as these signs would provide early notice to road users when the traffic lights are in operation, and they are required to stop due to pedestrian movements in the roundabout.	Yes ☒	No ☐
Is the proposal likely to impact on any items or places of social value to the community (either temporarily or permanently)?	Yes ☐	No ☒
Is the proposal likely to reduce or change visibility of any businesses, farms, tourist attractions or the like (either temporarily or permanently)?	Yes ☐	No ☒
Is the proposal likely to impact trees planted by a community group, Landcare group or by council or a tree that is a memorial or part of a memorial group e.g., has a plaque?	Yes ☐	No ☒
Is the proposal likely to impact trees that form part of a streetscape, an avenue or roadside planting?	Yes ☐	No ☒

Safeguards

Safeguards to be implemented are:

C1. Notification is to be given to affected community members prior to the works taking place. The notification is to include:

- details of the proposal
- the duration of works and working hours
- any changed traffic or access arrangements
- how to lodge a complaint or obtain more information
- contact name and details.

Notification should be a minimum of seven calendar days prior to the start of works.

C2. All complaints are to be recorded on a complaint register and attended to promptly.

C3. Existing access for nearby and adjoining properties is to be maintained at all times during the works unless otherwise agreed to by the affected property owner.

C4. The community must be notified of all work outside standard hours which have the potential to impact noise sensitive receivers. Notification zones must be determined using the Transport for NSW's Noise Estimator Tool.

3.10 Landscape character and visual amenity

Table 3-10: Landscape character and visual amenity

Description of existing environmental and potential impacts		
Is the proposed work over or near an important physical or cultural element or landscape? (For example, heritage items and areas, distinctive or historic built form, National Parks, conservation areas, scenic highways etc.) The proposed work is not over or near an important physical or cultural element or landscape.	Yes ☐	No ☒
Would the proposal obstruct or intrude upon the character or views of a valued landscape or urban area? (For example, locally significant topography, a rural landscape or a park, a river, lake or the ocean or a historic or distinctive townscape or landmark) Although the proposal is located in the proximity of recreational areas such as Sydney Olympic Park and Bressington Park, works would not obstruct or intrude upon the character or views of the landscape or urban area. All areas would be reinstated after the completion of works and signage to be installed immediately adjacent to the existing infrastructure (roads) would be consistent with the current environment. As a result, there is unlikely to have an impact upon the visual amenity of the area.	Yes ☐	No ☒
Would the proposal require the removal of mature trees or stands of vegetation, either native or introduced?	Yes ☐	No ☒
Would the proposal result in large areas of shotcrete visible from the road or adjacent properties?	Yes ☐	No ☒
Would the proposal involve new noise walls or visible changes to existing noise walls?	Yes ☐	No ☒
Would the proposal involve the removal or reuse of large areas of road corridor, landscape, either verges or medians?	Yes ☐	No ☒
Would the proposal involve substantial changes to the appearance of a bridge (including piers, girders, abutments and parapets) that are visible from the road or residential areas?	Yes ☐	No ☒
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)? There are no residential properties near the proposed works.	Yes ☐	No ☒
Would any new structures or features to be constructed, result in over shadowing to adjoining properties or areas?	Yes ☐	No ☒

Safeguards

Safeguards to be implemented are:

L1. The work site would be left in a tidy manner at the end of each workday.

3.11 Waste

Table 3-11: Waste

Description of existing environmental and potential impacts		
Is the proposal likely to generate >200 tonnes of waste material (contaminated and /or non-contaminated material)? The proposal is likely to generate approximately 80 cubic metres (30 tonnes) of waste material which includes concrete kerbing, existing pavement, and subgrade material. Excavated road material would be reused where possible. No waste material stockpiling would be required as part of this proposal. All waste would be disposed of at appropriately licensed waste recycling and landfill sites and recycled/disposed of in accordance with Roads and Maritime's waste management guidelines. According to Preliminary Site Investigation (Appendix D), preliminary waste classification assessment indicates that the majority of soils anticipated to be disturbed as part of the construction works will meet the requirements for classification of General Solid Waste (GSW). Restricted Solid Waste (RSW) soils were identified within the vicinity of the suspected area of infilling/earthworks activities within Bressington Park (next to the proposal site). Although potential 'special waste asbestos' was identified due to historic asbestos finds (Coffey, 2021) adjacent to the proposal site, no asbestos has been detected in any sample analysed in the preliminary site investigation for the proposal. Waste material would be tested in accordance with the NSW EPA Waste Classification Guidelines prior to being disposed of.	Yes ☐	No ☒
Is the proposal likely to require a licence from EPA?	Yes ☐	No ☒
Is the proposal likely to require the removal of asbestos?	Yes ☐	No ☒

