

Airport East Precinct

Addendum review of environmental factors

March 2017

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Roads and Maritime Services

Airport East Precinct project
Addendum review of environmental
factors

March 2017

Prepared by Aurecon Australasia Pty Ltd

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Executive summary

Background

Roads and Maritime Services (Roads and Maritime) propose to undertake the Airport East Precinct project (the project), which would improve traffic flow and access to Sydney Airport and Port Botany. It would also allow for the future duplication of the Port Botany Freight Rail Line.

Sydney's Kingsford Smith Airport (Sydney Airport) and Port Botany are two of Australia's most important international gateways, however, the road network around these sites is becoming increasingly congested due to rising numbers of passenger, freight and commuter vehicles.

As shown on Figure 1-1, the project is located in the suburb of Mascot, NSW. The area that would be directly impacted by construction and operation of the project is referred to as the project area. The project area encompasses the road, rail, batters, cuts and embankments. It also includes the construction footprint, compound sites, stockpile sites and any other areas that would be temporarily disturbed (such as construction basins, access tracks and pedestrian footpaths).

A Review of Environmental Factors (REF) (herein referred to as the Project REF) was prepared for the project by Jacobs on behalf of Roads and Maritime in February 2015 (Jacobs, 2015a). The Project REF was subsequently determined under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). After consideration of submissions from the community, Roads and Maritime determined that the project could proceed.

The approved activity described in the Project REF was assessed on the basis of a concept design that would:

- Separate the road network from the Port Botany Freight Rail Line
- Provide a bridge over the stormwater channel running parallel to General Holmes Drive
- Provide a new intersection at General Holmes Drive and Wentworth Avenue
- Upgrade or adjust the intersections at:
 - Wentworth Avenue and Botany Road
 - General Holmes Drive and Mill Pond Drive
 - Botany Road and Mill Pond Drive
 - General Holmes Drive, Joyce Drive and Ross Smith Avenue
 - General Holmes Drive and Botany Road
- Widen Joyce Drive and a section of General Holmes Drive to three lanes in each direction
- Provide new facilities and relocate existing facilities for pedestrians, cyclists and public transport, including:
 - A new shared-use path linking to the existing cycleway at Todd Reserve on Wentworth Avenue
 - A new shared path on Botany Road from the Botany Road and Wentworth Avenue intersection to Baxter Road
 - Removing the pedestrian path on the northern side of Joyce Drive, which would be replaced with a new shared path along Baxter Road as part of a separate project.

Figure 1-1 shows the location of the project area and Figure 1-2 shows an overview of the project as determined by the Project REF.

An Addendum REF (April 2016) was also prepared which assessed further design amendments. The items addressed included:

- Changes to lane configuration and lane marking to retain the two left turn lanes from Mill Pond Drive to Botany Road and enable vehicles turning right onto Mill Pond Drive from General Holmes Drive to turn left onto Botany Road
- Relocation of an existing illuminated digital advertising sign

- Installation of a new Variable Message Sign (VMS) on General Holmes Drive for northbound traffic
- Cut batter and utilities relocations at the intersection of General Holmes and Joyce Drive to support a property access slip lane on the southbound lane turning left into the General Holmes Drive cul-de-sac
- Use of an existing building located on land between General Holmes Drive and the Port Botany Freight Rail Line as a compound/office site during construction
- Relocation of existing Telstra utility infrastructure and construction of two communication pits within the existing pedestrian footpath at the southern end of Hardie Street
Open trenching adjacent to Botany Road to allow for a minor realignment of existing sewer main infrastructure.

The activities described in the determined Project REF and determined Addendum REF (April 2016) will henceforth be referred to as the Project.

The revised proposal

After the Project REF and the Addendum REF (April 2016) were determined, the Project was further developed and detailed construction planning was undertaken. Some of these refinements were not considered or assessed in the Project REF or the Addendum REF (April 2016). These proposed design amendments have been incorporated into the 'revised proposal' which is the subject of this Addendum REF and include:

- Changes to the Joyce Drive / General Holmes Drive / Ross Smith Avenue intersection to cater for additional traffic movements
- Provision for a permanent bus stop and permanent bus layover on Botany Road and temporary (during construction) bus layover on General Holmes Drive just west of the level crossing
- Inclusion of retaining wall RW01 between the widened General Holmes Drive and Ross Smith Avenue
- Installation of new intelligent transport systems (ITS) conduits (communications and electricity) under Southern Cross Drive
- Change to traffic movements at the Wentworth Avenue and Hardie Street intersection
- Removal of proposed shared use path on Botany Road to General Holmes Drive (former level crossing).

This Addendum REF describes the proposed design amendments and assesses any potential additional environmental impacts from those assessed in the Project REF and the Addendum REF (April 2016). Figure 2-1 shows the revised proposal, which generally fits within the project area, although some activities would fall outside the project area. These are discussed further in Section 2.

Need for the proposal

Sydney Airport and Port Botany are two of Australia's most important international gateways. However, roads around Sydney Airport and Port Botany are becoming increasingly congested due to rising numbers of passenger, freight, and commuter vehicles.

Traffic modelling predicts that congestion will worsen by 2018, with a substantial number of locations in the project area operating at or above capacity. Road improvements are required to address traffic congestion and support proposed Sydney Airport roadwork to the west of the proposal.

The rail level crossing at General Holmes Drive is a primary contributor to the traffic congestion on General Holmes Drive, Joyce Drive and Botany Road. The removal of the rail level crossing would remove the interaction between road and rail and would improve safety and provide for the future duplication of the Port Botany Freight Rail Line.

Statutory and planning framework

The State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) aims to facilitate the effective delivery of infrastructure across NSW. Clause 94 of the ISEPP 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. The project was assessed under Part 5 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The revised proposal would not change the approval pathway and can therefore still be assessed under Part 5. Development consent from Bayside Council (previously Botany Bay City Council) or approval from the Minister of Planning and the Environment is not required.

As part of the Project REF, additional permits and approvals were required in addition to the Part 5 determination. The Project REF identified the need for an Aquifer Interference Licence to be sought for the project under the *Water Management Act 2000*. However, further consultation with the NSW Office of Water has confirmed that a licence is not required. The revised proposal assessed in this Addendum REF will require a Commonwealth building permit in accordance with Section 2.02 of the Airports (Building Control) Regulations 1996 – the activity being defined as earthworks or engineering works.

This Addendum REF fulfils the requirements of Section 111 of the EP&A Act and has been prepared in accordance with Clause 228 of the Environmental Planning and Assessment Regulation 2000, matters of national environmental significance and the *Airports Act 1996*.

Environmental impacts

This Addendum REF identifies where additional potential impacts from the revised Proposal and differences in impacts from the Project may occur. Where required, further assessment has been provided. Most of the potential environmental impacts that could result from the revised proposal are unchanged from those assessed in the Project REF and Addendum REF (April 2016).

Justification and conclusion

The Addendum REF found that the environmental impacts of the revised proposal are not likely to be significant and would generally be restricted to temporary visual impacts during the construction period and minor traffic impacts during operation. The removal of small areas of planted, roadside vegetation would be required, although this is not predicted to result in impacts to any threatened species or communities, or loss of significant habitat for any fauna species. The Addendum REF has found that the management measures identified in the Project REF are sufficient to address potential impacts from the revised proposal and no additional measures are required.

The revised proposal would provide overall benefits for the project including:

- The right turn lane into Ross Smith Avenue would allow for traffic movement into the Airport at this entry point
- The temporary and permanent bus layover point would compensate Sydney Buses for the loss of the existing bus layover point on Botany Road, providing a space that does not affect the travelling lanes of Botany Road. The permanent bus stop would also be relocated in a dedicated bus bay that would not delay traffic on Botany Road
- The provision of electrical conduits to supply an additional VMS would improve traffic management on the approach to the airport.

The revised proposal would meet the objectives of the project and achieve a benefit compared to the existing situation under the Base Case (Do Nothing) approach.

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Appendix B	Assessment on whether the proposal is a 'major airport development'

1 Introduction

1.1 Proposal identification

Roads and Maritime Services (Roads and Maritime) proposes to undertake the Airport East Precinct project (the project), which would improve traffic flow and access to Sydney Airport, Port Botany. It would also allow for the future duplication of the Port Botany Freight Rail Line.

Sydney's Kingsford Smith Airport (Sydney Airport) and Port Botany are two of Australia's most important international gateways, however, the road network around these sites is becoming increasingly congested due to rising numbers of passenger, freight and commuter vehicles.

As shown on Figure 1-1, the proposal is located in the suburb of Mascot, NSW. The area that would be directly impacted by construction and operation of the proposal is referred to as the project area. The project area encompasses the road, rail, batters, cuts and embankments. It also includes the construction footprint, compound sites, stockpile sites and any other areas that would be temporarily disturbed (such as construction basins, access tracks and pedestrian footpaths).

1.2 Background

A Review of Environmental Factors (REF) (herein referred to as the Project REF) was prepared for the project by Jacobs on behalf of Roads and Maritime in February 2015 (Jacobs, 2015a). The Project REF was subsequently determined under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). After consideration of submissions from the community, Roads and Maritime determined that the proposal could proceed.

The approved activity described in the Project REF was assessed on the basis of a concept design that would:

- Separate the road network from the Port Botany Freight Rail Line
- Provide a bridge over the stormwater channel running parallel to General Holmes Drive
- Provide a new intersection at General Holmes Drive and Wentworth Avenue
- Upgrade or adjust the intersections at:
 - Wentworth Avenue and Botany Road
 - General Holmes Drive and Mill Pond Drive
 - Botany Road and Mill Pond Drive
 - General Holmes Drive, Joyce Drive and Ross Smith Avenue
 - General Holmes Drive and Botany Road
- Widen Joyce Drive and a section of General Holmes Drive to three lanes in each direction
- Provide new facilities and relocate existing facilities for pedestrians, cyclists and public transport, including:
 - A new shared-use path linking to the existing cycleway at Todd Reserve on Wentworth Avenue
 - A new shared path on Botany Road from the Botany Road and Wentworth Avenue intersection to Baxter Road
 - Removing the pedestrian path on the northern side of Joyce Drive, which would be replaced with a new shared path along Baxter Road as part of a separate project.

After the Project REF was determined, designs for the proposal were further developed and detailed construction planning was undertaken. Some of these refinements were not considered or assessed in the Project REF. These proposed design amendments were incorporated into a 'revised proposal' which was the subject of the Addendum REF (April 2016) and included:

- Changes to lane configuration and lane marking to retain the two left turn lanes from Mill Pond Drive to Botany Road and enable vehicles turning right onto Mill Pond Drive from General Holmes Drive to turn left onto Botany Road

- Relocation of an existing illuminated digital advertising sign
- Installation of a new Variable Message Sign (VMS) on General Holmes Drive for northbound traffic
- Cut batter and utilities relocations at the intersection of General Holmes and Joyce Drive to support a property access slip lane on the southbound lane turning left into the General Holmes Drive cul-de-sac
- Use of an existing building located on land between General Holmes Drive and the Port Botany Freight Rail Line as a compound/office site during construction
- Relocation of existing Telstra utility infrastructure and construction of two communication pits within the existing pedestrian footpath at the southern end of Hardie Street
- Open trenching adjacent to Botany Road to allow for a minor realignment of existing sewer main infrastructure.

The activities described in the determined Project REF and determined Addendum REF (April 2016) will henceforth be referred to as the Project.

Figure 1-1 shows the location of the project area and Figure 1-2 shows an overview of the proposal as determined in the Project REF. Figure 2-1 shows the revised proposal, which generally fits within the project area, although some activities fall outside the project area and these are discussed further in Section 2.

1.3 Purpose of the addendum REF

This Addendum REF has been prepared by Aurecon on behalf of Roads and Maritime, Greater Sydney Program Office. For the purposes of these works, Roads and Maritime is the proponent and the determining authority under Part 5 of the EP&A Act.

The purpose of the Addendum REF is to describe the revised proposal, to document the likely impacts of these of proposed design changes on the environment, and to detail any additional safeguards and management measures to be implemented.

This Addendum REF should be read in conjunction with the determined Project REF and Addendum REF (April 2016).

The description of the proposed design amendments and associated environmental impacts referred to in this report have been undertaken in context of:

- Clause 228 of the Environmental Planning and Assessment Regulation 2000
- *Threatened Species Conservation Act 1995* (TSC Act)
- *Fisheries Management Act 1994* (FM Act)
- *Airports Act 1996*
- Federal Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

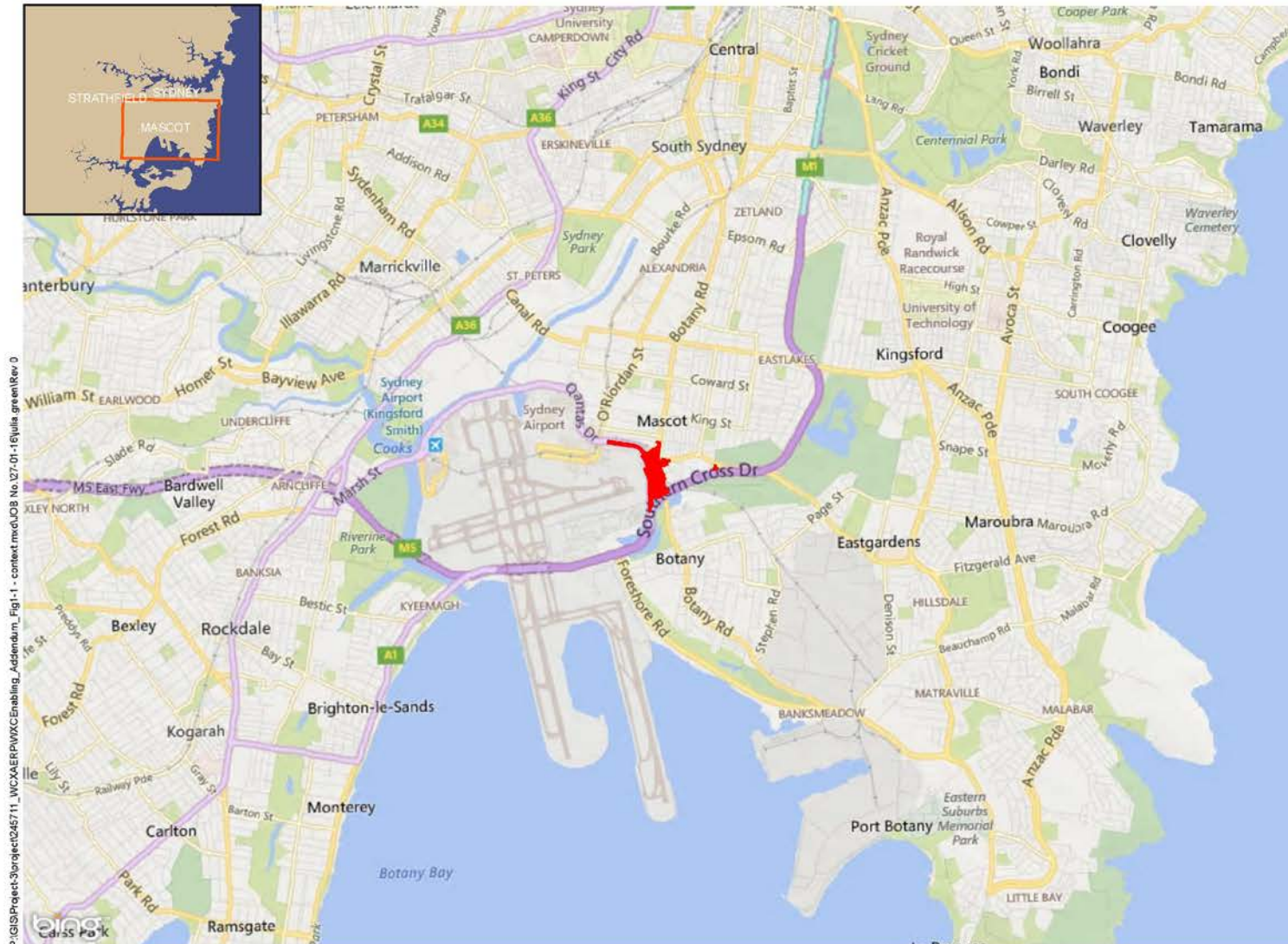
In doing so, the Addendum REF helps to fulfil the requirements of:

- Section 111 of the EP&A Act that Roads and Maritime 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 strategic assessment approval granted by the Federal Government under the EPBC Act in September 2015, with respect to the impacts of Roads and Maritime activities on nationally listed threatened species, ecological communities and migratory species.

The findings of the Addendum REF would be considered when assessing:

- Whether the revised 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 under Part 5.1 of the EP&A Act

- The significance of any impact on threatened species as defined by the TSC Act and/or FM Act, in section 5A of the EP&A Act and therefore the requirement for a Species Impact Statement
- The significance of any impact on nationally listed biodiversity matters under the EPBC Act, including whether there is a real possibility that the activity may threaten long term survival of these matters, and whether offsets are required and able to be secured
- The potential for the revised proposal to significantly impact other matters of national environmental significance or Commonwealth land
- Whether there is a need under the EPBC Act to make a referral to the Australian Government Department of the Environment for a decision by the Commonwealth Minister for the Environment.



Legend

■ Determined project area boundary

Source: Bing Maps, Aurecon, RMS, LPI

Airport East Precinct project

FIGURE 1-1: Regional Context for the proposal



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Source: Jacobs (2015) WestConnex Enabling Works - Airport East Precinct Review of Environmental Factors pg 4.

Projection: GDA 1994 MGA Zone 56

Airport East Precinct project

FIGURE 1-2: The project

2 Description of the proposal

2.1 The proposal

The Project is described in full in Section 3 of the Project REF. The key features of the Project include:

- Separating the road network from the Port Botany Freight Rail Line by:
 - Extending Wentworth Avenue beneath the Port Botany Freight Rail Line to link with General Holmes Drive. The Wentworth Avenue underpass would have nine lanes, with five lanes eastbound and four lanes westbound, and a minimum 4.7 metres clearance
 - Removing the General Holmes Drive rail level crossing of the Port Botany Freight Rail Line, improving safety and enabling increased speed for freight trains
- Adjusting and locally relocating utilities
- Providing a bridge over the stormwater channel running parallel to General Holmes Drive and installing a protection slab over sewer and gas utilities on the extension of Wentworth Avenue
- Providing a new intersection at General Holmes Drive and Wentworth Avenue
- Upgrading or adjusting the intersections at:
 - Wentworth Avenue and Botany Road
 - General Holmes Drive and Mill Pond Drive
 - Botany Road and Mill Pond Drive
 - General Holmes Drive, Joyce Drive and Ross Smith Avenue
 - General Holmes Drive and Botany Road
- Widening Joyce Drive and General Holmes Drive between about 100 metres east of O’Riordan Street and 175 metres south of Mill Pond Drive to three lanes in each direction
- Adjusting and locally relocating drainage infrastructure including:
 - Replacing the grassed swale at Joyce Drive with a pipe and pit system
 - Installing a permanent pump at the low point of the Wentworth Avenue underpass
- Landscaping and replanting road verges and the vacant area between General Holmes Drive and the Port Botany Freight Rail Line
- Providing new facilities and relocating existing facilities for pedestrians, cyclists and public transport, including:
 - A new shared-use path linking to the existing cycleway at Todd Reserve on Wentworth Avenue
 - A new shared path on Botany Road from the Botany Road and Wentworth Avenue intersection to Baxter Road
 - Removing the pedestrian path on the northern side of Joyce Drive, which would be replaced with a new shared path along Baxter Road as part of a separate project
 - Relocating the northbound bus stop on Botany Road about 70 metres to the south of its current location.
- Providing temporary construction ancillary facilities, including construction compounds, stockpile sites and erosion and sedimentation control measures.

The Project is located in the Botany Bay Local Government Area (LGA) and in the Roads and Maritime Greater Sydney Region. Sydney Airport is located to the west of the proposal. The proposal is located at the interface between the airport and the urban and residential areas of Mascot and Botany, to the east. Immediately to the south of the proposal lies wetland areas associated with Mill Pond.