Safeguards

Safeguards to be implemented are:

M1. Resource management hierarchy principles are to be followed:

- Avoid unnecessary resource consumption as a priority.
- Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery).
- Disposal is undertaken as a last resort (in accordance with the Waste Avoidance & Resource Recovery Act 2001).

M2. All wastes would be managed in accordance with the Protection of the Environment Operations Act 1997.

M3. There is to be no disposal or re-use of material waste on to other land.

M4. Waste material is not to be left on site once the works have been completed.

M5. Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.

M6. Waste material would be tested in accordance with the NSW EPA Waste Classification Guidelines prior to being disposed of.

3.12 Climate change and greenhouse gas emissions

Table 3-12: Climate change and greenhouse gas emissions

Description of existing environmental and potential impacts		
Is the proposal located in an area likely to be permanently or tidally inundated in the future or subject to increased duration and intensity of flooding?	Yes ☐	No ☒
Have opportunities for reduced energy consumption during construction and operation been considered.	Yes ☐	No ☒
Greenhouse gas emissions sources during construction are likely to be largest from: • Transporting materials to the site. • Operation of plant and equipment. There would be no change of greenhouse gas emissions sources during operation.		

Safeguards

Safeguards to be implemented are:

Not applicable.

3.13 Cumulative impact

Table 3-13: Cumulative impact

Description of existing environmental and potential impacts		
Are there other projects and developments in the study area which could add to potential impacts in both construction and operation? Potential cumulative impacts are considered to be low due to the proposal's minor nature and short-term duration – forecasted to be less than four months. There is a tactical pavement project on Parramatta Road approaching Underwood Road that would start the last week of September for a total of 13 shifts (six paving shifts, three saw cut loops installation shifts and four line marking shifts). These works would occur during the night Sunday to Thursday and require changes to traffic conditions such as lane closure and contraflow. Undertaking the proposal and the paving works have the potential to result in cumulative traffic impacts on the road network during the construction phase. However, potential cumulative impacts would be minimal due to the short-term period of the paving works and minimised with the implementation of appropriate management measures.	Yes ☐	No ☒

Safeguards

Safeguards to be implemented are:

Not applicable.

4. Summary of safeguards and environmental management measures

4.1 Safeguards and environmental management measures

This section provides a summary of the site-specific environmental safeguards and management measures identified in described in chapter 3 of this minor works REF. These safeguards will be implemented to reduce potential environmental impacts throughout construction and operation. A framework for managing the potential impacts is provided with reference to environmental management plans and relevant Transport QA specifications. Any potential licence and/or approval requirements required prior to construction are also listed.

Table 4-1: Summary of site-specific safeguards for proposed work

Factor	Safeguards
Soil	E1. Erosion and sediment control measures are to be implemented and maintained to: • minimise sediment moving off-site and sediment laden water entering any watercourse, drainage lines, or drain inlets • reduce water velocity and capture sediment on site • minimise the amount of material transported from site to surrounding pavement surfaces • divert clean water around the site. Drainage protection would be used during proposed works to prevent discharge of sediment laden water to receiving drainage array. E2. Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request. E3. Erosion and sediment control measures are not to be removed until the works are complete, and areas are stabilised. E4. Road pavement to be swept at end of each shift to remove any sediment present on the road pavement. E5. Excavation on roads will be restored at the end of each shift, either by placing temporary materials (reusing or imported) or steel plates. E6. If Acid Sulfate Soils or saline soils are encountered, works are to cease in the area and the Fulton Hogan Environmental Lead/Manager is to be contacted who in turn would contact TfNSW environmental representatives. E7. In the event that indications of contamination are encountered (known and unexpected, such as odorous or visually contaminated materials), work in the area will cease until a certified contaminated land practitioner can assess the area. Fulton Hogan Environmental Lead/Manager is to be contacted and Unexpected Contaminated Land Finds Protocol is to be followed. E8. All workers will be communicated about soil safeguards during prestart toolbox, emphasising the potential of encountering contaminated soil during works.
Waterways and water quality	W1. Controls must be implemented to prevent the release of dirty water into drainage lines and/or waterways. Refer to safeguards described in E1 for further information. W2. Water quality control measures are to be used to prevent any materials (e.g., concrete, sediment, etc.) entering drain inlets or waterways. W3. Excess debris from cleaning and washing is removed using hand tools.

Factor	Safeguards
	W4. Excess excavated material extracted would be removed from site and disposed of at a licenced waste management facility. W5. No concrete washout is to occur on site. Chutes are to be cleaned using a bucket and sponge with excess concrete being returned to the batching plant. W6. Concrete waste material would be cleaned and vacuumed before the completion of every shift. R1. Refuelling of plant and equipment is to occur in impervious areas located a minimum of 50 metres from drainage lines or waterways. R2. An emergency spill kit is to be kept on-site at all times and maintained throughout the construction work. The spill kit must be appropriately sized for the volume of substances at the work site. Plant with a high potential to have hydraulic leaks are to have appropriate spill kits on board during operations. R3. If an incident (for example, a spill) occurs, the Transport Environmental Incident Classification and Reporting Procedure is to be followed and the Fulton Hogan Environmental Manager notified as soon as practicable. R4. Emergency contacts will be kept in an easily accessible location on vehicles and plant. All workers will be advised of these contact details and procedures. R5. All workers will be advised of the location of the spill kit and trained in its use. R6. Vehicles and plant must be properly maintained and regularly inspected for fluid leaks.
Noise and vibration	N1. Noise impacts are to be minimised in accordance with Transport for NSW Construction Noise Estimator and Construction Noise and Vibration Guidelines. This includes implementing the following measures to minimise noise impacts: • Work generating high noise and/or vibration levels such as jackhammering and concrete sawing (mechanical impact devices) should be carried out prior midnight. • Noise blankets are to be used for road sawing, jackhammering or any other noise intrusive activities. Blankets must be overlapping with logo facing out for maximum effectiveness. • Noisy equipment will be substituted in favour of alternative low noise process (e.g., hand tooling instead of excavator for service investigation). • Plant and equipment will be correctly operated and maintained, with engine access covers closed. • Minimise concurrent operation of dominant noise-generating plant to reduce noise impacts. • Use manually adjustable or ambient noise sensitive reversing alarms on plant (i.e., Quakers). • Avoid shouting, slamming doors and use of loud radios. • Operating machines at low speed or power and switching off when not being used rather than left idling for prolonged periods. • Control and place excavated materials in trucks so that the excavated material does not create excessive noise when it hits the metal trailer. • Minimise vehicle movements outside working hours, including loading and unloading operations. • Plant will not be allowed to warm up outside working hours. • The induction will identify all OOHW requirements and restrictions.

Factor	Safeguards
	N2. An Out of Hours Work (OOHW) application will be prepared prior to the start of work. The OOHW application will identify any sensitive receivers that would be 25 dB(A) above the Noise Management Level (NML). The OOHW Application will also determine which activities would trigger the 25dB(A) above NML. The following additional mitigation measures will be applied: N3. Letterbox drop (N = notification) for receivers within: • 200 metres radius of proposed works Notifications should be detailing work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night-time period, any operational noise benefits from the works (where applicable) and contact telephone number. Notification will be sent a minimum of 7 calendar days prior to the start of works.
Air quality	A1. Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust. A2. Works (including the spraying of paint and other materials) are not to be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely. A3. Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transportation. A4. Construction plant and equipment would be well maintained and regularly serviced so that vehicular emissions remain within relevant air quality guidelines and standards.
Non-Aboriginal heritage	H1. If unexpected heritage items are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in the TfNSW Standard Management Procedure: Unexpected Heritage Items must be followed. TfNSW Senior Environment Specialist - Heritage must be contacted immediately.
Aboriginal cultural heritage	B1. If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the TfNSW Aboriginal cultural heritage officer and regional environment manager contacted immediately. Steps in the TfNSW Standard Management Procedure: Unexpected Heritage Items must be followed.
Biodiversity	F1. If unexpected threatened fauna or flora species are discovered, stop works immediately and follow the Transport for NSW Services Unexpected Threatened Species Find Procedure in the Transport for NSW Services Biodiversity Guidelines 2011 – Guide 1 (Pre-clearing process). F2. There is to be no disturbance or damage to threatened species or areas of outstanding value outside of the construction footprint. F3. Parking and movement of vehicles and storage of plant/equipment is to occur on existing paved areas and outside of tree protection zones (TPZ). Where this is not possible, vehicles and plant/equipment are to be kept away from environmentally sensitive areas and outside the dripline of trees. F4. No machine excavation or trenching works are to occur within tree protection zones (TPZ). F5. All workers will be communicated about biodiversity safeguards during prestart toolbox, emphasising tree protection zones to minimise any potential impact on adjacent trees.