2.2 The revised proposal

The revised proposal generally includes minor changes to the Project. The key features of the Project described in Section 2.1 continue to be included within the revised proposal. The revised proposal achieves the project objectives and is justified as described in the Project REF.

During detailed design development and detailed construction planning, several refinements and modifications were made to improve safety, overcome engineering constraints and to more effectively achieve the project objectives. These were not specifically assessed and considered in the Project REF and in the Addendum REF (April 2016) are the subject of this Addendum REF. The proposed design amendments are summarised in Table 2-1 and shown on Figure 2-1 to Figure 2-7. Section 2.2.1 provides further details of the proposed design amendments.

Table 2-1: Proposal design amendments considered in this Addendum REF

Item	Location of change	Activity assessed in the Project REF	Proposed design amendment
1	Joyce Drive / General Holmes Drive / Ross Smith Avenue intersection	The REF assessed the potential to upgrade or adjust the intersection at Ross Smith Avenue. This included provision of a wide median on Joyce Drive to facilitate a future right hand turn lane. General Holmes Drive (the former level crossing) would have a left in slip lane (from Joyce Drive southbound) and left out (to General Holmes Drive southbound). No right hand turn from this location would be possible.	Wide median reduced in width to incorporate a dedicated right hand turn lane for southbound traffic turning into Ross Smith Avenue. From General Holmes Drive (the closed level crossing), a new right hand turn lane will be incorporated for traffic turning north onto Joyce Drive.
2	North edge of General Holmes Drive, adjacent to its intersection with Joyce Drive.	The REF assessed the impacts of relocating the northbound bus stop on Botany Road however did not include provision for a temporary bus layover area during construction or determine the location of the new permanent bus stop.	Provision for a temporary bus layover to be located on the northern edge of General Holmes Drive during construction. The location of the new permanent bus stop is on Botany Road, south of the closed General Holmes Drive level crossing. A permanent bus layover is to be located north of the New Wentworth Avenue/Botany Road intersection.
3	Next to the northbound lane of General Holmes Drive, north of Mill Pond Drive	The retaining wall next to the northbound lane of General Holmes Drive (RW01) was included in the REF. However, further investigations were required during detailed design to confirm the need and design of the wall.	SACL has requested that a retaining wall (RW01) be included as part of the Airport East project to allow for future SACL construction plans.
4	East of Southern Cross Drive	Provision was made in the addendum REF (April, 2016) for installation of ITS conduits for a new VMS, however did not include conduits crossing the road and connecting to a new AusGrid electrical pillar.	Installation of new ITS conduits (communications and electricity) under Southern Cross Drive and within Bayside Council land to the east. These conduits will be connected to existing pits and cabinets. The proposed conduits are located outside the determined project area boundary.
5	Wentworth Avenue/Hardie Street intersection	The Project REF did not detail any change to the traffic movements at this intersection.	The design will result in the removal of the right hand turn movement from Wentworth Avenue to Hardie Street and from Hardie Street to Wentworth Avenue.

Item	Location of change	Activity assessed in the Project REF	Proposed design amendment
6	Botany Road to Baxter Road	About 130 metres of shared use path alongside the southbound lane of Botany Road between Wentworth Avenue and General Holmes Drive. A shared use path from Todd Reserve along the southern side of Wentworth Avenue to Botany Road.	No shared use path would be constructed on Botany Road. The proposed shared use path along Wentworth Avenue from Todd Reserve would still be constructed.

2.2.1 Overview of the revised proposal

Reconfiguration of the Joyce Drive / General Holmes Drive / Ross Smith Avenue intersection

The Project REF assessed the widening of the median at the intersection of Joyce Drive and General Holmes drive to allow for a future right turn lane into Ross Smith Avenue. The revised proposal involves reducing the width of the median to incorporate a dedicated right hand turn lane for southbound traffic turning into Ross Smith Avenue.

For vehicles travelling west from SACL and ARTC land (the former level crossing location), the revised proposal incorporates one left slip lane onto General Holmes Drive, one shared through and right hand turn lane and one dedicated right hand turn lane onto Joyce Drive.

Installation of a new bus layover and bus stop, including signage

The Project REF assessed the impacts of relocating an existing bus stop on Botany Road. The revised proposal allows for a temporary bus layover area to be used during construction and a permanent bus stop and layover area. The temporary layover area is proposed on General Holmes Drive, west of the level crossing. This space is currently at the edge of a driveway into ARTC land. The permanent bus stop is located on Botany Road, south of the closed General Holmes Drive level crossing. The permanent bus layover area is located to the north of the new Wentworth Avenue / Botany Road intersection.

Inclusion of RW01 retaining wall

The Project REF assessed the installation of seven retaining walls, however RW01 was earmarked for further investigations during the detailed design phase. In consultation with SACL, RW01 will be included in the Airport East project to allow for SACL's future development plans. RW01 will be a spaced pile wall and will be installed using piling rigs.

Installation of new ITS conduits

The addendum REF (April, 2016) made provision for the installation of additional ITS conduits for a new VMS which were outside the determined project area. The revised proposal includes the installation of additional communications and electrical conduits into new underground infrastructure. The conduits would cross under Southern Cross Drive and be connected to existing pits and cabinets. The final design and construction methodology will be determined by the contractor however it is assumed that the installation will be via open trenching. This activity would result in some excavation to the east of Southern Cross Drive and associated clearing of a grassed verge area. This activity is outside the approved project area.

Revised traffic movements at the Wentworth Avenue and Hardie Street intersection

The introduction of a concrete median to separate the different direction of traffic at the Wentworth Avenue / Botany Road intersection would impact on the ability to make a right hand turn from / to Wentworth Avenue. As such, the Wentworth Avenue / Hardie Street intersection will become a left-in / left-out only intersection.

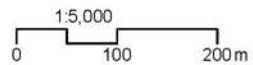
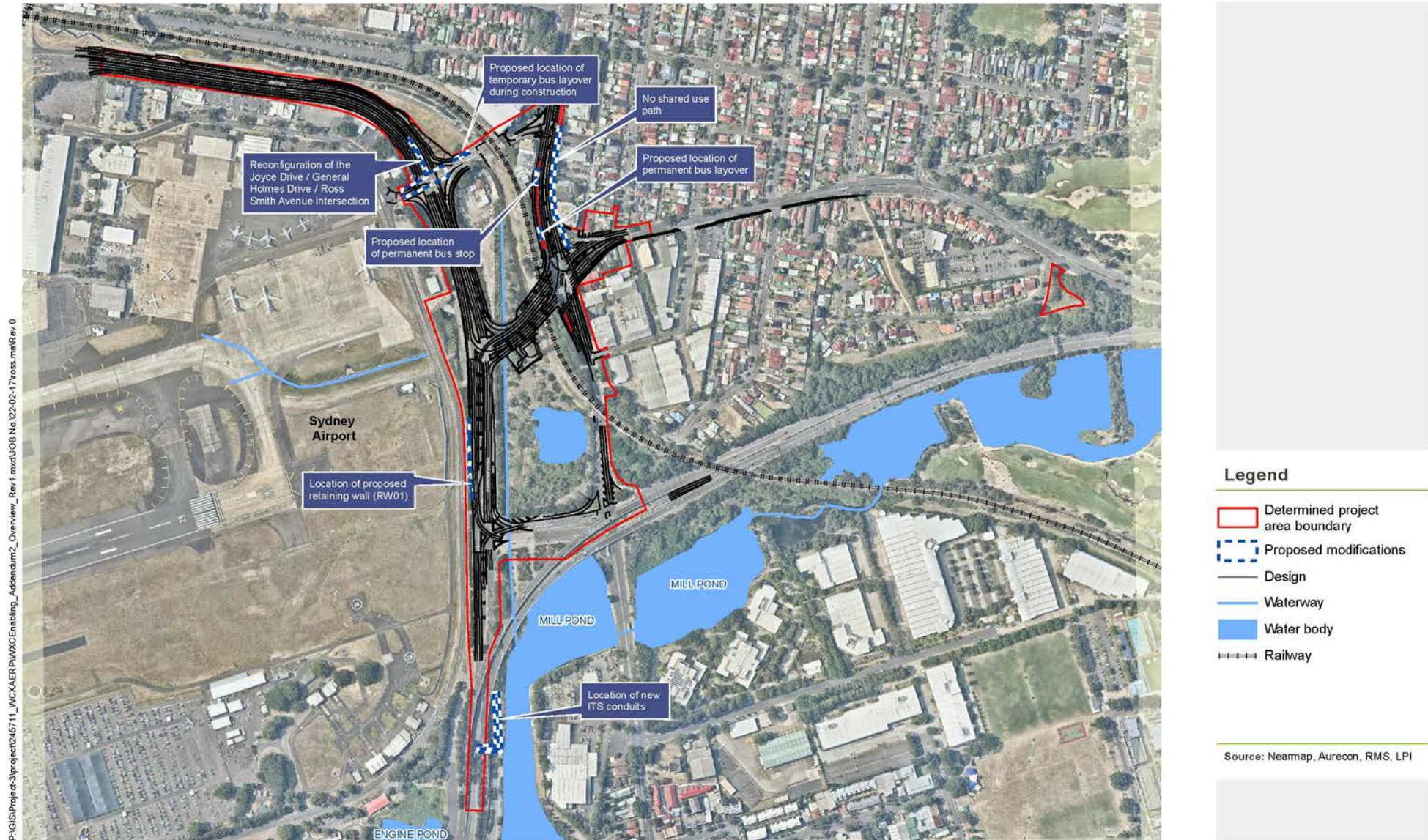
No shared use path along Botany Road

The Project REF identified the construction of about 130 metres of shared use path along Botany Road, from north of the Wentworth Avenue / Botany Road intersection to General Holmes Drive (former level crossing). This would have required the widening of the existing pedestrian footpath, removal of a number of mature street trees and relocation of utility assets (light poles).

The shared use path would not be able to be constructed due to a lack of appropriate space (a minimum of two metres is required) from existing utility assets and a current development application for an alfresco area adjoining the existing pedestrian footpath. The project will still include a shared use path along the southern edge of Wentworth Avenue from Todd Reserve to Botany Road. A pedestrian crossing is located across Wentworth Avenue at Botany Road. Under the revised proposal, the shared use path would tie into the upgraded pedestrian footpath along the eastern side of Botany Road between Wentworth Avenue and General Holmes Drive (former level crossing). Access would then be along Baxter Road (shared use path to be constructed as part of another project) and O'Riordan Street.

2.2.2 Property ownership

The revised proposal is located on land owned by Bayside Council and Commonwealth of Australia land currently leased to SACL, as shown on Figure 2-8.









Projection: GDA 1994 MGA Zone 56

Airport East Precinct project

FIGURE 2-1: The revised proposal

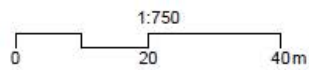


Legend

-  Proposed modifications
-  Determined project area boundary
-  Design
-  Waterway
-  Water body
-  Railway

Source: Nearmap, Aurecon, RMS, LPI

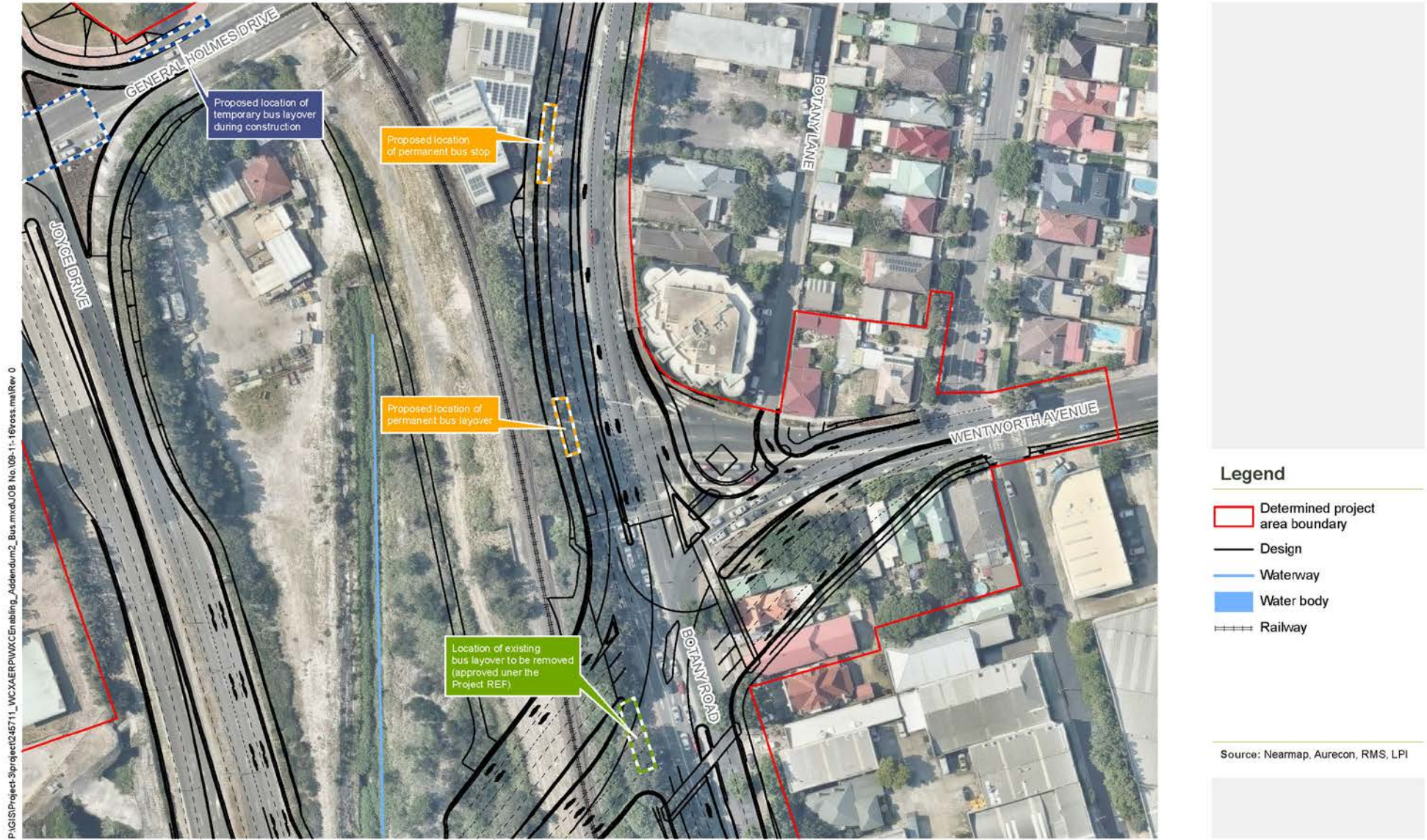
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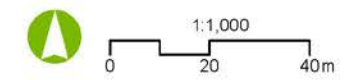
Projection: GDA 1994 MGA Zone 56

Airport East Precinct project

FIGURE 2-2: Joyce Drive / General Holmes Drive / Ross Smith Avenue intersection



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Projection: GDA 1994 MGA Zone 56

Airport East Precinct project

FIGURE 2-3: Temporary and permanent bus layovers

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Location of proposed spaced pile retaining wall (RW01)

Legend

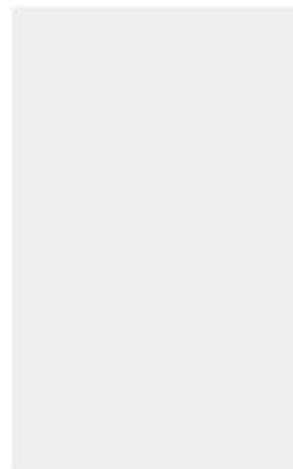
- Determined project area boundary
- Proposed modifications
- Communications conduit
- Electrical conduit
- Design
- Waterway
- Water body
- Railway

Source: Nearmap, Aurecon, RMS, LPI



Airport East Precinct project

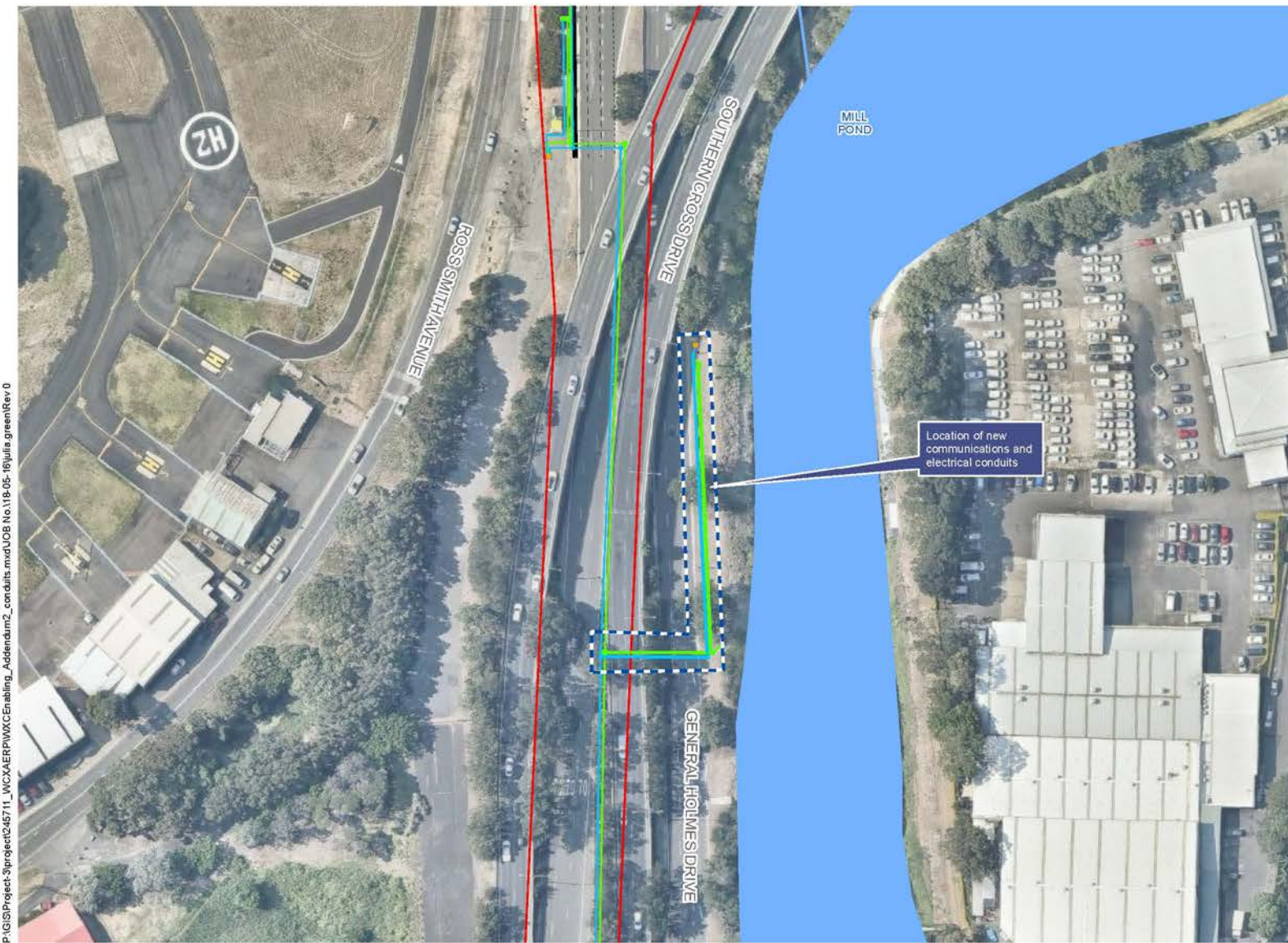
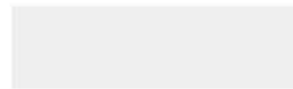
FIGURE 2-4: Retaining Wall