Factor	Safeguards
Traffic and transport	T1. Current traffic movements and property accesses are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary traffic delays. T2. Traffic control to be implemented as per approved site-specific traffic control plan to minimise traffic delays on the road. Works to be conducted under approved Traffic Guidance Scheme. T3. Work area will be reinstated to trafficable conditions at the completion of every shift.
Socio-economic	C1. Notification is to be given to affected community members prior to the works taking place. The notification is to include: • details of the proposal • the duration of works and working hours • any changed traffic or access arrangements • how to lodge a complaint or obtain more information • contact name and details. Notification should be a minimum of seven calendar days prior to the start of works. C2. All complaints are to be recorded on a complaint register and attended to promptly. C3. Existing access for nearby and adjoining properties is to be maintained at all times during the works unless otherwise agreed to by the affected property owner. C4. The community must be notified of all work outside standard hours which have the potential to impact noise sensitive receivers. Notification zones must be determined using the Transport for NSW's Noise Estimator Tool.
Landscape character and visual amenity	L1. The work site would be left in a tidy manner at the end of each workday.
Waste	M1. Resource management hierarchy principles are to be followed: • Avoid unnecessary resource consumption as a priority. • Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery). • Disposal is undertaken as a last resort (in accordance with the Waste Avoidance & Resource Recovery Act 2001). M2. All wastes would be managed in accordance with the Protection of the Environment Operations Act 1997. M3. There is to be no disposal or re-use of material waste on to other land. M4. Waste material is not to be left on site once the works have been completed. M5. Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day. M6. Waste material would be tested in accordance with the NSW EPA Waste Classification Guidelines prior to being disposed of.
Climate change and greenhouse gas emissions	N/A
Cumulative impacts	N/A

4.2 Licensing and approvals

Table 4-2: Summary of licensing and approvals required

Instrument	Requirement	Timing
Road Occupancy License	Road Occupancy Licences (ROLs) to be obtained from TfNSW Traffic Management Centre (TMC) prior to any work requiring lane closures.	Prior to works commencing.

4.3 Other requirements

Table 4-3: Other requirements

Requirement		
Environmental management plan sent to SMES or their delegate (ESL) for review.	Yes ☐	No ☒

5. Certification, review and determination

5.1 Certification

This minor works REF provides a true and fair review of the proposal in relation to its potential effects on the environment. It addresses, to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the proposal.

Prepared by:

Signature

Name:

Position:

Company name:

Date:

Minor works REF reviewed by:

Signature

Name:

Position:

Company name:

Date:

Minor works REF reviewed by:

Signature

Name:

Position:

Company name:

Date:

5.2 Environment and sustainability staff review

The minor works REF has been reviewed and considered against the requirements of sections 5.5 and 5.7 of the EP&A Act.

In considering the proposal this assessment has examined and taken into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity as addressed in the minor works REF and associated information. This assessment is considered to be in accordance with the factors required to be considered under section 171 of the Environmental Planning and Assessment Regulation 2021.

The proposal described in this minor works REF will have some environmental impacts which can be ameliorated satisfactorily. Having regard to the safeguards and management measures proposed, this assessment has considered that these impacts are unlikely to be significant and therefore an approval for the proposal does not need to be sought under Division 5.2 of the EP&A Act.

The assessment has considered the potential impacts of the activity on areas of outstanding value and on threatened species, ecological communities or their habitats for both terrestrial and aquatic species as defined by the *Biodiversity Conservation Act 2016* and the *Fisheries Management Act 1994*.