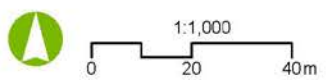
Legend

- Determined project area boundary
- Proposed modifications
- Communications conduit
- Electrical conduit
- Communication pit
- Electrical pit
- Existing power pole
- New AusGrid electrical pillar
- Design
- Waterway
- Water body
- Railway

Source: Nearmap, Aurecon, RMS, LPI



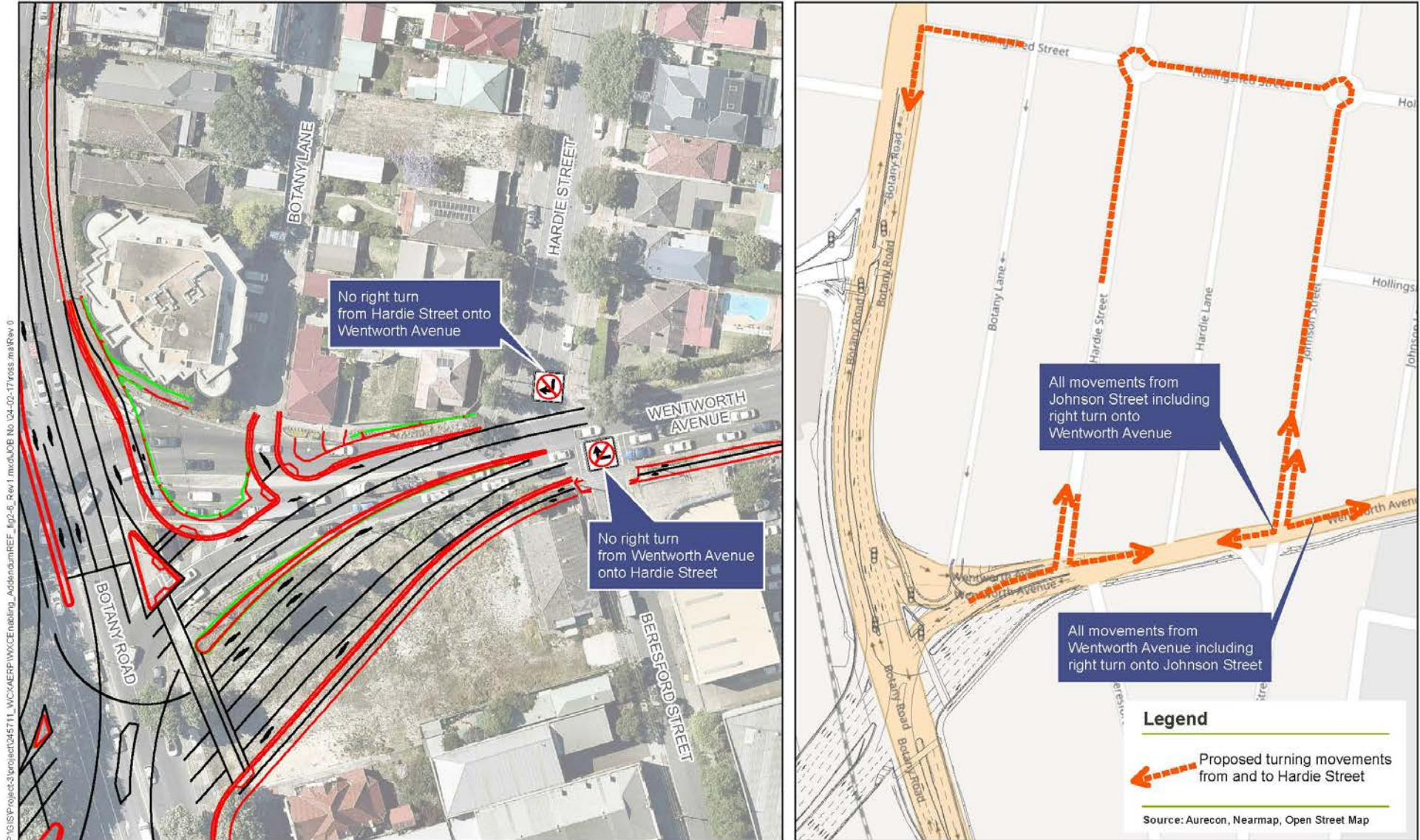
P:\GIS\Project-3\project245711_WCX\AERP\WXCE\enabling_Addendum2_conduits.mxd\JOB No.118-05-16\julia.green\rev 0



Projection: GDA 1994 MGA Zone 56

Airport East Precinct project

FIGURE 2-5: Electrical and communications conduits

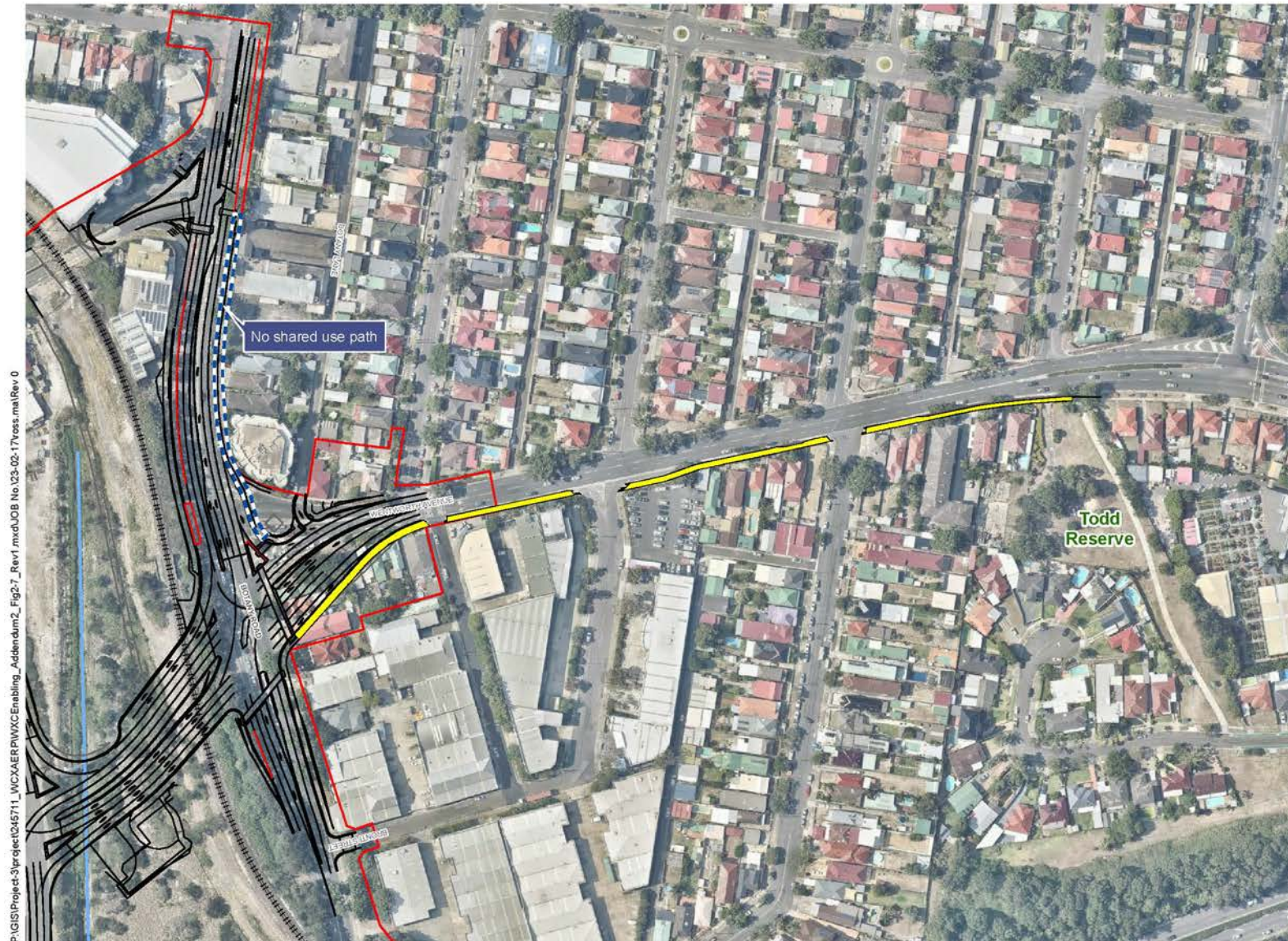


1:1,000
0 10 20m

Projection: GDA 1994 MGA Zone 56

WestConnex **Enabling Works Addendum REF**

FIGURE 2.6: Wentworth Avenue and Hardie Street intersection



Legend

- Proposed modifications
- Determined project area boundary
- Proposed shared use path (approved under Project REF)
- Design
- Waterway
- Railway

Source: Neamap, Aurecon, RMS, LPI



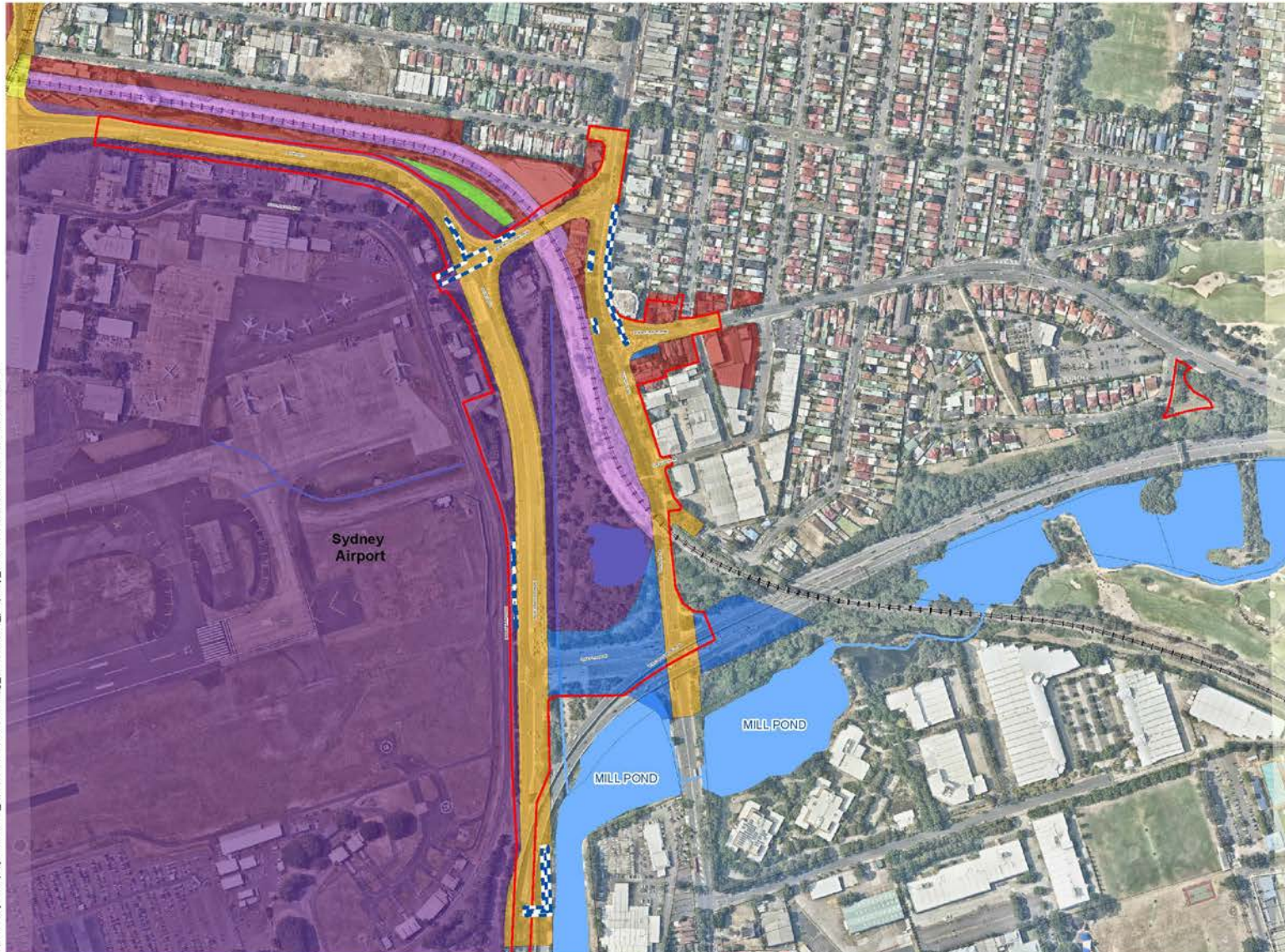
1:2,000
0 30 60m

Projection: GDA 1994 MGA Zone 56

Airport East Precinct project

FIGURE 2-7: Shared use path along Botany Road

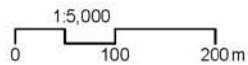
P:\GIS\Project-3\project\245711_WCX\AERP\WX\Enabling_Addendum2_property_Rev1.mxd\JOB No.123-02-17\toss.mat\Rev 0



Legend

- Proposed modifications
- Determined project area boundary
- Roads and Maritime Services NSW
- Commonwealth of Australia - leased to Sydney Airport Corporation Limited
- Rail Corporation NSW
- State Rail Authority of NSW
- Sydney Water Corporation
- Botany Bay City Council
- Private
- Cadastre
- Waterway
- Water body
- Railway

Source: Neamap, Aurecon, RMS, LPI



Projection: GDA 1994 MGA Zone 56

Airport East Precinct project

FIGURE 2-8: Property ownership

3 Statutory and planning framework

Chapter 5 of the Project REF provided the statutory and planning framework for the proposal and considered provisions of the relevant State Environmental Planning Policies (SEPPs), Local Environmental Plans (LEPs), other NSW legislation and Commonwealth legislation.

3.1 Relevant legislation

A review of the relevant State and Commonwealth legislation assessed in the Project REF has been undertaken in consideration of the revised proposal. The revised proposal would not result in any changes to the existing approval pathway or requirement identified in the Project REF. No additional or modified Commonwealth, state or local government legislation, environmental planning instruments or provisions are relevant to the revised proposal.

In regard to NSW approvals, Roads and Maritime is both the proponent and the determining authority for the revised proposal. Clause 94 of the State Environmental Planning Policy Infrastructure 2007 (ISEPP) provides that the proposal may be carried out without development consent and therefore is subject to assessment under Part 5 of the EP&A Act. The revised proposal would not change this assessment pathway and can also be assessed under Part 5.

Additional permits and approvals are required for the Project in addition to the Part 5 determination and these are detailed in Section 8.3 of the Project REF. These include an Environmental Protection Licence (EPL) for activities listed under Schedule 1 of the *Protection of the Environment Operations Act 1997*. For the Project, potential triggers under Schedule 1 were extractive activities, crushing, grinding or separating, waste processing or storage. During detailed design, the potential triggers were not met and as such an EPL for these triggers is not required.

However, the construction of the rail bridge over the Wentworth Avenue underpass and associated works is considered “Railway Systems Activity- Ancillary Works” under Schedule 1 of the *Protection of the Environment Operations Act 1997*. As such, an EPL is required.

Road and Maritime was issued with an EPL (20851) on 3 November 2016. Roads and Maritime transferred the EPL to the John Holland Pty Ltd on the 16 January 2017.

No further permits or approvals are required for the revised proposal.

3.2 Airports Act 1996

The Project is subject to:

- Sydney Airport’s Development Application and Consent Application processes to satisfy the requirements of the *Airports Act 1996* (the Airports Act)
- Application for a Building Permit to the Airport Building Controller (ABC) in accordance with the Airports (Building Control) Regulations 1996. The Sydney Airport Consent Application must comply with the conditions of the Development Approval
- Airspace approval in accordance with the Airports (Protection of Airspace) Regulations 1996C
- Compliance with the Airport (Environmental Protection) Regulations 1997.

Proposals under the Airport Act require one of the following approvals:

- Major development plan: This applies to any major airport development (as defined by Section 89(1) of the Airports Act)
- Building permit or works permit. This applies to any proposal for building or engineering works, as defined by Sections 2.02 and 2.03 of the Airports (Building Control) Regulations 1996.

3.2.1 Major development plan

The inclusion of the retaining wall RW01 as part of the revised proposal would be located on Commonwealth owned land prescribed in the Airports Act. Sydney Airport is leased to SACL and development is managed in accordance with the Sydney Airport Master Plan.

Section 89(1) of the Airports Act specifies development on Sydney Airport land that constitutes a 'major airport development'. Sydney Airport major airport development includes construction and modification of runways and taxiways, airport terminal buildings and other airport support facilities.

An assessment of whether the inclusion of retaining wall RW01 is a 'major airport development' under Section 89(1) of the Act was carried out and is provided in full in Appendix A. The assessment confirmed that the revised proposal would not meet the criteria under Section 89(1)(h), (j) and (k). Cost of construction of the project would exceed \$20 million, however the revised proposal is unlikely to cost this much if it were undertaken separately.

The Project has been designed to address existing and future traffic congestion and access issues, rather than to significantly increase the capacity of the airport to handle movements of passengers, freight or aircraft.

Section 89(1) of the Airports Act also includes environmental, community and sensitive development triggers for 'major airport developments' as follows:

(m) a development of a kind that is likely to have significant environmental or ecological impact; or

(n) a development which affects an area identified as environmentally significant in the environmental strategy; or

(na) a development of a kind that is likely to have a significant impact on the local or regional community; or

(nb) a development in relation to which the Minister has given an approval under Section 89A.

The assessment confirmed that the revised proposal would not meet the criteria associated with Section 89(1)(m), (n), (na), (nb) and (o) (refer to Appendix B). The revised proposal is therefore not considered to be a major airport development and a major development plan is not required.

3.2.2 Building permit

Section 2.02 of the Airports (Building Control) Regulations 1996 (the Airports Regulation) states that building or works approval applications are required for the following activities:

- Construction or alternation of a building (Clause 2(a))
- Construction or alternation of works (Clause 2(b))
- Demolition, destruction, dismantling or removal of a building, or works (Clause 2(c)).

The revised proposal on SACL land involves the inclusion of a retaining wall, which is considered to be 'building activities' under Section 98(1)(a), (c) and (d) of the Airports Act.

A development application for work on Commonwealth land would therefore be submitted to SACL under Section 2.03, Clause 1 of the regulations. Should this application be successful, SACL consent would be provided to Roads and Maritime with any relevant approval conditions for the revised proposal.

Roads and Maritime would then seek building activity approval from Sydney Airport's airport building controller, who is independently employed by the Commonwealth Department of Infrastructure and Regional Development.

Section 2.05 of the Airports (Building Control) Regulations 1996 lists the information that is required within an application. These requirements are considered in Table 3-1.

Table 3-1: Requirements for building activity approval application

Information about proposed building activity		Response and relevant section in this REF
(a)	A description of the proposed building activity, and its location on the airport site	The revised proposal is described in Section 2.2 and shown on Figure 2-1. The project is described in Section 2.1. A more comprehensive description of the project is provided in Chapter 2 of the Project REF.
(b)	If there is a final master plan for the airport — a statement describing how the proposed building activity is consistent with the plan	The revised proposal is consistent with the Sydney Airport Master Plan 2033 and the objectives of the zones it affects, as discussed in Section 3.2.4.
(c)	If the proposed building activity is, or comprises part of, a major airport development (within the meaning of section 89 of the Act) — a statement describing how the proposed building activity is consistent with:	The revised proposal does not comprise part of a major airport development, as discussed in Section 3.2.1 and Appendix B.
(i)	The approved major development plan for the airport	
(ii)	Any exemption declared under paragraph 90 (1) (d) of the Airport Act 1996.	
(ca)	If the proposed building activity is not, or does not comprise part of, a major airport development — a statement to that effect	The revised proposal is not, and does not comprise part of a major airport development, as discussed in Section 3.2.1.
(cb)	If the proposed building activity is, or comprises part of, a draft major development plan — a statement to that effect	The revised proposal is not, and does not comprise part of a draft major airport development, as discussed in Section 3.2.1.
(d)	If there is a final environment strategy for the airport — a statement describing how the proposed building activity is consistent with the strategy	The revised proposal is consistent with the Sydney Airport Environmental Strategy, as discussed in Section 3.2.5.
(e)	2 copies of the site plan for the proposed building activity, including a depiction of the proposed development resulting from the building activity	Figure 2-1 provides a site plan for the revised proposal.
(f)	A copy of any other information about the proposed building activity required by a regulatory authority, or other body having a regulatory function, in relation to the resulting building, works or demolition.	The Addendum REF includes information to meet Roads and Maritime obligations under: Part 5 of the EP&A Act, with regards to environmental assessment. The <i>Threatened Species Conservation Act 1995</i> (TSC Act), with regards to impact on threatened species and ecological communities.

3.2.3 Protection of airspace approval

Section 182 of the Airports Act defines any activity that intrudes into prescribed airspace as being a controlled activity. The Airports (Protection of Airspace) Regulations 1996 requires that the Commonwealth Department of Infrastructure and Regional Development (DIRD) or Sydney Airport operator to approve long and short term applications to carry out controlled activities and to impose conditions on an approval.

As discussed in Section 5.2.1 of the Project REF, equipment used for construction of other aspects of the Project would penetrate the Obstacle Limitation Surface (OLS) covering the airports east-west runway. Section 7.2.3 of the Project REF discusses how construction works that would impact on the OLS would be managed, with the main measure to mitigate these impacts being the partial closure of the east-west runway for two periods of one to two weeks. This would restrict aircraft operations on the east-west runway, with the exception to departures on runway 25 where aircraft would continue to be able to take off to the west.

The installation of retaining wall RW01 will be installed using piling rigs which may result in a temporary breach of the OLS during works. This work would be undertaken during the runway closure discussed above.

As the Project involves the erection of a structure that is not intended to remain in place for longer than three months, it is considered to be a short-term controlled activity under the Airports (Protection of Airspace) Regulations 1996. The Project would therefore require approval under Section 183 of the Airports Act. In the first instance, the application would be reviewed by SACL, after consultation with the Civil Aviation Safety Authority (CASA) and Airservices, or may be referred by the airport to DIRD for a decision.

Roads and Maritime is continuing to consult with SACL in relation to the interaction of the Project with Sydney Airport's airspace and necessary approvals. Further details of Sydney Airport's protected airspace are provided in the Project REF.

3.2.4 Sydney Airport Master Plan 2033

The Sydney Airport Master Plan 2033 has been prepared in accordance with the Airports Act and Part 5 of the Airports Regulations 1997, with regards to land use and related planning, zoning or development. It was approved by the Australian Government on 17 February 2014.

The Master Plan outlines Sydney Airport's plan for operation and development for a twenty-year period to 2033. It covers new major developments in Sydney Airport terminal and the upgrade of existing infrastructure. The plan also includes the improvement of ground transport infrastructure, including surrounding roads and intersections, while encouraging increased access by public transport, bicycles and pedestrians.

The Master Plan references the recommendations in the State Infrastructure Strategy for building WestConnex, fixing road pinch points in the Sydney Airport and Port Botany precinct, reducing rail fares to Sydney Airport, adding new bus routes to Sydney Airport and enhancing the capacity of freight rail lines. The revised proposal is therefore consistent with the master plan as it would improve road network efficiency and reduce congestion within the project area, thereby facilitating improved access to Sydney Airport.

Table 3-2 lists the objectives of the Sydney Airport Master Plan zones which overlap with the project area, a summary of their objectives and how the revised proposal is consistent with these objectives.

Table 3-2: Sydney Airport Master Plan zones affected by the revised proposal

Zone	Objective	Consistency of the revised proposal with the objectives
AD1 – Aviation Activity and Aviation Support Facilities	<ul style="list-style-type: none"> • Provide for aviation activities and aviation support facilities • Facilitate compatible and ancillary functions within the zone provided that development does not render the land unfit for aviation activities • Protect the long-term viability and operational efficiency of Sydney Airport for its primary function • To ensure heritage items are appropriately considered and managed • Coordinate the orderly and economic use and development of land until such time as it is required for aviation activities or aviation support facilities. 	<p>The primary use of the revised proposal is for roads, and is therefore permissible.</p> <p>The revised proposal is consistent with the second objective in that it would facilitate improved road conditions within the site, which is a compatible function with airport operations.</p>
BD1 – Business Development	<ul style="list-style-type: none"> • To enable a mix of business, retail and industrial uses in locations that are close to and that support the functioning of the airport • To integrate suitable and compatible land uses in accessible locations so as to maximise public transport patronage and encourage cycling • To encourage employment opportunities and promote businesses along main roads • Enable a limited range of other land uses that will provide facilities and services to meet the day-to-day needs of local workforce • To ensure heritage items are appropriately considered and managed • To maximise, where possible, the use of existing access and egress points. 	<p>The primary use of the revised proposal is for roads, and is therefore permissible.</p> <p>The introduction of a right hand turn into Ross Smith Drive would also maximise the existing access to Sydney Airport and therefore be consistent with the sixth objective.</p>
EC1 – Environmental Conservation	<ul style="list-style-type: none"> • Protect the ecological and scenic values of the waterways in this area • Maintain the health and natural water flows of the waterway • Enable maintenance dredging of the Mill Stream and related activities to maintain water depths and to ensure sedimentation accumulation is managed and controlled • To ensure heritage items are appropriately considered and managed. 	<p>The primary use of the revised proposal is for roads, and is therefore permissible.</p> <p>The revised proposal is not expected to increase the risks to the environment associated with the proposal. The proposal would maintain the health and functioning of adjacent waterways and therefore the revised proposal is considered to be consistent with this objective.</p>
BD2 – Enviro-Business Park	<ul style="list-style-type: none"> • Provide for a limited range of sustainable development, particularly for business purposes, that will not compromise the ecological, cultural 	<p>The revised proposal is not considered likely to compromise the ecological, cultural or scientific value of any land and is therefore consistent with the first</p>

Zone	Objective	Consistency of the revised proposal with the objectives
	<p>or scientific value of this land or adjacent land including the Mill and Engine Ponds and the Mill Stream</p> <ul style="list-style-type: none"> • Ensure buildings achieve design excellence having particular regard to the surrounding natural and built environment and the associated sensitivities • Encourage appropriate employment opportunities in accessible locations • Enable a limited range of other land uses that will provide facilities and services to meet the day-to-day needs of the local workforce • Incorporate appropriate environmental management principles and controls into development proposals • To ensure heritage items are appropriately considered and managed. 	<p>objective. It is also consistent with the fifth objective in that it incorporates appropriate management principles and controls that were identified in the Project REF and modified in the subsequent Submissions Report, and would continue to do so in any subsequent environmental assessment documentation.</p>

3.2.5 Sydney Airport Environment Strategy 2013-2018

The revised proposal is consistent with the Sydney Airport Environment Strategy 2013-2018 which forms part of the Master Plan.

With regards to Section 89(1)(m) of the Airports Act, the revised proposal is assessed as not being a development of a kind that is likely to have a significant environmental or ecological impact. With regards to Section 89(1)(n), the revised proposal is assessed as not being a development which affects an area identified as environmentally significant in the Sydney Airport Environment Strategy 2013-2018. While the revised proposal is upstream of the Mill Ponds/ Sydney Airport Wetlands which is an environmentally significant area, the revised proposal is not expected to cause any impacts on the heritage and environmental values of these areas.

3.2.6 National Airports Safeguarding Framework

The National Airports Safeguarding Framework aims to improve community amenity by minimising aircraft noise-sensitive development near airports, and to improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions. The revised proposal is not considered likely to affect any matters associated with aviation safety that were not considered in the Project REF. The revised proposal is therefore considered to be consistent with the National Airports Safeguarding Framework as the proposal has recognised and addressed aviation safety requirements associated with design and construction of the proposal (refer to Section 4 of the Project REF). The Project REF also considers the impacts of the proposal on aircraft noise, particularly during construction (refer to Section 7.7 of the Project REF).

3.3 Confirmation of statutory position

All relevant statutory planning instruments have been examined for the revised proposal. It is concluded that the ISEPP continues to override the development consent requirements, thereby permitting assessment of the revised proposal under Part 5 of the EP&A Act.

4 Stakeholder and community consultation

4.1 Consultation undertaken for the Project

Roads and Maritime has been consulting with the community and affected stakeholders associated with the Project on an ongoing basis since September 2013. The purpose of this consultation has been to:

- Involve key government agencies and stakeholders in the evaluation of options for the Project
- Seek community feedback on the Project
- Receive comments from those affected by the Project
- Seek community ideas to be considered in the concept design
- Advise directly affected stakeholders of the Project and potential impacts
- Advise the community how they can obtain further information or communicate concerns, complaints or suggestions.

The Project REF was displayed for community comment in February and March 2015. Feedback was received from 11 people and organisations, with the main comments relating to:

- The impact of the Project on traffic volumes, local traffic and access
- Suggestions to alternative Project and changes to the design
- Noise impacts on private property and land leased to SACL
- Suggestions and queries regarding cyclist facilities.

Further details of the consultation undertaken prior to determination of the Project are provided in Section 6 of the Project REF.

4.2 Consultation undertaken for the revised proposal

Roads and Maritime has continued to consult with the community and stakeholders about the project since determination of the Project REF. This has been directed by a Stakeholder and Community Participation Plan that was prepared for the Project by Aurecon in March 2015. The aims of this plan are to:

- Identify stakeholders, potential issues and recommended communication activities
- Provide opportunities for key stakeholder to be involved in the detailed design as necessary
- Keep key stakeholders, businesses and residents informed of the progress of the detailed design and seek to engage them throughout the process
- Provide a general level of awareness for those in the broader community.

Stakeholders consulted in relation to the revised proposal included SACL (inclusion of the retaining wall and the changes to the Joyce Drive / General Holmes Drive / Ross Smith Avenue intersection) and Sydney Buses (bus laydown area). Sydney Buses were consulted on the location of the permanent bus stop. A location to the south of the new Wentworth Avenue underpass was not preferred as buses would stop in the travelling lane, resulting in short term delays to traffic. A location north of the Wentworth Avenue underpass was preferred.

Surrounding property owners were consulted regarding the removal of the bus stop and the removal of the right turn from Wentworth Avenue into Hardie Street:

- On 7 February 2017, a doorknock of residents and businesses in Merchant Street, Beresford Street and Bronti Street was carried out. No issues were raised about the removal of the bus stop. One resident mentioned that they walk to a further stop on Botany Road as the stop to be removed is in an isolated spot. There were a number of questions related to the location of the bus stop post-construction. Roads and Maritime Services will notify residents about the permanent bus stop location after this is finalised.
- On 9 February 2017, a doorknock of surrounding residents and businesses was carried out in relation to the changes to the right turn into and out of Hardie Street. Only three residents were

home and available to discuss the matter. Flyers were left for properties where nobody was home. No contact has since been made by those parties. Residents that were spoken to during doorknocking did not raise any concerns about the closure of the right turn. All residents spoken to were aware that the closure was already in place and accepted it. A full consultation record for this doorknock is provided in Appendix C

- On 20 February 2017, a doorknock of surrounding residents and businesses was carried in relation to the closure of the right turn into Hardie Street. About half of residents on Hardie Street were home and available to discuss the matter. Flyers were left for properties where nobody was home. No contact has since been made by those parties. Residents that were spoken to during doorknocking did not raise any concerns about the closure of the right turn. All residents spoken to were aware that the closure was already in place and accepted it. A full consultation record for this doorknock is provided in Appendix C.

4.3 Aboriginal community involvement

A search of the Aboriginal Heritage Information Management System (AHIMS) was undertaken as part of the Project REF on 22 August 2014 which did not identify any known Aboriginal heritage objects or places within the study area. Additional searches were carried out on 22 January 2016 and 3 March 2016 for the Addendum REF (April, 2016). An additional AHIMS search was undertaken on 17 May 2016 in accordance with the Roads and Maritime *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (PACHCI) Stage 1 which confirmed the absence of recorded Aboriginal heritage objects or places in the project area.

As there were no registered Aboriginal heritage sites near the Project, no consultation with the Aboriginal community was required during preparation of the Project REF. Given that the design refinements being assessed do not substantially change the study area being assessed, and given that no additional heritage records were identified on the AHIMS register, no consultation was undertaken with the Aboriginal community for this Addendum REF.

4.4 ISEPP consultation

Sections 13 to 16 of the ISEPP include consultation requirements and matters that need to be taken into consideration for works undertaken under Part 5 of the EP&A Act. As required under these Clauses 13 to 15, Roads and Maritime notified Botany Bay City Council on 1 August 2014 because the Project was predicted to have an impact on the following:

- Council managed infrastructure and services (ie roads, footpaths, public transport facilities)
- Two local heritage items that would be demolished for the Project (these are described further in Section 7.3 of the Project REF)
- Drainage and flood behaviour in the project area.

Botany Bay City Council did not raise any formal objections to the Project in response to the ISEPP notification. Further ISEPP consultation with Council was not formally undertaken in relation to the revised proposal however Roads and Maritime has been consulting regularly with Botany Bay City Council about the Project on an ongoing basis.

The revised proposal did not trigger the need for consultation with other authorities under Clause 16 of the ISEPP.

4.5 Ongoing or future community and stakeholder engagement

Roads and Maritime would continue to engage with the community and stakeholders during construction of the project. Community and stakeholder engagement activities during construction would include, but not be limited to:

- Community updates.
- Webpage updates (<http://www.rms.nsw.gov.au/projects/sydney-south/sydney-airport/airport-east-precinct.html>)

- Letterbox drops
- Media releases and traffic alerts
- Door knocking
- Temporary variable message signs
- Social media

The audience of ongoing consultation would include local residences, businesses, wider community, road users, State and Federal members of Parliament, Council and other government agencies.

5 Environmental assessment

This section of the Addendum REF provides a detailed description of the potential environmental impacts associated with the construction and operation of the revised proposal, where this is different from the assessed outcomes in the determined Project REF.

Site-specific safeguards are provided to ameliorate the identified potential impacts where these are additional to those identified in the Project REF.

5.1 Issue identification

The existing environment described in the Project REF is consistent with the existing environment potentially impacted and assessed by the revised proposal. As such, the existing environment information throughout this section has not been duplicated within the Addendum REF.

A large number of the potential environmental impacts identified and assessed in the Project REF are unchanged by the revised proposal.

Table 5-1 provides a summary of the differences in impact between the Project described in the Project REF and the revised proposal described in Section 2.1. Where additional potential impacts or differences in impacts as a result of the refined activity are identified, further assessment is provided.

The safeguards and management measures developed in the Project REF were subsequently modified by the Airport East Precinct – WestConnex Enabling Works Submissions Report (Jacobs, 2015b) (the Submissions Report). The implementation of these measures was considered in the context of the revised proposal and where required, additional safeguards and measures were developed.

Table 5-1: Identification of issues for further assessment

Aspect	Further assessment required?	Reasoning
Traffic and access	Yes	<p>The revised proposal would result in alterations to traffic flow and lane changes during operation. These impacts are due to the changes at the Joyce Drive / General Holmes Drive / Ross Smith Avenue intersection (Refer to Section 5.2).</p> <p>The permanent bus layover area may also have minor impacts to the traffic flow, as a bus may temporarily sit in the bus lane on Botany Road, resulting in buses needing to merge into the next lane. There would not be any impact on the operation of the intersection, with vehicles turning left from Wentworth Avenue onto Botany Road northbound being unimpeded.</p> <p>Minimal impacts from buses stopping at the relocated bus stop are anticipated due to the location of the bus stop in the bus lane would also minimise any impacts to general traffic.</p> <p>The changes to the Wentworth Avenue / Hardie Street to a left-in/left-out intersection would mean that traffic wanting to access Hardie Street or Wentworth Avenue may need to change their travel path. This could result in minor increases travel times for vehicles, while improving traffic flow on Wentworth Avenue in vicinity of the Wentworth Avenue / Botany Road intersection.</p> <p>The removal of the proposed shared use path along Botany Road to General Holmes Drive would only have minimal impacts on pedestrian and cyclist access. While a shared use path would not be provided, the existing pedestrian footpath would still be in use. The shared use path for the Project would travel from Todd Reserve (on Wentworth Avenue) to the intersection with Botany Road, where a pedestrian crossing would direct pedestrian and cyclists across Wentworth Avenue to the eastern side of Botany Road. From this point it would connect into the upgraded pedestrian footpath.</p>
Airport Operations	No	<p>The revised proposal would not result in any changes to airport operations in addition to those described in the Project REF. The revised proposal may involve the temporary intrusion of construction equipment into prescribed air space associated with Sydney Airport by piling rigs use to install the retaining wall. This is not expected to result in any additional impacts above those described in the Project REF, as the additional activities would be undertaken at the same time as other works that would also result in this impact. This is discussed further in Section 3.2.3.</p>
Noise and vibration	Yes	<p>The revised proposal would involve minor construction works in areas outside the project area assessed for the Project REF for installation of additional ITS conduits and construction of the retaining wall.</p>
Non-Aboriginal heritage	No	<p>The revised proposal is not in proximity to any non-Aboriginal heritage items identified in the Project REF. Therefore no additional heritage impacts are considered likely.</p>

Aspect	Further assessment required?	Reasoning
Biodiversity	Yes	The revised proposal would require clearing of road-side verge and median area vegetation in small areas outside the area assessed for the Project REF. Vegetation clearing would be required for the installation of the new electricity and communications infrastructure (refer to Section 5.3).
Hydrology	No	The revised proposal would not increase the potential hydrology or flooding impacts of the proposal provided the mitigation measures described in Table 6.1 of the Submissions Report are implemented.
Landscape character and visual amenity	Yes	<p>The revised proposal would result in minor, localised visual impacts during construction for the installation of new ITS conduits. Trenching and vegetation removal will be undertaken outside the determined project area (refer to Section 5.4).</p> <p>The removal of the proposed shared use path along Botany Road would allow two street trees to be retained. These trees are of visual amenity importance and were identified in the Project REF as urban native and exotic cover. This change would result in an improved street amenity from the approved Project.</p>
Topography, geology, soils and water quality	No	The revised proposal would require minor additional soil disturbance compared to the Project REF. This could result in minor additional erosion and sedimentation impacts during construction, although these would be adequately managed through implementation of the soil and water management plan that would be prepared by the Construction Contractor (refer to Section 7.8 of the Project REF).
Contamination	No	<p>The revised proposal would require minor additional soil disturbance in roadside locations. The Project REF identifies the General Holmes Drive road corridor as high risk for containing PAH's above guideline levels. The Project REF states however, that contamination represents a minor risk to human and environmental health and can be effectively managed through standard safeguards and management measures. In addition, separate to this Addendum REF, further contamination testing is being undertaken.</p> <p>The mitigation measures developed for the Project REF would be implemented for the revised proposal and therefore the revised proposal is not likely to increase the risk of impacts associated with contamination.</p>
Air quality	No	The revised proposal would not increase the impact of the proposal on air quality during construction or operation.
Aboriginal heritage	No	The Project REF determined the potential for impacts on Aboriginal heritage is low. The majority of the revised project area is consistent with the area assessed within the Project REF, however as part of the revised proposal is located outside the project area assessed in the Project REF, an updated AHIMS search was undertaken on 17 May 2016. This search found no new recordings of Aboriginal heritage within additional disturbance areas associated with the revised REF. As such, there are no further impacts to Aboriginal heritage anticipated for the revised proposal.

Aspect	Further assessment required?	Reasoning
Land use and property	No	The revised proposal would not result in any additional land use impacts, restrictions to property access or require any property acquisition above that described in Section 7.12 of the Project REF.
Socio-economic	No	The revised proposal involves minor overall changes that would not increase the potential socio-economic impacts and benefits of the proposal, as described in the Project REF.
Greenhouse gas and climate change	No	The revised proposal would not increase the greenhouse gas emissions or climate change risks during construction or operation of the proposal.
Waste and resource management	No	The revised proposal would result in a marginal increase in the impact of the proposal on waste and resource management. This would occur through the general of small amounts of green waste from vegetation clearing and minor earthworks.
Cumulative impacts	No	The revised proposal would not increase the cumulative impact of the approved activity.