The proposal described in the minor works REF will not affect areas of outstanding value. The activity described in the minor works REF will not significantly affect threatened species ecological communities or their habitats. Therefore, a species impact statement is not required.

The assessment has also addressed the potential impacts of the activity on matters of national environmental significance and any impacts on the environment of Commonwealth land and concluded that there will be no significant impacts. Therefore, there is no need for a referral to be made to the Australian Government Department of Climate Change, Energy, the Environment and Water for a decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the *Environment Protection and Biodiversity Conservation Act 1999*.

The minor works REF is considered to meet all relevant requirements.

5.3 Environment and Sustainability staff recommendation

It is recommended that the proposal to upgrade the TCS intersection at Homebush Bay Drive, Australia Avenue and Underwood Road as described in this minor works REF proceed subject to the implementation of all safeguards identified in the minor works REF and compliance with all other relevant statutory approvals, licences, permits and authorisations.

The minor works REF has examined and taken into account to the fullest extent possible all matters likely to affect the environment by reason of the activity in accordance with the EP&A Act, EP&A Regulation and the Guidelines approved under clause 170 of the EP&A Regulation. The minor works REF has established that the activity is not likely to significantly affect the environment or threatened species, ecological communities or their habitats.

The minor works REF has concluded that there will be no significant impacts on matters of national environmental significance or any impacts on the environment of Commonwealth land.

If the proposal has not commenced within two years of the determination date the SMES must be consulted to identify any new or updated assessment or approval requirements.

Recommended by:

Signature

Name:

Position:

Date:

5.4 Decision statement

In accordance with the above recommendation, I certify that I have reviewed and endorsed the contents of this minor works REF, and to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under Section 170 of the EP&A Regulation, and the information is neither false nor misleading.

I determine that Transport for NSW may:

- proceed with the activity

Signature

Name:

Position:

Date:

5.5 EP&A Regulation publication requirement

Table 5-1: EP&A Regulation publication requirement

Requirement		
Does this minor works REF need to be published under section 171(4) of the EP&A Regulation?	Yes ☐	No ☒

6. Definitions

Table 6-1: Definitions

Term	Definition

Appendix A: Consideration of State and Commonwealth environmental factors

Environmental Planning and Assessment Regulation 2021 section 171(2) factors

The following factors, listed in section 171(2) of the Environmental Planning and Assessment Regulation 2021, have been considered to assess the likely impacts of the proposal on the natural and built environment. This consideration is required to comply with sections 5.5 and 5.7 of the EP&A Act.

Table A1: Consideration of section 171 of the EP&A Regulation factors

Factor	Description of impact	Duration and extent
a) **Environmental impact on the community.**	The proposed work may cause minor short-term environmental impacts on the community, such as potential disruption to traffic and noise impacts on residents, however, the potential impacts would be minimised with the implementation of the safeguards as detailed in this REF. The proposed works would have no environmental impact on a community in the long-term and access to the impacted road carriageway would be restored after the works have finished.	Short-term, negative (minor), temporary.
b) **The transformation of the locality.**	The proposed work would not transform the locality, as works would generally be contained within the existing road formation and be carried out on existing TfNSW assets. However, the proposed works would have positive long-term effects due to improved safety for road users and pedestrians as a consequence of the upgrade of TCS, including early warning signage installation, and the installation of an adequate pedestrian crossing on Homebush Bay Drive, Australia Avenue and Underwood Road intersection.	Long-term, positive (moderate).
c) **Any environmental impact on the ecosystems of the locality.**	The proposal would not have potential environmental impacts on the ecosystems of the locality.	NIL
d) **Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality.**	The proposal would not reduce the aesthetic, recreational, scientific, or other environmental quality or value of the locality, as works would generally be contained within the existing road formation. Disturbed areas would be reinstated following the proposed works.	NIL
e) **Any effect on any locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical,**	The proposal is unlikely to have an effect on a locality, place or building of significance or other special value for present or future generations. The effects would be minimal due to the limited scope of works for the proposed activities covered in this REF, and the potential impacts would be minimised with	NIL

Factor	Description of impact	Duration and extent
scientific or social significance or other special value for present or future generations.	the implementation of the safeguards given in Section 3 of this REF.	
f) **Any impact on the habitat of protected fauna (within the meaning of the Biodiversity and Conservation Act 2016).**	The proposal would not have any significant impacts on the habitat of any protected animals due to the limited scope of works for the proposed activities, no threatened or protected species identified, and the implementation of the safeguards given in Section 3 of this REF.	NIL
g) **Any endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air.**	The proposal is unlikely to endanger any species of animal, plant, or other form of life, whether living on land, in water or in the air due to the limited scope of works for the proposed activities and the implementation of the safeguards given in Section 3 of this REF.	NIL
h) **Any long-term effects on the environment**	There are no anticipated negative long-term effects on the environment from the proposed works due to the limited scope of these works and the implementation of the safeguards given in Section 3 of this REF. The proposal would have positive long-term effects on the environment due to improved safety for road users and pedestrians.	Long-term, positive
i) **Any degradation of the quality of the environment.**	The proposal would not degrade the quality of the environment. The potential impacts identified would be minimised with the implementation of the safeguards given in Section 3 of this REF.	NIL
j) **Any risk to the safety of the environment.**	The proposal would have minimal risk to the safety of the environment from accidental spills or encountering contaminated soils, due to the limited scope of works for the activities covered in this REF, and the potential impacts would be minimised with the implementation of the safeguards given in Section 3 of this REF.	Short-term, negative (minor), temporary.
k) **Any reduction in the range of beneficial uses of the environment.**	The proposal would cause a minor reduction in the use of the road from lane closures, which would potentially increase travelling time for road users in the short-term. There would be no long-term reduction in the range of beneficial uses of the environment as a result of the proposed works.	Short-term, negative (minor), temporary.
l) **Any pollution of the environment.**	The proposal may potentially cause minor air pollution from diesel engines and excavation works temporarily while the proposed works take place. Similarly, the proposed construction activity would involve excavation works that may lead to an increase in soil erosion during periods of high winds and heavy rainfall, however, the potential impacts	Short-term, negative (minor), temporary.

Factor	Description of impact	Duration and extent
	would be minimised with the implementation of the safeguards given in Section 3 of this REF.	
m) Any environmental problems associated with the disposal of waste	The waste generated during the proposal would be contained and removed for disposal to approved recycling facilities or to a licensed landfill in accordance with the safeguards in Section 3 of this REF. No environmental problems are anticipated for the disposal of waste.	NIL
n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply.	The proposal would not significantly increase demands on resources, which are or are likely to become, in short supply. Relatively small amounts of materials would be required for the proposed work. The safeguards listed in Section 3 of this REF would be implemented to minimise any impacts.	NIL
o) The cumulative environmental effect with other existing or likely future activities.	The proposal is unlikely to have cumulative environmental effects with other existing or likely future activities, however, the effects would be minimal due to the limited scope of works for the activities covered in this REF, and the potential impacts on the environment would be minimised with the implementation of the safeguards given in Section 3 in this REF.	NIL
p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions.	N/A	NIL
q) Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1	N/A	NIL
r) Other relevant environmental factors	N/A	NIL

Matters of National Environmental Significance

Table A2: Matters of national environmental significance

Environmental factor	Impact
a) Any impact on a World Heritage property?	Nil
b) Any impact on a National Heritage place?	Nil
c) Any impact on a wetland of international importance (often called 'Ramsar' wetlands)?	Nil
d) Any impact on nationally threatened species, ecological communities or migratory species?	Nil
e) Any impact on a Commonwealth marine area?	Nil
f) Does the proposal involve a nuclear action (including uranium mining)?	Nil
Additionally, any impact (direct or indirect) on the environment of Commonwealth land?	Nil

Appendix B: Environmental Planning and Assessment Regulation 2021 section 171(A) factors – activities in catchments

SEPP (Biodiversity and Conservation) – Chapter 6 (Water Catchments)

Chapter 6 of SEPP (Biodiversity and Conservation) relates to the use of land within regulated catchments. In these catchments, Transport is required to consider the environmental impact of activities to which Division 5.1 of the EP&A Act applies before carrying out the activity.

The four regulated catchments are:

a) Sydney Drinking Water Catchment

b) Sydney Harbour Catchment

c) Georges River Catchment

d) Hawkesbury-Nepean Catchment.