5.2 Traffic and access

The extent and magnitude of potential impacts of the Project on the road network and road users were assessed in the Traffic and Transport Working Paper (Jacobs, 2014), which was included in the Project REF.

A technical note was then prepared by Cardno in November 2016 (*WestConnex Enabling Works – Airport East Precinct Traffic Modelling Assessment (General Holmes Drive/ Joyce Drive/ Ross Smith Avenue)*) (Cardno, 2016) to outline additional traffic modelling of further scenarios for the Project. This included the changes proposed at the Joyce Drive / General Holmes Drive / Ross Smith Avenue intersection. Results of this modelling are discussed further below.

Some minor impacts are expected to be associated with the new permanent bus stop and bus layover as well as the changes to the Wentworth Avenue / Hardie Street intersection.

The other aspects of the revised proposal are not expected to result in any additional traffic or access impacts as they are minor amendments to a large construction program and would not generate any additional traffic movements.

5.2.1 Existing environment

The Project REF considered the Project in relation to traffic volumes, congestion, crash history, pedestrian and cyclist access, property access, parking, bus routes and heavy vehicles.

Section 2.3 of the Project REF provides a comprehensive overview of the existing road network surrounding the Project and Section 7.1 of the Project REF provides an assessment of traffic and access impacts.

Section 5.2 of the Addendum REF (April, 2016) assessed the impacts of changes to traffic flows around the proposed rearrangements of intersections at Mill Pond Drive, Botany Road and General Holmes Drive.

Traffic at the section of General Holmes Drive between Joyce Drive and Botany Road was found to be substantially lower than traffic volumes at other locations due to the rail level crossing, which requires the road to be closed periodically during the day.

5.2.2 Potential impacts

Construction impacts

An area on General Holmes Drive to the west of the level crossing will be used as the bus layover during construction to compensate for the removal of the bus stop on Botany Road. To access the bus layover site, buses will need to travel northbound on General Holmes Drive, turning right into General Holmes Drive level crossing. This will increase bus movements on General Holmes Drive.

There will also be construction impacts associated with the changes to the Joyce Drive / General Holmes Drive / Ross Smith Avenue intersection. The construction of the right hand turn lane into Ross Smith Avenue would be undertaken while maintaining operation of General Holmes Drive. Works may need to occur outside peak hours and potentially at night to avoid large disruption to traffic.

There is potential impacts to other road users and pedestrians due to construction works being undertaken adjacent to operating traffic lanes, movement of construction vehicles and access restrictions to footpaths. These impacts have however been captured in the Project REF as these works are within the determined project boundary.

Operational impacts

The permanent bus layover is situated within the bus lane north of the Wentworth Avenue/ Botany Road intersection. As such, it would have minor traffic impacts, with no impact on the operation of the intersection, with vehicles turning left from Wentworth Avenue onto Botany Road northbound being unimpeded. Buses that would use the bus lane on Botany Road, would need to use the middle lane should there be a bus stationary at the bus layover area before moving into the bus lane.

There would be no traffic impact from the permanent bus stop location. The new bus stop has been moved to the north of the new Wentworth Ave / Botany Road intersection to locate the bus stop in the dedicated bus lane to allow free flow in the travelling lanes to the south of the intersection. In addition, moving the bus stop north of the intersection will increase patronage as it would cater for buses travelling north along Botany Road (routes 303, 309, 310, L09, M20, X09, X10) and route 301 from Wentworth Avenue. The bus stop is located an appropriate distance from the General Holmes Drive intersection so that it would not affect turning vehicles.

There would be changes to the operation of the Wentworth Avenue / Hardie Street intersection. This would result in the intersection becoming a left-in / left-out intersection. This could result in some local traffic disruption, with residents living in Hardie Street not being able to make a right turn from Wentworth Avenue to access Hardie Street and would not be able to make a right turn into Wentworth Avenue. Access to Hardie Street would still be available from Wentworth Avenue as a left hand turn. Alternative travel paths are available through the use of surrounding local roads (refer to Figure 2-7), and the disruption would mostly affect only local traffic. This may increase the travel times for those residents. Community consultation on this matter, outlined in section 4.2, has indicated a very low level of concern from residents on Hardie Street about the changed access.

However, the removal of this right turn would have a positive impact on the traffic flow by not impeding the traffic at the traffic lights at Wentworth Avenue / Botany Road. In addition, a review of crash data presented in the Traffic and Transport Working Paper (Jacobs, 2014), indicated that in 2011- 2012, there were 15 road crashes at the Hardie Street / Wentworth Avenue / Beresford Street intersection. More than two thirds of these crashes were opposing direction or same direction (rear end). The removal of the right turn would also, therefore reduce the number of crashes at this location. Overall, the change at the Wentworth Avenue / Hardie Street intersection would have a positive impact on road safety.

The removal of the proposed shared use path along Botany Road to General Holmes Drive (former level crossing) would have minimal impacts on pedestrian and cyclist access. The project incorporates a shared use path which would allow pedestrians and cyclists to travel from Todd Reserve (on Wentworth Avenue) to the intersection with Botany Road, where a pedestrian crossing would direct pedestrian and cyclists across Wentworth Avenue to the eastern side of Botany Road. From this point it would connect into an upgraded footpath, which would accommodate pedestrians and dismounted cyclists only. Neither pedestrians or cyclists would be able to cross the current level crossing, however they would still have access to General Holmes Drive via Baxter Road and O’Riordan Street.

The changes to the lane configuration on Joyce Drive would result in some changes to the operation of the Joyce Drive / General Holmes Drive / Ross Smith Avenue intersection. The right hand turn lane from Joyce Drive southbound into Ross Smith Avenue will be about 60 metres long and is not expected to be a heavily trafficked movement. This right hand turn movement supplements the right hand turn movement into the airport at the O’Riordan Street / Joyce Drive intersection.

In addition, the revised proposal will include a right hand turn lane from the closed General Holmes Drive level crossing to Joyce Drive. The closed level crossing will provide access to SACL and ARTC land. As such, the right hand turn movement is expected to be used infrequently.

Traffic modelling undertaken for the proposal modelled the base (existing) and revised right hand turn scenarios to investigate the impact of this movement on traffic condition in two future scenarios – 2018 and 2023.

Midblock performance

Midblock performance of the Joyce Drive / General Holmes Drive / Ross Smith Avenue intersection was calculated by comparing the average modelled speed with the posted free flow speed of the proposal (approved project) and the revised proposal. The midblock assessment was undertaken for the section of General Holmes Drive between Mill Pond Drive and Joyce Drive. The level of service (LoS) categories are presented in Table 5-2.

Table 5-2: Midblock level of service

Travel speed as a percentage of free flow speed	Level of service (LoS)
>85%	A
>67%-85%	B
>50%-67%	C
>40%-50%	D
>30%-40%	E
<30%	F

The results presented in Table 5-3 show that there is a marked improvement in the midblock performance between the base case and the revised proposal in most scenarios with the exception of PM peak periods in 2023.

Table 5-3: Midblock performance

Year	Road	Direction	Base case				Revised proposal			
			AM		PM		AM		PM	
			Free flow	LoS	Free flow	LoS	Free flow	LoS	Free flow	LoS
2018	Joyce Drive (O’Riordan Street to General Holmes Drive)	EB	70%	B	50%	D	100%	A	72%	B
		WB	60%	C	50%	D	73%	B	75%	B
	General Holmes Drive (Joyce Drive to Mill Pond Drive)	NB	20%	F	70%	B	73%	B	74%	B
		SB	70%	B	50%	D	84%	B	45%	E
2023	Joyce Drive (O’Riordan Street to General Holmes Drive)	EB	<10%	F	<10%	F	96%	A	<10%	F
		WB	<10%	F	<10%	F	61%	C	<10%	F
	General Holmes Drive (Joyce Drive to Mill Pond Drive)	NB	<10%	F	<10%	F	49%	D	<10%	F
		SB	<10%	F	<10%	F	81%	B	<10%	F

Travel time assessment

A travel time assessment analysed the impact of the proposed lane configuration on vehicle times along Joyce Drive, General Holmes Drive and Southern Cross Drive (Table 5-4). The assessment identified that compared to the Base Case, there would be reductions in journey times. However, the PM peak period in 2023 would be fully congested under both the Base Case and the revised proposal.

Table 5-4: Travel time performance

Year	Route	Averaged vehicle time			
		Base Case [#]		Revised proposal	
		6AM to 9AM	3PM to 6PM	6AM to 9AM	3PM to 6PM
2018	Joyce Drive to General Holmes Drive	06:26	06:03	05:25 (-01:01)	03:57 (-02:06)
	General Holmes Drive to Joyce Drive	13:15	11:48	10:03 (-03:12)	06:32 (-05:16)
	Joyce Drive to Southern Cross Drive	07:28	06:00	06:42 (-00:46)	05:14 (-00:46)
	Southern Cross Drive to Joyce Drive	14:50	16:42	09:55 (-04:55)	14:22 (-02:20)
2023	Joyce Drive to General Holmes Drive	11:28	*	05:47 (-05:41)	*

ID	Impact	Environmental safeguards	Responsibility	Timing
		<p>equipment to and from the site to limit traffic delays</p> <ul style="list-style-type: none"> – Other Roads and Maritime roadwork and any work by other agencies that affect traffic flow – Schedules, abnormal loads and other specific aspects of transport with transport operators – Consultation with local councils to identify, evaluate and document alternative routes – Incident response with emergency services. <ul style="list-style-type: none"> • Maintenance of continuous, safe and efficient movement of traffic for both the public and construction crew • Haulage routes and access arrangements to minimise impacts on local routes • Construction traffic zones around work areas • Access provisions for local roads and properties • Maintenance of pedestrian access • Provision for appropriate warning and signposting • Requirements and methods to consult with and inform the local community of impacts on the local road network and traffic, as well as impacts on individual property access. <p>A Vehicle Movement Plan will be prepared as part of the overall TMP. The Vehicle Movement Plan will assess construction-related heavy vehicle movements per shift into and out of the construction sites, and provide guidelines for limiting impacts on traffic using the road network.</p>		Pre-construction
TR-2	Impact to traffic from construction site access	<p>All access points to the construction site and site roads will:</p> <ul style="list-style-type: none"> • Have safe intersection sight distance • Accommodate the turning movements of the largest heavy vehicles • Provide painted median treatments for vehicle delineation • Provide suitable intersection layouts. 	Construction contractor	Construction
TR-3	Impact on access to bus stops during construction	<ul style="list-style-type: none"> • Local bus operators will be consulted during detailed design regarding location and provision of access to bus stops during construction. 	Roads and Maritime	Detailed design
TR-4	Building rail bridges during scheduled rail possession	<ul style="list-style-type: none"> • Roads and Maritime will consult with Port Botany and Australian Rail Track Corporation (ARTC) during detailed design to confirm that the proposal will avoid disturbance and impact on 	Roads and Maritime	Detailed design

ID	Impact	Environmental safeguards	Responsibility	Timing
		operations during construction where practicable.		
TR-5	Impact on access for emergency services	<ul style="list-style-type: none"> • Consultation with emergency service authorities will be carried out during development of the detailed design including with NSW Fire Rescue. 	Roads and Maritime	Detailed design
TR-6	Impact on pedestrian and cyclist access during construction	<ul style="list-style-type: none"> • Pedestrian and cyclist access will be maintained throughout construction. • Appropriate signage communicating diversion routes to pedestrians and cyclists will be displayed during construction. • Advance notification will be provided of any construction works that affect pedestrians and cyclists. 	Construction contractor	Construction
TR-7	Impact on property access	<ul style="list-style-type: none"> • Vehicular property access will be maintained including at places of worship and to all commercial premises. Should property access be affected by the proposal, residents will be consulted before any work begins. 	Construction contractor	Construction
TR-8	Impact on access to bus stops	<ul style="list-style-type: none"> • The community will be provided with ongoing updates on locations and access to bus stops during the construction period to ensure that disruption is minimised. 	Construction contractor / Roads and Maritime	Construction
TR-9	Alternate linemarking strategies	<ul style="list-style-type: none"> • Roads and Maritime will consider alternate linemarking strategies on the Southern Cross Road off-ramp (westbound). 	Roads and Maritime	Detailed design
TR-10	Dedicated left turn lane from Southern Cross Drive onto Botany Road	<ul style="list-style-type: none"> • Roads and Maritime will confirm the viability of upgrading the left turn slip lane on Southern Cross Drive to a dedicated left turn lane at the intersection with Botany Road (southbound). 	Roads and Maritime	Detailed design
TR-11	Optimisation of the cycleway	<ul style="list-style-type: none"> • Roads and Maritime will continue to investigate optimising the cycleway within the proposal area, including reducing crossings where feasible. 	Roads and Maritime	Detailed design
TR-12	Access to Port Botany Freight Line easement from the General Holmes Drive cul-de-sac	<ul style="list-style-type: none"> • Roads and Maritime will continue to consult with ARTC regarding the provision of access to the Port Botany Freight Line easement from the General Holmes Drive cul-de-sac. 	Roads and Maritime	Detailed design

ID	Impact	Environmental safeguards	Responsibility	Timing
TR-13	Austrroads Guide to Road Design (2009)	<ul style="list-style-type: none"> Cyclist facilities for the proposal will be designed with reference to the Austrroads Guide to Road Design (2009) 	Roads and Maritime	Detailed design

5.3 Noise and vibration

A operational noise assessment was undertaken as part of the detailed design to assess the noise impact of the latest design. This study found that Noise management levels would be expected to be exceeded at many receivers during standard hours and as a result also out of hours (weekend extended hours and night time) construction activities. Around nine of the closest residential receivers to the works are predicted to be “highly noise affected”.

In terms of the operation of the road, nine sensitive receivers were predicted to have noise levels in excess of the noise criteria, all of which are identified as being acutely impacted. Noise mitigation measures would be considered for these receivers.

5.3.1 Existing environment

Sensitive receivers occurring near the proposal are located in the suburb of Mascot and the Lakes Business Park, located to the east of Botany Road. The Project REF found that the noise environment in these areas can be described as an urban-industrial interface which is dominated by noise from local road traffic, rail traffic and aircraft movements.

The revised proposal would involve minor construction works in areas outside the project area assessed for the Project REF for installation of additional ITS conduits and construction of the retaining wall. The closest sensitive receivers to these works are over 200 metres away. These sensitive receivers have been identified in the Project REF.

5.3.2 Potential impacts

Assessment criteria for noise and vibration impacts associated with the proposal are described in Section 7.3.3 of the Project REF.

The overall project would involve a major program of road works occurring over a period of at least two years. The activities that would be undertaken for the revised proposal would not require the use of additional plant and equipment, extend the construction period or result in a noticeable intensification of construction activities at any stage.

Due to the relatively small scale and short timeframes of additional construction activities that would be undertaken for the revised proposal compared with the overall construction program assessed in the Project REF, the potential for additional construction noise and vibration impacts is considered to be minimal.

Construction activities associated with the installation of ITS conduits and retaining wall have the potential to result in additional noise and vibration impacts. Construction of the retaining wall is likely to require pile installation which is a high noise activity. In addition these works may need to occur outside of standard work hours during airport curfews. The Project REF assessed similar noisy activities associated with the rail bridges. The retaining wall works are further from sensitive receivers than the rail bridge work and therefore the impact is not likely to be greater than that assessed in the Project REF.

In addition, these works would occur over a short timeframe (under one week at any one location) and key noise generating activities such as the use of concrete saws would occur intermittently during this time. Residents and users of adjacent properties would be notified specifically of these works prior to commencement and the measures specified in the Project REF to mitigate noise

impacts would be implemented. The potential for additional noise impacts from these works is therefore considered to be minimal.

5.3.3 Safeguards and management measures

The safeguards and management measures identified in Table 5-6 have been based on those provided in the Submissions Report. No additional safeguards and management measures are required for noise and vibration as a result of the Project.

Table 5-6: Noise and vibration safeguards and management measures

ID	Impact	Environmental safeguards	Responsibility	Timing
NV-1	Noise and vibration impacts on sensitive receivers	During the detailed design stage of the proposal, further investigations of potential noise impacts and all feasible and reasonable mitigation options will be carried out for affected receivers in accordance with the Road Noise Policy (DECCW 2011) and Roads and Maritime's Environmental Noise Management Manual Practice Note 4 (RTA, 2001).	Roads and Maritime	Detailed design
NV-2	Noise and vibration impacts on sensitive receivers during construction	A Construction Noise and Vibration Management Plan (CNVMP) will be prepared as part of the CEMP. The CNVMP will include (as a minimum): <ul style="list-style-type: none"> • A map indicating the locations of sensitive receivers • A quantitative noise assessment in accordance with the EPA Interim Construction Noise Guidelines (DECC, 2009) • Management measures to minimise potential noise impacts • A risk assessment to determine construction activities likely to affect sensitive receivers • Mitigation measures to avoid noise and vibration impacts during construction activities • A process for assessing the performance of mitigation measures • A process for documenting and resolving issues and complaints • A construction staging program incorporating noise and vibration monitoring for sensitive receivers • Identification in toolbox talks where noise and vibration management is required. 	Construction contractor	Pre-construction
NV-3	General vibration during construction	Building condition surveys will be carried out for buildings identified in the CNVMP. A copy of the report will be sent to the landholder.	Construction contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
NV-4	General vibration during construction	<p>A vibration assessment will be prepared and included in the NVMP. The vibration assessment will include (as a minimum):</p> <ul style="list-style-type: none"> • Identification of potentially affected properties/receivers • A risk assessment to determine the potential for discrete work activities to affect receivers • A map indicating the locations considered likely to be impacted and those requiring building condition surveys • A monitoring program • A process for assessing mitigation measures • A process for resolving issues and conflicts, including additional noise and vibration monitoring where required. 	Construction contractor	Pre-construction
NV-5	Noise impacts on sensitive receivers from operation of stockpile and compound sites	Construction compound layout will be arranged so that primary noise sources are at a maximum distance from sensitive receivers (primarily residential receivers), with solid structures (sheds and containers) placed between sensitive receivers and noise sources (and as close to the noise sources as is practical).	Construction contractor	Pre-construction
NV-6	Noise impacts from construction machinery	Compressors, generators, pumps and any other fixed plant will not be located near residences where possible	Construction contractor	Pre-construction
NV-7	Noise and vibration induction	An environmental induction program will be developed to include specific noise and vibration awareness training.	Construction contractor	Pre-construction
NV-8	Construction noise impacts on Airport buildings	Detailed design will further investigate construction noise impacts, including impacts on sensitive receivers, Airport buildings, and current hotel sites. Reasonable and feasible mitigation measures will be identified.	Roads and Maritime	Detailed design
NV-9	Noise mitigation	<p>Roads and Maritime will consider noise mitigation at the church on Botany Road and a residence of Hardie Street, during detailed design.</p> <p>In addition, receivers in the proposal area which currently experience exceedances of the NSW Road Noise Policy (RNP) (DECCW, 2011) will be considered for noise mitigation in accordance with the provisions of the Noise Mitigation Guidelines (Roads and Maritime, 2015a). Properties which qualify for noise mitigation treatment will be contacted by Roads and Maritime during detailed design.</p>	Roads and Maritime	Detailed design

ID	Impact	Environmental safeguards	Responsibility	Timing
NV-10	General vibration during construction	Where construction work near the Breckenham Memorial Church is within the minimum safe working distances (structural damage) for vibration intensive plant, vibration testing of equipment on site would be carried out prior to their commencement of site operation to determine acceptable buffer distances to the building. If this buffer distance cannot be complied with, measures such as as using smaller equipment or (if required) time restrictions for the most excessive vibration activities	Construction contractor	Pre-construction

5.4 Biodiversity

5.4.1 Existing environment

A Biodiversity Assessment prepared for the Project REF (SMEC, 2014) identified the presence of one Endangered Ecological Community (EEC) within the project area, being: Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions. Another EEC (Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions) and seven threatened and migratory flora and four fauna species were found to have potential to occur in the study area.