In undertaking an activity in a regulated catchment Transport must satisfy sections 6.6(2), 6.7(2), 6.8(2) and 6.9(2) and consider environmental impacts listed in sections 6.6(1), 6.7(1), 6.8(1) and 6.9(1) of State Environmental Planning Policy (Biodiversity and Conservation) 2021. This includes specific consideration of water quality and quantity, aquatic ecology, flooding, and recreation and public access.

The proposal is located in the Sydney Harbour Catchment, the below tables consider the impacts of the proposal on each of the identified factors.

Water quality and quantity

Table C1: Water quality and quantity considerations SEPP (Biodiversity and Conservation)

Section	Factor	Impact/comment
The project must be satisfied of the below before undertaking the activity:		
6.6(2)(a)	The effect on the quality of water entering a natural waterbody will be as close as possible to neutral or beneficial.	The proposed works are not expected to affect the quality of any waterbodies.
6.6(2)(b)	The impact on water flow in a natural waterbody will be minimised.	The proposal is not expected to impact the water flow of natural waterbody. However, safeguards described in Section 4 would be followed to ensure any occurrences of water flow from the proposal into a waterbody.
The project must consider the below before undertaking the activity:		
6.6(1)(a)	Consider whether the development will have a neutral or beneficial effect on the quality of water entering a waterway.	It is unlikely there will be any discharges from the worksite to any waterbody.
6.6(1)(b)	Consider whether the development will have an adverse impact on water flow in a natural waterbody.	As the proposal is minor and the nearest waterway or water body is approximately 70 metres, there are not likely to be any adverse effects on water flow in a natural water body.
6.6(1)(c)	Consider whether the development will increase the amount of stormwater run-off from a site.	The proposal is not expected to increase the amount of stormwater run-off from a site.

6.6(1)(d)	Consider whether the development will incorporate on-site stormwater retention, infiltration or reuse.	N/A
6.6(1)(e)	Consider the impact of the development on the level and quality of the water table.	The proposal is not expected to impact the level and quality of the water table.
6.6(1)(f)	Consider the cumulative environmental impact of the development on the regulated catchment.	The works are not expected to contribute to cumulative effects on the regulated catchment as they are minor in nature.
6.6(1)(g)	Consider whether the development makes adequate provision to protect the quality and quantity of groundwater.	As the proposal involves minimal changes to the natural environment at the site, it is not expected to affect the quality or quantity of groundwater.

Aquatic ecology

Table C2: Aquatic ecology considerations SEPP (Biodiversity and Conservation)

Section	Factor	Impact/comment
The project must be satisfied of the below before undertaking the activity:		
6.7(2)(a)	The direct, indirect or cumulative adverse impact on terrestrial, aquatic or migratory animals or vegetation will be kept to the minimum necessary for the carrying out of the development.	Due to the limited scope of works, the potential impacts on terrestrial, aquatic or migratory animals or vegetation would be negligible.
6.7(2)(b)	The development will not have a direct, indirect or cumulative adverse impact on aquatic reserves	The proposal is not expected to have a significant effect on aquatic reserves.
6.7(2)(c)	If a controlled activity approval under the *Water Management Act 2000* or a permit under the *Fisheries Management Act 1994* is required in relation to the clearing of riparian vegetation — the approval or permit has been obtained.	N/A
6.7(2)(d)	The erosion of land abutting a natural waterbody or the sedimentation of a natural waterbody will be minimised.	As the closest waterbody to the proposal is approximately 70 metres, erosion of land abutting a waterbody is not likely.
6.7(2)(e)	The adverse impact on wetlands that are not in the coastal wetlands and littoral rainforests area will be minimised.	The proposal is not expected to impact any wetlands.
The project must consider the below before undertaking the activity:		
6.7(1)(a)	Consider whether the development will have a direct, indirect or cumulative adverse impact on terrestrial, aquatic or migratory animals or vegetation.	The proposal is not expected to have significant effects on terrestrial, aquatic or migratory animals or vegetation. The relevant safeguards will be implemented to ensure any unexpected risks are mitigated.
6.7(1)(b)	Consider whether the development involves the clearing of riparian vegetation and, if so, whether the development will require — (i) a controlled activity approval under the *Water Management Act 2000*, or (ii) a permit under the *Fisheries Management Act 1994.*	The proposal would not involve clearing of riparian vegetation.
6.7(1)(c)	Consider whether the development will minimise or avoid — (i) the erosion of land abutting a natural waterbody; or	As the closest waterbody to the proposal is approximately 70 metres away, erosion of land abutting a waterbody is not likely.