The majority of the vegetation occurring in the project area was found to be:

- Weeds and exotics, with the majority of the study area dominated by weeds. Weed-dominated areas cover about five hectares on disturbed and landscaped sites such as the disturbed areas between General Holmes Drive and Botany Road, where the proposed additional site compound/office area is located.
- Urban native and exotic cover, including linear roadside plantings of native and exotic species.
- Street plantings, including roadside trees and shrubs in the pavement.

The Project REF found that habitat within the project area was highly modified and provided a low capacity to support threatened and migratory fauna. No habitat trees were identified in the area. The Project is within the expected range of the Green and Golden Bell Frog (*Litoria aurea*) and about 0.45 hectares of suitable habitat for this species was found within the Coastal Freshwater Wetland vegetation community. This species was not recorded during field surveys and is not expected to occur within the project area.

The Project REF found that construction of the Project would require the removal of 3.3 hectares of native vegetation, comprising weeds and exotic species, urban planted native vegetation and exotic cover and street plantings. The Project was not predicted to remove any good quality native vegetation and areas of low-quality vegetation in the project area was not mapped.

5.4.2 Potential impacts

The revised proposal will require the removal of a small area of roadside vegetation located to the east of General Holmes Drive for the installation of the new ITS conduits. This vegetation consists of narrow strips of planted native and exotic street plantings, which is generally in poor condition.

There will be some vegetation removal associated with the installation of the retaining wall however this falls within the existing Project REF boundary and has therefore been assessed. No further vegetation removal for any other activity is proposed.

The Project REF identified that the Project would result in the loss of 3.3 hectares of vegetation. It is estimated that the revised proposal would result in clearing less than an additional 0.05 hectares of planted, roadside vegetation. Measures were recommended in the Project REF to mitigate these impacts, such as erosion and sediment controls and replanting of cleared vegetation. The Project REF found that the Project was not expected to cause any significant biodiversity impacts due to the minor amounts of overall habitat to be cleared. The revised proposal does not change these findings.

The removal of the shared use path along Botany Road would allow two street trees to be retained. These trees are London Plane Trees which are exotic urban street trees.

5.4.3 Safeguards and management measures

The safeguards and management measures identified in Table 5-7 have been based on those provided in the Submissions Report. No additional safeguards and management measures are required for biodiversity as a result of the revised proposal.

Table 5-7: Biodiversity safeguards and management measures

ID	Impact	Environmental safeguards	Responsibility	Timing
BI-1	Potential impact to Coastal Freshwater Wetland TEC during construction	<ul style="list-style-type: none"> A buffer zone of 5 m will be established around the wetland to avoid physical impact The area within the wetland buffer area will be rehabilitated as part of the proposal area, including weed control, landscaping and site rehabilitation works with locally indigenous species Relocate woody debris recovered from the construction footprint to the wetland buffer to provide shelter sites for the Green and Golden Bell Frog. 	Construction contractor	Pre-construction
BI-2	Vegetation and habitat removal	<p>Pre-clearance surveys will be carried out by an experienced ecologist to:</p> <ul style="list-style-type: none"> Identify and mark fauna habitat features and roosting sites (if any exist) to be protected during construction Confirm the presence of the Green and Golden Bell Frog and the level of management commitment required during construction Identify nearby habitats within the proposal area that are suitable for the release of fauna that may be encountered during the pre-clearing process or habitat removal Select appropriate locations for construction access tracks, ancillary facilities and construction areas in previously cleared and disturbed areas, wherever possible. 	Construction contractor	Pre-construction
BI-3	Vegetation and habitat removal	<p>A Biodiversity Management Plan (BMP) will be included in the Construction Environmental Management Plan (CEMP). It will include:</p> <ul style="list-style-type: none"> Procedures for a site walk with appropriate site personnel including Roads and Maritime representatives to confirm clearing 	Construction contractor	Pre-construction,

ID	Impact	Environmental safeguards	Responsibility	Timing
		<p>boundaries and sensitive locations before work begins</p> <ul style="list-style-type: none"> • The exclusion zones to be installed before clearing, to avoid damage to native vegetation and fauna habitats and prevent the distribution of pests, weeds and disease. Temporary fencing, flagging tape or other appropriate method will be installed to indicate the limits of the exclusion fencing. The location of exclusion fencing will be identified on plans in the CEMP and the function and importance of the exclusion zones communicated to construction personnel • Maps showing vegetation clearing boundaries, identifying drainage areas that run towards the Coastal Freshwater Wetland TEC • A procedure to manage stormwater in the proposal to ensure that hydrology of the Coastal Freshwater Wetland TEC is maintained, including periodic drying to prevent colonisation by <i>Gambusia</i> (<i>Gambusia holbrooki</i>) • The establishment of a 5 metre buffer area/ exclusion zone around the Freshwater Wetland TEC to avoid construction impacts on the TEC, as discussed in BI-1 • A detailed clearing process in accordance with the Roads and Maritime Biodiversity Guidelines (RTA, 2011) including requirements of Guide 1, 2 4 and 9 • An unexpected threatened species finds procedure, as outlined in the Biodiversity Guidelines (RTA, 2011) • Specific details for the re-establishment and rehabilitation of native vegetation on cut faces, batters, the wetland buffer and other areas disturbed during construction • Guidance for the relocation of woody debris from the construction footprint to the wetland buffer to provide shelter for the Green and Golden Bell Frog, if required. 		
BI-4	Spread of weeds	<p>A weed management plan will be developed as part of the BMP and incorporated into the CEMP. The plan will detail:</p> <ul style="list-style-type: none"> • Weed management priorities and objectives • Identification of weeds on the construction site • Sensitive environmental areas within and next to the proposal area, such as the wetland to the south of the Wentworth Avenue underpass • Location of weed infested areas • Mechanical weed control methods such as slashing or mowing, as well as a range of 	Construction contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		herbicides to avoid the development of herbicide resistance <ul style="list-style-type: none"> • Procedures to control the use of pesticides, particularly near waterways and immediately before or during wet weather • Measures to prevent the spread of weeds • Procedures for the appropriate disposal of weed-infested materials and soils • Monitoring program to measure the success of weed management • Communication protocol with Bayside Council noxious weed representative. 		
BI-5	Introduction or spread of pests and disease	Measures to confirm the presence of pathogens and disease-causing agents will be carried out before construction. Should pathogens or disease-causing agents be found, measures will be implemented to prevent their introduction and/or spread to the proposal area. These measures are provided in the Biodiversity Guidelines and will include, where appropriate: <ul style="list-style-type: none"> • The provision of vehicle and boot wash-down facilities to ensure vehicles and footwear are free of soil before entering or exiting the site • Procedures to ensure that the risk of spreading pathogens and the mitigation measures required on site are regularly communicated to staff and contractors during inductions and toolbox talks • The programming of construction activities so they move from uninfected areas to any known infected areas • The restriction of vehicles to designated roadsides and parking areas • Specific measures for treating <i>Phytophthora cinnamomi</i> and <i>chytrid fungus</i>. 	Construction contractor	Pre-construction, construction

5.5 Landscape character and visual amenity






5.5.1 Existing environment


A Landscape Character and Visual Amenity Assessment was prepared by Corkery Consulting and Studio Colin Polwarth (2014) in accordance with Roads and Maritime's Environmental Impact Assessment Practice Note EIA-N04-Guidelines for Landscape Character and Visual Impact Assessment (2013).

The assessment found that the area around the Project is visually dominated by Sydney Airport and located between the interface of Sydney Airport and the suburb of Mascot. Urban areas are separated from the airport by the road network and railway line to Port Botany. Open spaces, parklands and golf courses near the Project are of significant scenic value.

The assessment divided the area surrounding the Project into six landscape character zones, as outlined in Table 5-8.

Table 5-8: Landscape character zones

#	Landscape Character Zone	Description	Relevant to the revised proposal
1	<p>General Holmes Drive/Joyce Drive Streetscape</p> 	<ul style="list-style-type: none"> • Visually enclosed road corridor connecting Sydney Airport and the Port Botany Freight Rail Line • Mature trees are located along the Sydney Airport side of Joyce Drive and a variety of commercial buildings and structures visible to motorists. • Includes streetside plantings, billboards and grassed areas. 	<p>The change to the Joyce Drive / General Holmes Drive / Ross Smith Avenue intersection and temporary bus layover area is located in this zone.</p>
2	<p>General Holmes Drive Corridor</p> 	<ul style="list-style-type: none"> • Northern portion is visually enclosed by roadside trees. • Views from the southern portion are more open and extend across the flat landform of Sydney Airport. • A billboard and hedge obstruct long-distance views from this zone across Sydney Airport's runways. 	<p>The installation of ITS conduits are located in this zone</p>
3	<p>Landscape area east of General Holmes Drive</p> 	<ul style="list-style-type: none"> • Highly disturbed landform, characterised by weed species and a concrete lined stormwater channel. • Visually enclosed by planted shrubs along the roadside and invasive weeds and shrubs. • Includes an area of wetland, a light industrial facility, residential buildings and an advertising structure. 	<p>None</p>
4	<p>Coastal Sydney Freshwater Wetlands</p> 	<ul style="list-style-type: none"> • A series of ponds including areas of open water surrounded by macrophyte plants. • In many places the wetlands are bordered by stands of native trees. 	<p>None</p>
5	<p>Urban development of Mascot and Botany</p> 	<ul style="list-style-type: none"> • Botany Road is visually dominated by commercial and industrial buildings. • Between Botany Road and O'Riordan Street, urban development is mainly residential. 	<p>Permanent bus stop and bus layover area is located in this zone</p>

#	Landscape Character Zone	Description	Relevant to the revised proposal
6	Sydney Airport 	<ul style="list-style-type: none"> The northern portion of the airport is dominated by large-scale buildings and structures, with extensive paved areas for aircraft use. The southern portion is open and flat due to extensive runway areas with grassed aprons. A key component of the visual character of this area is the movement of large aircraft on the ground and in the air. 	Retaining wall RW01 is located in this zone

5.5.2 Potential impacts

Compared to the determined Project, the revised proposal would slightly alter the potential landscape and visual impacts of the Project.

In general, during construction, the revised proposal would result in temporary visual impacts to users of the road network. The majority of visual impacts during construction would be caused by construction machinery, compound areas, temporary fencing, signage, light spill and the generation of waste. These impacts would have already occurred at a greater scale as part of the larger construction works associated with the Project. As such, this is not expected to be a large change in impact from the determined Project.

The installation of new ITS conduits adjacent to General Holmes Drive would result in minor visual impacts through clearing of vegetation and open trenching earthworks. The conduits would be installed underground and these areas would be reinstated in accordance with the landscape and urban design strategy following the completion of construction. During the installation of the new ITS conduits, visual impacts would generally only be visible to road users. The safeguards and management measures identified in Table 6-1 of the Submissions Report relating to the management of visual impacts and reinstatement of construction areas would be implemented.

During construction, buses remaining stationary at the temporary bus layover would impact the visual character of General Holmes Drive, however this will be minor and short term in nature. During operation, the permanent bus stop is consistent with the existing use of the Botany Road bus lane. These buses currently travel past the location in the existing bus lane and any visual impact to passerbys or residents across the street would be temporary in nature and is considered to be minimal.

The removal of the proposed shared use path along Botany Road will allow the retention of two mature trees along Botany Road. This will result in a positive amenity result for the area, with no changes to the visual amenity along Botany Road north of the new Wentworth Avenue underpass.

5.5.3 Safeguards and management measures

The safeguards and management measures identified in Table 5-9 have been based on those provided in the Submissions Report. No additional safeguards and management measures are required for landscape character and visual amenity as a result of the revised proposal.

Table 5-9: Landscape character and visual amenity safeguards and management measures

ID	Impact	Environmental safeguards	Responsibility	Timing
LC-1	General	The detailed design will incorporate the landscape and urban design strategy and objectives described in Section 3 of the Landscape Character and Visual Impact Assessment (Corkery Consulting + Studio Colin Polwarth, 2014). The landscape and urban design strategy for detailed design will be prepared in consultation with SACL. Roads and Maritime will also liaise with Botany Bay City Council and owners of the Beckenham Memorial Church regarding landscaping on their property.	Roads and Maritime	Detailed design
LC-2	Landscape design	During detailed design, the landscape design principles and streetscape (planting) will be reviewed to ensure that they are consistent with the outcomes of the biodiversity assessment. This will be done in consultation with Roads and Maritime environment and urban design staff.	Roads and Maritime	Detailed design
LC-3	Visual impacts of construction activities	To reduce the potential visual impact of construction activities: <ul style="list-style-type: none"> • Work sites will be left tidy at the end of each work day • Where appropriate, fencing with material attached (eg shade cloth) will be provided around the construction compound to screen views from adjoining properties • Lighting for night-time work will comply with relevant Australian Standards, including AS4282-1997 (Control of the obtrusive effects of outdoor lighting). 	Construction contractor	Construction
LC-4	Visual impacts of compound, stockpile and storage areas	Following construction, temporary compound, stockpile and storage areas will be removed, cleared of all rubbish and materials, and rehabilitated.	Construction contractor	Post-construction
LC-5	Landscape and urban design strategy	A detailed urban design and landscape strategy will be prepared as part of the detailed design of the proposal and will consider: <ul style="list-style-type: none"> • The impact of removing existing landscaping and its current amenity and value • Airport operational issues in the selection of replacement vegetation, roadside furniture and other urban design elements. The landscape and urban design strategy will be made available to SACL for comment when it is complete. Roads and Maritime will continue to consult with SACL regarding landscaping in the area between General Holmes Drive and the Port Botany Freight Rail Line.	Roads and Maritime	Detailed design

6 Environmental management

This chapter describes how the Project will be managed to reduce potential environmental impacts throughout detailed design, construction and operation. A framework for managing the potential impacts is provided with reference to environmental management plans and relevant Roads and Maritime QA specifications. A summary of site-specific environmental safeguards is provided as detailed in Chapter 8 of the Project REF and the licence and/or approval requirements required prior to construction are also listed.

6.1 Environmental management plans (or system)

As part of the determined REF, a number of safeguards and management measures were detailed to manage the identified environmental issues that would as a result of the WestConnex Enabling Works – Airport East Precinct REF. These safeguards and management measures formed a framework for managing the identified potential impacts with reference to environmental management plans and relevant Roads and Maritime QA specifications.

The environmental safeguards and management measures for the Airport East Precinct project are presented in Table 6-1 of the Submissions Report.

The Project Environmental Management Plan (PEMP) and the Contractors Environmental Management Plan (CEMP) will be prepared to describe safeguards and management measures identified in both the determined REF and this REF addendum. These plans will provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation.

The plans will be prepared prior to construction of the revised proposal and must be reviewed and certified by the Roads and Maritime Environmental Officer, Greater Sydney Region, before commencement of any on-site works. The CEMP will be a working document, subject to ongoing change and updated as necessary to respond to specific requirements.

6.2 Summary of safeguards and management measures

The existing environmental safeguards and management measures presented in the submissions report are considered appropriate for minimising any potential adverse impacts arising from the revised proposal and would continue to apply.

This Addendum REF has found that the management measures identified in the Project REF are sufficient to address potential impacts from the revised proposal and no additional measures are required.

Table 6-1: Summary of site specific environmental safeguards and management measures including any additional safeguards

ID	Impact	Environmental safeguards	Responsibility	Timing
General				
1	General	All environmental safeguards will be incorporated in the following documents: <ul style="list-style-type: none"> • Project Environmental Management Plan • Detailed design • Contract specifications for the proposal • Contractor’s Environmental Management Plan. 	Project manager	Pre-construction
2	General	A risk assessment will be carried out in accordance with the Roads and Maritime Audit Pack and Operations and Services Directorate (OSD) risk assessment procedures to determine an audit and inspection program for the project. The recommendations of the risk assessment will be implemented. A review of the risk assessment will be carried out after the initial audit or inspection to evaluate if the level of risk chosen for the project is appropriate. Any work for the proposal and covered by this REF may be subject to environmental audit(s) and/or inspection(s) at any time during their duration.	Project manager and regional environmental staff	Pre-construction After first audit
3	General	The environmental contract specification G36 – Environmental Protection (Management System) will be forwarded to the Roads and Maritime Senior Environmental Officer for review at least 10 working days before the tender stage. A contractual hold point will be maintained until the CEMP is reviewed by the Roads and Maritime Senior Environmental Officer.	Project manager	Pre-construction
4	General	The Roads and Maritime Services Project Manager will notify the Roads and Maritime Services Environmental Officer, Sydney Region, at least 5 days before work begins.	Project manager	Pre-construction
5	General	All businesses and residences likely to be affected by the proposal will be notified at least 5 working days before the proposed activities begin.	Project manager	Pre-construction
6	General	The contractor will provide environmental awareness training to all field personnel and subcontractors.	Contractor	Pre-construction and during construction as required.

ID	Impact	Environmental safeguards	Responsibility	Timing
Transport				
TR-1	General traffic impacts	<p>A Traffic Management Plan (TMP) will be prepared as part of the CEMP. The TMP will be prepared in accordance with Roads and Maritime's Traffic Control at Work Sites (RTA, 2010), Australian Standard AS1742 and the worksite manual Roads and Maritime Specification G10. The TMP will outline:</p> <ul style="list-style-type: none"> • Traffic controls to regulate traffic movements and minimising traffic switching • Coordination of: <ul style="list-style-type: none"> • General traffic flows at major construction work areas, such as the tie-ins for the Wentworth Avenue extension • Delivery of construction materials and movement of construction plant and equipment to and from the site to limit traffic delays • Other Roads and Maritime roadwork and any work by other agencies that affect traffic flow • Schedules, abnormal loads and other specific aspects of transport with transport operators • Consultation with local councils to identify, evaluate and document alternative routes • Incident response with emergency services. • Maintenance of continuous, safe and efficient movement of traffic for both the public and construction crew • Haulage routes and access arrangements to minimise impacts on local routes • Construction traffic zones around work areas • Access provisions for local roads and properties • Maintenance of pedestrian access • Provision for appropriate warning and signposting • Requirements and methods to consult with and inform the local community of impacts on the local road network and traffic, as well as impacts on individual property access. • A Vehicle Movement Plan will be prepared as part of the overall TMP. The Vehicle Movement Plan will assess construction-related heavy vehicle movements per shift into and out of the construction sites, and provide guidelines for limiting impacts on traffic using the road network. 	Construction contractor	<p>Detailed design</p> <p>Pre-construction</p> <p>Pre-construction</p>

ID	Impact	Environmental safeguards	Responsibility	Timing
TR-2	Impact to traffic from construction site access	All access points to the construction site and site roads will: <ul style="list-style-type: none"> • Have safe intersection sight distance • Accommodate the turning movements of the largest heavy vehicles • Provide painted median treatments for vehicle delineation • Provide suitable intersection layouts. 	Construction contractor	Construction
TR-3	Impact on access to bus stops during construction	Local bus operators will be consulted during detailed design regarding location and provision of access to bus stops during construction.	Roads and Maritime	Detailed design
TR-4	Building rail bridges during scheduled rail possession	Roads and Maritime will consult with Port Botany and Australian Rail Track Corporation (ARTC) during detailed design to confirm that the proposal will avoid disturbance and impact on operations during construction where practicable.	Roads and Maritime	Detailed design
TR-5	Impact on access for emergency services	Consultation with emergency service authorities will be carried out during development of the detailed design including with NSW Fire Rescue.	Roads and Maritime	Detailed design
TR-6	Impact on pedestrian and cyclist access during construction	<ul style="list-style-type: none"> • Pedestrian and cyclist access will be maintained throughout construction. • Appropriate signage communicating diversion routes to pedestrians and cyclists will be displayed during construction. • Advance notification will be provided of any construction works that affect pedestrians and cyclists. 	Construction contractor	Construction
TR-7	Impact on property access	Vehicular property access will be maintained including at places of worship and to all commercial premises. Should property access be affected by the proposal, residents will be consulted before any work begins.	Construction contractor	Construction
TR-8	Impact on access to bus stops	The community will be provided with ongoing updates on locations and access to bus stops during the construction period to ensure that disruption is minimised.	Construction contractor / Roads and Maritime	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
TR-9	Alternate linemarking strategies	Roads and Maritime will consider alternate linemarking strategies on the Southern Cross Road off-ramp (westbound).	Roads and Maritime	Detailed design
TR-10	Dedicated left turn lane from Southern Cross Drive onto Botany Road	Roads and Maritime will confirm the viability of upgrading the left turn slip lane on Southern Cross Drive to a dedicated left turn lane at the intersection with Botany Road (southbound).	Roads and Maritime	Detailed design
TR-11	Optimisation of the cycleway	Roads and Maritime will continue to investigate optimising the cycleway within the proposal area, including reducing crossings where feasible.	Roads and Maritime	Detailed design
TR-12	Access to Port Botany Freight Line easement from the General Holmes Drive cul-de-sac	Roads and Maritime will continue to consult with ARTC regarding the provision of access to the Port Botany Freight Line easement from the General Holmes Drive cul-de-sac.	Roads and Maritime	Detailed design
TR-13	Austrroads Guide to Road Design (2009)	Cyclist facilities for the proposal will be designed with reference to the Austrroads Guide to Road Design (2009)	Roads and Maritime	Detailed design
Airport operations				
AO-1	General impacts on airport operations	Roads and Maritime will continue to consult with SACL and Air Services Australia before and during construction of the project regarding any potential impacts on airport operations.	Roads and Maritime	Detailed design
AO-2	Construction impacts on airport operations	The CEMP will include an Airport Operations Management Plan to ensure that airport operations are not affected by construction of the proposal. This plan will include (as a minimum): <ul style="list-style-type: none"> • Maps indicating areas of permitted disturbance within Sydney Airport land • Communication protocol with Sydney Airport and representatives, outlining frequency and content of updates 	Roads and Maritime/ Construction contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> Complaints procedure. 		
AO-3	Integration of the proposal with other projects	Roads and Maritime will consider the integration of the proposal with the T2/T3 Ground Access Solution and Hotel Major Development Plan and the Airport North precinct project (formerly the Airport North Precinct– WestConnex enabling works project). Roads and Maritime will continue to consult with SACL to ensure the transition between the Airport North precinct and the T2/T3 Ground Access Solution and Hotel Major Development Plan is appropriate.	Roads and Maritime	Detailed design
Noise and vibration				
NV-1	Noise and vibration impacts on sensitive receivers	During the detailed design stage of the proposal, further investigations of potential noise impacts and all feasible and reasonable mitigation options will be carried out for affected receivers in accordance with the Road Noise Policy (DECCW 2011) and Roads and Maritime's Environmental Noise Management Manual Practice Note 4 (RTA, 2001).	Roads and Maritime	Detailed design
NV-2	Noise and vibration impacts on sensitive receivers during construction	<p>A Construction Noise and Vibration Management Plan (CNVMP) will be prepared as part of the CEMP. The CNVMP will include (as a minimum):</p> <ul style="list-style-type: none"> A map indicating the locations of sensitive receivers A quantitative noise assessment in accordance with the EPA Interim Construction Noise Guidelines (DECC, 2009) Management measures to minimise potential noise impacts A risk assessment to determine construction activities likely to affect sensitive receivers Mitigation measures to avoid noise and vibration impacts during construction activities A process for assessing the performance of mitigation measures A process for documenting and resolving issues and complaints A construction staging program incorporating noise and vibration monitoring for sensitive receivers Identification in toolbox talks where noise and vibration management is required. 	Construction contractor	Pre-construction
NV-3	General vibration during construction	Building condition surveys will be carried out for buildings identified in the CNVMP. A copy of the report will be sent to the landholder.	Construction contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
NV-4	General vibration during construction	<p>A vibration assessment will be prepared and included in the NVMP. The vibration assessment will include (as a minimum):</p> <ul style="list-style-type: none"> • Identification of potentially affected properties/receivers • A risk assessment to determine the potential for discrete work activities to affect receivers • A map indicating the locations considered likely to be impacted and those requiring building condition surveys • A monitoring program • A process for assessing mitigation measures • A process for resolving issues and conflicts, including additional noise and vibration monitoring where required. 	Construction contractor	Pre-construction
NV-5	Noise impacts on sensitive receivers from operation of stockpile and compound sites	Construction compound layout will be arranged so that primary noise sources are at a maximum distance from sensitive receivers (primarily residential receivers), with solid structures (sheds and containers) placed between sensitive receivers and noise sources (and as close to the noise sources as is practical).	Construction contractor	Pre-construction
NV-6	Noise impacts from construction machinery	Compressors, generators, pumps and any other fixed plant will not be located near residences where possible	Construction contractor	Pre-construction
NV-7	Noise and vibration induction	An environmental induction program will be developed to include specific noise and vibration awareness training.	Construction contractor	Pre-construction
NV-8	Construction noise impacts on Airport buildings	Detailed design will further investigate construction noise impacts, including impacts on sensitive receivers, Airport buildings, and current hotel sites. Reasonable and feasible mitigation measures will be identified.	Roads and Maritime	Detailed design
NV-9	Noise mitigation	<p>Roads and Maritime will consider noise mitigation at the church on Botany Road and a residence of Hardie Street, during detailed design.</p> <p>In addition, receivers in the proposal area which currently experience exceedances of the NSW Road Noise Policy (RNP) (DECCW, 2011) will be considered for noise mitigation in</p>	Roads and Maritime	Detailed design

ID	Impact	Environmental safeguards	Responsibility	Timing
		accordance with the provisions of the Noise Mitigation Guidelines (Roads and Maritime, 2015a). Properties which qualify for noise mitigation treatment will be contacted by Roads and Maritime during detailed design.		
NV-10	General vibration during construction	Where construction work near the Breckenham Memorial Church is within the minimum safe working distances (structural damage) for vibration intensive plant, vibration testing of equipment on site would be carried out prior to their commencement of site operation to determine acceptable buffer distances to the building. If this buffer distance cannot be complied with, measures such as as using smaller equipment or (if required) time restrictions for the most excessive vibration activities	Construction contractor	Pre-construction
Non-Aboriginal heritage				
NA-1	Landscaping to improve visual amenity of Beckenham Memorial Church	Landscaping surrounding the Beckenham Memorial Church will be investigated during detailed design in consultation with church owners and heritage officers from Botany Bay City Council.	Roads and Maritime	Detailed design
NA-2	Removal of heritage relics	An exception under Section 139 of the Heritage Act will be obtained for impacts to identified relics within the proposal area, if required.	Roads and Maritime	Pre-construction
NA-3	Impact to heritage items	A condition survey will be carried out before the start of work by a qualified contractor and a building condition report prepared for nearby heritage items which may experience indirect impact from construction, including Beckenham Memorial Church.	Roads and Maritime	Pre-construction
NA-4	General impact to heritage	A Non-Aboriginal Heritage Management Plan will be prepared and included in the CEMP. The plan will include but not limited to: <ul style="list-style-type: none"> • A map identifying locations of heritage items (including curtilages) which are to be protected and those which are to be destroyed • Identification of potential impacts to heritage items due to construction • Implementation of mitigation measures to protect identified heritage items • A stop works procedure in the event of actual or suspected potential harm to a heritage item • Requirement to comply with Roads and Maritime Standard Management Procedure: Unexpected Archaeological Finds (2012). 	Roads and Maritime	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
NA-5	Disturbance, removal or demolition of non-Aboriginal heritage items	<p>A photographic archival recording will be made of the following items before any disturbance or demolition, in accordance with OEH guidelines:</p> <ul style="list-style-type: none"> • House (house and allotment), 1289 Botany Road • House (house and allotment), 1291 Botany Road • Beckenham Memorial Church School Hall (hall and allotment), 1293 Botany Road • Beckenham Memorial Church (church frontage only), 1295 Botany Road • Mascot (Botany Road) Underpass (bridge and its approaches) • Sandstone kerb along Botany Road near Wentworth Avenue • Botany Road tram tracks. 	Roads and Maritime	Pre-construction
NA-6	Non-Aboriginal heritage awareness training	<p>Non-Aboriginal heritage awareness training will be provided for all contractors and personnel before the start of construction to make aware of retained heritage items within the vicinity of the works and required management measures and to ensure understanding of the procedure required to be carried out in the event of discovery of non-Aboriginal heritage materials, features or deposits, or the discovery of human remains.</p>	Construction contractor	Pre-construction
NA-7	Protection of non-Aboriginal heritage items from inadvertent damage	<p>The following items will be temporarily fenced and appropriate signage displayed and/or noted on a plan as a heritage item to avoid indirect impacts or encroachment, where necessary:</p> <ul style="list-style-type: none"> • Mascot (Botany Road) Underbridge • Sandstone kerb and alignment pin at Botany Road, near McBurney Avenue • Botany Water Reserve • Mascot (O'Riordan Street) Underbridge • Electricity Substation 163, at 42 Wentworth Avenue • Commercial Building Group, 1209–1223 Botany Road • Single Storey Terrace Group, 1239–1245 Botany Road • House, 71 Frogmore Street • House, 87 Hardie Street • House, 90 Johnson Street. 	Roads and Maritime Construction contractor	Pre-construction Construction
NA-8	Discovery of non-Aboriginal heritage features or deposits	<p>If at any time during construction of the project, non-Aboriginal heritage materials, features and/or deposits are found and are not covered by an issued approval (generally s139 excavation permit, exception or s60 approval or exemption) then the Roads and Maritime Standard Management Procedure: Unexpected Heritage Items (Roads and Maritime, 2015b) will be followed.</p>	Construction contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
NA-9	Discovery of tram tracks and additional road fabric	A photographic archival recording will be made of additional road fabric or other unanticipated finds if found during construction. This will be carried out in accordance with Roads and Maritime's Standard Management Procedure: Unexpected Heritage Items (Roads and Maritime, 2015b).	Construction contractor	Construction
NA-10	Rebuilding of Beckenham Memorial Church fence	The front boundary wall of Beckenham Memorial Church will be rebuilt in the same style and with similar materials as the existing wall, in consultation with church owners and heritage officers from Botany Bay City Council.	Construction contractor	Construction
Biodiversity				
BI-1	Potential impact to Coastal Freshwater Wetland TEC during construction	<ul style="list-style-type: none"> A buffer zone of 5 metres will be established around the wetland to avoid physical impact The area within the wetland buffer area will be rehabilitated as part of the proposal area, including weed control, landscaping and site rehabilitation works with locally indigenous species Relocate woody debris recovered from the construction footprint to the wetland buffer to provide shelter sites for the Green and Golden Bell Frog. 	Construction contractor	Pre-construction
BI-2	Vegetation and habitat removal	<p>Pre-clearance surveys will be carried out by an experienced ecologist to:</p> <ul style="list-style-type: none"> Identify and mark fauna habitat features and roosting sites (if any exist) to be protected during construction Confirm the presence of the Green and Golden Bell Frog and the level of management commitment required during construction Identify nearby habitats within the proposal area that are suitable for the release of fauna that may be encountered during the pre-clearing process or habitat removal Select appropriate locations for construction access tracks, ancillary facilities and construction areas in previously cleared and disturbed areas, wherever possible. 	Construction contractor	Pre-construction
BI-3	Vegetation and habitat removal	<p>A Biodiversity Management Plan (BMP) will be included in the Construction Environmental Management Plan (CEMP). It will include:</p> <ul style="list-style-type: none"> Procedures for a site walk with appropriate site personnel including Roads and Maritime representatives to confirm clearing boundaries and sensitive locations before work begins 	Construction contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> • The exclusion zones to be installed before clearing, to avoid damage to native vegetation and fauna habitats and prevent the distribution of pests, weeds and disease. Temporary fencing, flagging tape or other appropriate method will be installed to indicate the limits of the exclusion fencing. The location of exclusion fencing will be identified on plans in the CEMP and the function and importance of the exclusion zones communicated to construction personnel • Maps showing vegetation clearing boundaries, identifying drainage areas that run towards the Coastal Freshwater Wetland TEC • A procedure to manage stormwater in the proposal to ensure that hydrology of the Coastal Freshwater Wetland TEC is maintained, including periodic drying to prevent colonisation by <i>Gambusia</i> (<i>Gambusia holbrooki</i>) • The establishment of a 5 metre buffer area/ exclusion zone around the Freshwater Wetland TEC to avoid construction impacts on the TEC, as discussed in BI-1 • A detailed clearing process in accordance with the Roads and Maritime Biodiversity Guidelines (RTA, 2011) including requirements of Guide 1, 2 4 and 9 • An unexpected threatened species finds procedure, as outlined in the Biodiversity Guidelines (RTA, 2011) • Specific details for the re-establishment and rehabilitation of native vegetation on cut faces, batters, the wetland buffer and other areas disturbed during construction • Guidance for the relocation of woody debris from the construction footprint to the wetland buffer to provide shelter for the Green and Golden Bell Frog, if required. 		
BI-4	Spread of weeds	<p>A weed management plan will be developed as part of the BMP and incorporated into the CEMP. The plan will detail:</p> <ul style="list-style-type: none"> • Weed management priorities and objectives • Identification of weeds on the construction site • Sensitive environmental areas within and next to the proposal area, such as the wetland to the south of the Wentworth Avenue underpass • Location of weed infested areas • Mechanical weed control methods such as slashing or mowing, as well as a range of herbicides to avoid the development of herbicide resistance • Procedures to control the use of pesticides, particularly near waterways and immediately before or during wet weather • Measures to prevent the spread of weeds • Procedures for the appropriate disposal of weed-infested materials and soils • Monitoring program to measure the success of weed management 	Construction contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> Communication protocol with Bayside Council noxious weed representative. 		
BI-5	Introduction or spread of pests and disease	<p>Measures to confirm the presence of pathogens and disease-causing agents will be carried out before construction. Should pathogens or disease-causing agents be found, measures will be implemented to prevent their introduction and/or spread to the proposal area. These measures are provided in the Biodiversity Guidelines and will include, where appropriate:</p> <ul style="list-style-type: none"> The provision of vehicle and boot wash-down facilities to ensure vehicles and footwear are free of soil before entering or exiting the site Procedures to ensure that the risk of spreading pathogens and the mitigation measures required on site are regularly communicated to staff and contractors during inductions and toolbox talks The programming of construction activities so they move from uninfected areas to any known infected areas The restriction of vehicles to designated roadsides and parking areas Specific measures for treating <i>Phytophthora cinnamomi</i> and <i>chytrid fungus</i>. 	Construction contractor	Pre-construction, construction
Hydrology				
HY-1	Flood impacts on adjacent properties due to altered flood behaviour	Further flood modelling, including a detailed afflux assessment, will be carried out during detailed design to confirm impacts on surrounding land uses.	Roads and Maritime/ Detailed design contractor	Detailed design
HY-2	Licensing for dewatering	The NSW Office of Water will be consulted during detailed design to confirm licensing requirements for the various stages of the proposal.	Roads and Maritime	Detailed design
HY-3	Impact to groundwater levels	Roads and Maritime, in consultation with NSW Office of Water, will carry out a bore census to confirm the status of the groundwater works identified as part of the groundwater assessment.	Roads and Maritime	Detailed design
HY-4	Dewatering	A procedure will be prepared for any dewatering activities to be included as part of the SWMP. The dewatering procedure is to comply with Roads and Maritime Technical Guideline – Environmental Management of Construction Site Dewatering. The procedure will include at a minimum:	Roads and Maritime	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> • A map showing areas of the proposal that will require dewatering • Detailed description and justification of all selected dewatering methods • Description of onsite water reuse requirements • A map showing proposed discharge locations for any offsite discharge • Design requirements for each offsite discharge location to prevent erosion at the discharge location or in the receiving environment • Water quality objectives relevant to the type of dewatering activity • Description of the water quality treatment techniques to be used • Water sampling and testing regime to validate water quality prior to and (if required) during dewatering, including to establish appropriate waste disposal methods • Description of the method for dewatering • Requirements to manage encounters with groundwater or contaminated water. 		
HY-5	Flooding of construction site	<p>A contingency plan will be prepared to manage a potential flood event during construction and will outline:</p> <ul style="list-style-type: none"> • Procedure for communication and notification associated with contingency plan • Procedures to reduce risk including removal of all plant/equipment, stabilising exposed areas and maintaining existing flood flow paths through the site 	Roads and Maritime	Pre-construction
HY-6	Impact to groundwater levels and quality	<p>A Groundwater Monitoring and Management Plan will be prepared to accompany the Soil and Water Management Plan for the proposal. It will include:</p> <ul style="list-style-type: none"> • Measures to manage groundwater during construction • Location of piezometers • Monitoring and sampling frequency for groundwater levels and groundwater quality • Evaluate any drawdown during construction • Reporting frequency • Timing of activities associated with monitoring. For instance, monitoring of flow, level and quality will continue for 12 months after the project is complete. 	Construction contractor	Construction
HY-7	Higher than expected inflow volumes	The NSW Office of Water will be advised if the expected inflow volume is observed, or deemed likely to exceed 3 ML/y. Measures to rectify drawdown may include installation of a second, outer containment structure, or reinjection, down-gradient on the other side of containment.	Construction contractor/ Roads and Maritime	Construction
HY-8	Operational impact on	The capacity of the Sydney Airport detention basin will be further investigated in detailed design.	Roads and Maritime	Detailed design

ID	Impact	Environmental safeguards	Responsibility	Timing
	capacity of Sydney Airport detention basin			
HY-9	Impacts on groundwater	<p>An assessment will be carried out to confirm the potential groundwater impacts due to the proposed option/s chosen to manage groundwater for the new underpass. The following will be considered for the assessment:</p> <ul style="list-style-type: none"> • The potential impacts due to the proposal on the groundwater level. • The potential impacts due to the proposal on Mill Ponds • Management methods of groundwater during construction • Management methods of groundwater during operation. 	Roads and Maritime	Detailed design
HY-10	Groundwater Management and Monitoring Plan	The Groundwater Management and Monitoring Plan will be made available to SACL. Detailed design will investigate groundwater management and groundwater monitoring for the proposal area and any indirectly affected areas. The groundwater monitoring strategy will also provide detail about monitoring before and after construction within the vicinity of the Wentworth Avenue underpass.	Roads and Maritime	Detailed design
HY-11	Hydrology	Roads and Maritime will carry out further hydrology investigations as part of the detailed design. These investigations will consider in more detail surface water flows within the proposal area, as well as drainage conditions upstream of the Ascot Drain.	Roads and Maritime	Detailed design
Landscape character and visual amenity				
LC-1	General	The detailed design will incorporate the landscape and urban design strategy and objectives described in Section 3 of the Landscape Character and Visual Impact Assessment (Corkery Consulting + Studio Colin Polwarth, 2014). The landscape and urban design strategy for detailed design will be prepared in consultation with SACL. Roads and Maritime will also liaise with Botany Bay City Council and owners of the Beckenham Memorial Church regarding landscaping on their property.	Roads and Maritime	Detailed design
LC-2	Landscape design	During detailed design, the landscape design principles and streetscape (planting) will be reviewed to ensure that they are consistent with the outcomes of the biodiversity assessment. This will be done in consultation with Roads and Maritime environment and urban design staff.	Roads and Maritime	Detailed design