Section	Factor	Impact/comment
	(ii) the sedimentation of a natural waterbody.	
6.7(1)(d)	Consider whether the development will have an adverse impact on wetlands that are not in the coastal wetlands and littoral rainforests area.	The proposal is not expected to impact any wetlands.
6.7(1)(e)	Consider whether the development includes adequate safeguards and rehabilitation measures to protect aquatic ecology.	N/A
6.7(1)(f)	Consider if the development site adjoins a natural waterbody — whether additional measures are required to ensure a neutral or beneficial effect on the water quality of the waterbody. Example — Additional measures may include the incorporation of a vegetated buffer between the waterbody and the site.	N/A

Flooding

Table C3: Flooding considerations SEPP (Biodiversity and Conservation)

Section	Factor	Impact/comment
The project must be satisfied of the below before undertaking the activity:		
6.8(2)(a)	On flood liable land in a regulated catchment, the development will not — If there is a flood, result in a release of pollutants that may have an adverse impact on the water quality of a natural waterbody; or	N/A
6.8(2)(b)	On flood liable land in a regulated catchment, the development will not have an adverse impact on the natural recession of floodwaters into wetlands and other riverine ecosystems.	N/A
The project must consider the below:		
6.8(1)	Consider the likely impact of the development on periodic flooding that benefits wetlands and other riverine ecosystems.	The proposal is not likely to impact periodic flooding that benefits wetlands and other riverine ecosystems.

Recreation and public space

Table C4: Flooding considerations SEPP (Biodiversity and Conservation)

Section	Factor	Impact/comment
The project must be satisfied of the below before undertaking the activity:		
6.9(2)(a)	The development will maintain or improve public access to and from natural waterbodies for recreational purposes, including fishing, swimming and boating, without adverse impact on natural waterbodies, watercourses, wetlands or riparian vegetation.	N/A
6.9(2)(b)	New or existing points of public access between natural waterbodies and the site of the development will be stable and safe.	N/A
6.9(2)(c)	If land forming part of the foreshore of a natural waterbody will be made available for public	N/A

	access as a result of the development but is not in public ownership — public access to and use of the land will be safeguarded.	
The project must consider the below before undertaking the activity:		
6.9(1)(a)	Consider the likely impact of the development on recreational land uses in the regulated catchment.	The proposal intends to increase safety for road users and pedestrians in the locality and is not expected to have any impacts on waterbodies.
6.9(1)(b)	Consider whether the development will maintain or improve public access to and around foreshores without adverse impact on natural waterbodies, watercourses, wetlands or riparian vegetation.	N/A

Neutral or beneficial effect

Chapter 6 (Water Catchments) of SEPP (Biodiversity and Conservation) relates to the use of land within the Sydney drinking water catchment. In accordance with Part 6.5 of SEPP (Biodiversity and Conservation), Transport is required to consider whether or not an activity to which Division 5.1 of the EP&A Act applies will have a neutral or beneficial effect on water quality before carrying out the activity.

Section	Factor
1. Are there any identifiable potential impacts on water quality? What pollutants are likely? At what stage do the impacts occur? (ie. During construction and/or post construction?)	Due to the minor nature, short duration of works, and distance to waterways or bodies, no potential impacts to water quality have been identified.
2. For each pollutant, list the safeguards needed to prevent or mitigate potential impacts on water quality (these may be Water NSW endorsed current recommended practices and/or equally effective other practices)	N/A
3. Will the safeguards be adequate for the time required? How will they need to be maintained?	N/A
4. Will all impacts on water quality be effectively contained on the site by the identified safeguards (above) and not reach any watercourse, waterbody or drainage depression? Or will impacts on water quality be transferred outside the site for treatment? How? Why?	N/A

5.	Is it likely that a neutral or beneficial effect on water quality will occur? Why?	N/A

Appendix C: Design drawings

Appendix D: Preliminary site investigation

Appendix E: Acid sulfate soils factsheet

Appendix F: Construction and maintenance noise tool

Appendix G: OOHW application

Appendix H: PMST report

Appendix I: Arboricultural Impact Assessment report

NSW GOVERNMENT