ID	Impact	Environmental safeguards	Responsibility	Timing
LC-3	Visual impacts of construction activities	To reduce the potential visual impact of construction activities: <ul style="list-style-type: none"> • Work sites will be left tidy at the end of each work day • Where appropriate, fencing with material attached (eg shade cloth) will be provided around the construction compound to screen views from adjoining properties • Lighting for night-time work will comply with relevant Australian Standards, including AS4282-1997 (Control of the obtrusive effects of outdoor lighting). 	Construction contractor	Construction
LC-4	Visual impacts of compound, stockpile and storage areas	Following construction, temporary compound, stockpile and storage areas will be removed, cleared of all rubbish and materials, and rehabilitated.	Construction contractor	Post-construction
LC-5	Landscape and urban design strategy	A detailed urban design and landscape strategy will be prepared as part of the detailed design of the proposal and will consider: <ul style="list-style-type: none"> • The impact of removing existing landscaping and its current amenity and value • Airport operational issues in the selection of replacement vegetation, roadside furniture and other urban design elements. • The landscape and urban design strategy will be made available to SACL for comment when it is complete. Roads and Maritime will continue to consult with SACL regarding landscaping in the area between General Holmes Drive and the Port Botany Freight Rail Line. 	Roads and Maritime	Detailed design
Topography, geology, soils and water quality				
SWQ- 1	Pollution as a result of sediment entering waterways during construction and operation	Water management controls and an associated maintenance and inspection program will be investigated during detailed design in accordance with the water quality control strategy for the proposal, with specific focus on the Wentworth Avenue underpass. During detailed design, the following will be confirmed: <ul style="list-style-type: none"> • Requirement for water quality measures • Location and size of water quality measures • Capacity for spills in the sediment basin design volume. 	Design contractor	Detailed design
SWQ- 2	Acid sulphate soils	During detailed design, an Acid Sulfate Soil Management Plan will be prepared. The plan will include as a minimum: <ul style="list-style-type: none"> • A summary of the available ASS information relevant to the proposal area 	Design contractor	Detailed design

ID	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> • Confirm the process for identification of ASS/PASS throughout construction • Identify areas where ASS/PASS are expected during project activities • Indicate the management measures to be implemented if ASS/PASS is encountered during dewatering • Indicate the management measures to be implemented if ASS/PASS is excavated during piling activities • Outline the monitoring requirements for ASS/PASS to confirm the surrounding area is being protected • Confirm the treatment and disposal requirements for any ASS/PASS encountered • Detail the reporting requirements. 		
SWQ- 3	Soil and water quality	<p>A Soil and Water Management Plan (SWMP) will be prepared as part of the CEMP in accordance with the requirements of RMS contract specification G38 prior to the commencement of construction. The SWMP will also address the following:</p> <ul style="list-style-type: none"> • Roads and Maritime Code of Practice for Water Management, the Roads and Maritime Erosion and Sedimentation Procedure • The NSW Soils and Construction – Managing Urban Stormwater Volume 1 “the Blue Book” (Landcom, 2004) and Volume 2 (DECC, 2008) • Roads and Maritime Technical Guideline: Temporary Stormwater Drainage for Road Construction, 2011 • Roads and Maritime Technical Guideline: Environmental Management of Construction Site Dewatering, 2011. 	Roads and Maritime	Pre-construction
SWQ- 4	Soil and water quality	<p>The SWMP will detail the following as a minimum:</p> <ul style="list-style-type: none"> • Identification of catchment and sub-catchment areas, high risk areas and sensitive areas • Sizing of each of the above areas and catchment • The likely volume of run-off from each road sub-catchment • Direction of flow of on-site and off-site water • Separation of on-site and off-site water • The direction of run-off and drainage points during each stage of construction • The locations and sizing of sediment traps such as sump or basin as well as associated drainage • Dewatering plan which includes process for monitoring, flocculating and dewatering water from site (ie sediment basin and sumps) 	Roads and Maritime	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> • Identification of areas of PASS that may be encountered during the dewatering work and mitigation measures required if encountered • The staging plans, location, sizing and details of creek alignment and realignment controls for scour protection and bank and bed stabilisation including those used during construction and long term. • A mapped plan identifying the above • Include progressive site specific Erosion and Sedimentation Control Plans (ESCPs). These plans are to be updated at least fortnightly • A process to routinely monitor the BOM weather forecast • Contingency for any acid sulphate soils or salinity found during construction • Preparation of a wet weather (rain event) plan which includes a process for monitoring potential wet weather and identification of controls to be implemented in the event of wet weather. These controls are to be shown on the ESCPs • Provision of an inspection and maintenance schedule for ongoing maintenance of temporary and permanent erosion and sedimentation controls. 		
SWQ- 5	Contaminants entering receiving environments during construction	<p>The following measures relating to the storage and management of plant, equipment, chemicals fuels and liquids will be implemented to minimise the risk of contaminants entering receiving environments (including soil, water and air):</p> <ul style="list-style-type: none"> • Designated exclusion zones will be identified for the storage and use of construction plant and equipment. These zones will delineate traffic areas and restrict entry and exit points to construction sites • All fuels, chemicals and liquids will be stored and disposed of in accordance with Storing and Handling Liquids: Environmental Protection Participants Manual (DECC, 2007) • Refuelling of plant and equipment will occur in bunded areas located a minimum of 40 m from drainage lines or waterways • Plant, equipment and vehicle washdown will occur in a designated bunded area away from waterways and drainage lines • All concrete washouts will occur into a sealed receptacle or bunded concrete washout area with an impermeable liner. The concrete washout area will be sized to be 120% of the estimated volume of the waste that will be received into the washout area at any one time • Any material transported onto pavement surfaces will be swept and removed at the end of each working day. 	Construction contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
SWQ- 6	Management of stockpile and compound sites	<p>Management measures for stockpile and compound sites will be incorporated in the SWMP and ESCPs and will include the following measures:</p> <ul style="list-style-type: none"> • Stockpile and compound sites will be located away from overland flow paths and areas of high topography with minimal upstream catchment • Stockpile and compound sites will be maintained in accordance with Roads and Maritime's Stockpile Site Management Procedures (Roads and Maritime, 2001) • The number and size of stockpile and compound sites will be minimised throughout the proposal • Runoff from stockpile and compound sites will be treated with a stockpile- specific sediment basin, which will be monitored • The base of stockpile and compound sites will be lined if they are to be located over a shallow water table, and will be covered with plastic sheets, where required • Identify areas where ASS or PASS will be encountered during excavation activities • Indicate the stockpile management measures to be implemented if ASS or PASS are excavated during piling activities • Vehicle movements will be restricted to designated pathways, where feasible. 	Construction contractor	Construction
SWQ- 7	Accidental spills during construction, resulting in the release of contaminants into waterways and the soil	<p>A site-specific Emergency Spill Plan will be developed as part of the SWMP. It will include spill management measures in accordance with the Code of Practice for Water Management and Bunding and Liquid Chemical Storage, Handling and Spill Management (DEC, 2005) and Roads and Maritime's Environmental Incident Classification and Reporting Procedures (Roads and Maritime, 2014)</p> <p>Should a spill occur during construction, the Emergency Spill Plan will be implemented. Emergency spill kits will be kept at areas identified as having the highest spill risk at all times.</p>	Construction contractor	Construction
Contamination				
CL-1	Identification and management of contaminated land	<p>A Contamination Management Plan (CMP) will be prepared in accordance with the <i>Contaminated Land Act 1997</i> and relevant EPA Guidelines. This plan will form part of the CEMP and will include at a minimum:</p> <ul style="list-style-type: none"> • Contaminated land legislation and guidelines including any relevant licences and approvals to be obtained • Identification of rehabilitation requirements, classification, transport and disposal requirements of any contaminated land within the construction footprint 	Construction contractor	Pre-construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> Contamination management measures including waste classification and reuse procedures and unexpected finds procedures Monitoring and sampling procedure for landfill seepage (leachate) A procedure for dewatering and disposal of potentially contaminated liquid waste In the event that indications of contamination are encountered (known and unexpected, including odorous or visual indicators), work in the area will immediately cease until a contamination assessment can be prepared to advise on the need for remediation or other action, as deemed appropriate A process for reviewing and updating the plan. 		
CL-2	Remedial Action Plan for contaminated areas	<p>A Remedial Action Plan (RAP) will be prepared and implemented in accordance with relevant regulatory requirements. The RAP will include:</p> <ul style="list-style-type: none"> Relevant procedures to manage health and safety of construction staff during remediation Validation of residual soils in any resulting excavations to demonstrate suitability of remaining materials to remain on site Further assessment of the wetland area including an assessment of the stockpiled material within the wetland area and waste classification under the Waste Classification Guidelines (DECCW, 2009) for off-site removal. The RAP and Validation Report will be provided to ARTC for review and comment. 	Construction contractor	Pre-construction
CL-3	Management of asbestos	<p>An asbestos management plan will be prepared as part of the CEMP and will be in accordance with NSW EPA guidelines (including waste guidelines) and relevant industry codes of practice. The asbestos management plan will include but not be limited to:</p> <ul style="list-style-type: none"> Identification of potential asbestos on site Procedures to manage and handle asbestos and avoid cross contamination Outline the mitigation measures for encountering asbestos Procedures for disposal of asbestos in accordance with NSW EPA guidelines (including the waste guidelines) and relevant industry codes of practice. 	Construction contractor	Pre-construction
CL-4	Classification and disposal of potential contaminants	<p>All potentially contaminated wastes generated during construction will be classified according to the Waste Classification Guidelines: Parts 1 and 2 (DECC, 2008). Wastes will be disposed to a licensed disposal facility or re-used in construction, as appropriate.</p>	Construction contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
CL-5	Management of contamination on ARTC land	Contaminated material located at the stockpile site on the southern side of the proposed Wentworth Avenue underpass (refer to Figure 7-15) will be legally disposed from ARTC land at an appropriately licensed facility. Fill material permanently located on ARTC land will be certified clean.	Construction contractor	Construction
CL-6	Remediation of SACL land	Details on the remediation of land will be agreed with SACL during lease negotiations.	Roads and Maritime	Detailed design
Air quality				
AQ-1	Air quality impact during construction	<p>An Air Quality Management Plan (AQMP) will be prepared as part of the CEMP. The plan will include but not be limited to:</p> <ul style="list-style-type: none"> • A map identifying locations of sensitive receivers • Identification of potential risks/impacts due to the work/activities as dust generation activities • Management measures to minimise risk including a progressive stabilisation plan • A process for monitoring dust on site and weather conditions • A process for altering management measures as required. • The management measures within the AQMP will include as a minimum: • Vehicles transporting waste or other materials that have a potential to produce odours or dust are to be covered during transportation • Dust will be suppressed on stockpiles and unsealed or exposed areas using methods such as water trucks, temporary stabilisation methods, soil binders or other appropriate practices • Disturbed areas will be minimised in extent and rehabilitated progressively • Speed limits will be imposed on unsealed surfaces • Stockpiles will be located as far away as feasible from residences and other sensitive receivers • Works (including the spraying of paint and other materials) will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely • Plant, vehicles and equipment will be maintained in a proper and efficient manner and in accordance with manufacturer's specifications • Wind conditions will be monitored and activities scheduled where possible to avoid winds with a high potential (ie strong winds from the west or southwest) to avoid adverse impacts at nearest sensitive receivers. 	Roads and Maritime	Pre-construction Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
Aboriginal heritage				
AH-1	Unexpected find of Aboriginal heritage artefacts	In the event of an unexpected find of an Aboriginal heritage item (or suspected item): <ul style="list-style-type: none"> • Work will cease in the affected area • The Roads and Maritime's Environmental Officer, Sydney Region will be contacted for advice on how to proceed • The Unexpected Archaeological Finds Procedure (Roads and Maritime, 2012) will be followed. 	Construction contractor	Construction
Land use and property				
LU-1	Property acquisition	Roads and Maritime will consult with property owners impacted by the proposal. Property acquisition will be managed in accordance with the provisions of Roads and Maritime's Land Acquisition Policy (Roads and Maritime, 2012b) and the Land Acquisition (Just Terms Compensation) Act 1991.	Roads and Maritime	Detailed design
LU-2	Memorandum of Understanding (MOU)	Roads and Maritime will continue to consult with SACL to agree on an MOU for the proposal.	Roads and Maritime	Detailed design
LU-3	Use of land leased to SACL	The use of leased land and any conditions associated with the use of that land will be agreed between SACL and Roads and Maritime during preparation of the lease agreement. Details on stockpiling will be agreed with SACL during lease negotiations.	Roads and Maritime	Detailed design
LU-4	Impacts on SACL land and assets	Roads and Maritime will continue to investigate opportunities to reduce the impact of the proposal in SACL land and assets.	Roads and Maritime	Detailed design
Socio-economic				
SE-1	Community consultation	A Communication Plan will be prepared and included in the CEMP. The Communication Plan will include (as a minimum): <ul style="list-style-type: none"> • Requirements to provide details and timing of proposed activities to affected residents • Contact name and number for complaints • Procedure to notify adjacent land users for changed conditions during the construction period such as traffic, pedestrian or driveway access. 	Construction contractor	Pre-construction Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
		The communications plan will be prepared in accordance with G36 requirements and Roads and Maritime's Community Engagement and Communications Manual (2012).		
SE-2	Local goods and services	Goods and services will be sourced locally during construction wherever possible to support the local economy.	Construction contractor	Construction
SE-3	Proposal feedback	Roads and Maritime will continue to consider proposal feedback during subsequent stages of proposal development.	Roads and Maritime	Detailed design
SE-4	Airport infrastructure and assets	Any airport infrastructure and assets affected by the proposal will be restored and/or relocated by Roads and Maritime.	Roads and Maritime	Construction
SE-5	Impact of the proposal on SACL signage	Roads and Maritime will investigate locations for the relocated advertising structure at Ascot Lodge. A new site for the structure will be selected by Roads and Maritime in consultation with SACL.	Roads and Maritime	Detailed design
SE-6	Adjustment, relocation and protection of utility services	Further detail regarding adjustment, relocation or protection of utility services will be made available to SACL.	Roads and Maritime	Detailed design
Greenhouse gas and climate change				
GG-1	Impacts on climate change from construction activities	<p>During construction, the following measures will be considered and implemented where possible:</p> <ul style="list-style-type: none"> • Plant and equipment will be switched off when not in use • Vehicles, plant and construction equipment will be appropriately sized for the task and properly maintained so as to achieve optimum fuel efficiency • Materials will be delivered with full loads and will come from local suppliers, where possible • Energy efficiency and related carbon emissions will be considered when selecting vehicles and equipment • Vegetation clearing will be reduced as much as feasible, and re-established in suitable areas when construction is completed • Waste will be reduced and recycled as a preference before disposing to landfill. 	Construction contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
GG-2	Climate change risks to construction	Environmental safeguards and management measures in the CEMP will be designed to accommodate and respond to the increased frequency and severity of rainfall events.	Construction contractor	Pre-construction
Waste and resource management				
WR-1	Generation of construction waste	<p>The following resource management hierarchy principles will be followed through the project life cycle:</p> <ul style="list-style-type: none"> • Unnecessary resource consumption will be avoided as a priority • Where avoidance is not possible, waste will be processed for resource recovery (including reuse of materials, reprocessing, recycling and energy recovery) • Where resource recovery is not possible, waste will be disposed as a last resort at an appropriately licensed waste facility – in accordance with the <i>Waste Avoidance and Resource Recovery Act 2001</i> and the EPA waste classification guidelines • Procurement will endeavour to use materials and products with a recycled content, provided that material or product is cost-effective and performance-effective. 	Construction contractor	Detailed design, pre-construction, construction
WR-2	Generation of construction waste	<p>A Resource and Waste Management Plan (RWMP) will be prepared and include the following (as a minimum):</p> <ul style="list-style-type: none"> • The type, classification and volume of all materials to be generated and used on site including identification of recyclable and non-recyclable waste in accordance with EPA Waste Classification Guidelines • Quantity and classification of excavated material generated as a result of the proposal (refer to Roads and Maritime's Waste Management Fact sheets 1-6, 2012) • Interface strategies for cut and fill on site to ensure re-use where possible • Strategies to 'avoid', 'reduce', 'reuse' and 'recycle' materials. • Classification and disposal strategies for each type of material • Destinations for each resource/waste type either for on-site reuse or recycling, offsite reuse or recycling, or disposal at a licensed waste facility • Details of how material will be stored and treated on-site. • Identification of available recycling facilities on and off site • Identification of suitable methods and routes to transport waste. • Procedures and disposal arrangements for unsuitable excavated material or contaminated material • Site clean-up for each construction stage. 	Construction contractor	Construction

ID	Impact	Environmental safeguards	Responsibility	Timing
Cumulative environmental impacts				
CE-1	Cumulative traffic and noise impacts from construction of multiple projects	The CEMP will be updated as required to incorporate potential cumulative impacts from surrounding development activities as they become known. This will include close liaison with the authorities carrying out the other projects, and a process to review and update mitigation measures as new work begins or if complaints are received.	Construction contractor	Detailed design Pre-construction Construction
CE-2	Cumulative construction impacts	A working group will be formed to manage cumulative construction impacts associated with the proposal and other Sydney Airport and Roads and Maritime projects. This group will also coordinate between the projects and the proposal.	Roads and Maritime	Detailed design
CE-3	Consultation with SACL regarding cumulative noise impacts	Roads and Maritime will continue to consult with SACL regarding the potential for cumulative noise impacts due to concurrent construction of Roads and Maritime and SACL developments.	Roads and Maritime	Detailed design Pre-construction Construction

7 Conclusion

This chapter provides the justification for the revised proposal taking into account its biophysical, social and economic impacts, the suitability of the site and whether or not the revised proposal is in the public interest. The revised proposal is also considered in the context of the objectives of the EP&A Act, including the principles of ecologically sustainable development as defined in Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*.

7.1 Justification

The WestConnex Enabling Works – Airport East Precinct REF was determined in February 2015 under Part 5A of the EP&A Act. During detailed design several changes to the Project were developed to improve its functioning and efficiency during the detail design process (refer to Section 1).

This Addendum REF has been prepared to assess the potential environmental impacts associated with the revised proposal. The revised proposal is not considered to result in any additional material or substantial impacts to the environment in addition to those caused by the determined Project. Therefore no additional environmental safeguards or measures are therefore considered to be required for the revised proposal.

No additional stakeholder or community consultation has been undertaken during the development of the revised proposal, however, Roads and Maritime would continue to consult with the community and relevant Government agencies during delivery of the works.

Roads and Maritime is the proponent and determining authority for the revised proposal. By adopting the requirements of the ISEPP, the revised proposal may be carried out without development consent, and is therefore subject to assessment under Part 5 of the EP&A Act. Consent from Bayside Council is not required.

7.2 Objects of the EP&A Act

Table 7-1 identified the objectives of the EP&A Act and their relevance to the revised proposal.

Table 7-1: Objectives of the EP&A Act 1979 and relevance to the revised proposal

Object	Comment
5(a)(i) To encourage the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment.	<ul style="list-style-type: none">• The revised proposal detailed in this Addendum REF would not interfere with the management, development and conservation of natural and artificial resources.• The main objective of the project is to improve the road network around Sydney Airport and Port Botany and this will promote the social and economic welfare of local and regional communities using these roads and visitors to Sydney.• Where possible, throughout the detailed design of the revised proposal, management and conservation of natural resources would be incorporated into construction specifications and project designs.

Object	Comment
5(a)(ii) To encourage the promotion and co-ordination of the orderly economic use and development of land.	<ul style="list-style-type: none"> The overall upgrade would assist in the coordination of the orderly economic use and development of land for the region and along this significant transport corridor. The revised proposal would assist with achieving the project, resulting in greater access and connectivity throughout the wider Sydney Metropolitan region for motorists, public transport travellers, pedestrians and cyclists.
5(a)(iii) To encourage the protection, provision and co-ordination of communication and utility services.	<ul style="list-style-type: none"> Utilities affected by the revised proposal would be relocated, protected and maintained where required.
5(a)(iv) To encourage the provision of land for public purposes.	<ul style="list-style-type: none"> The revised proposal is intended to be used for a public purpose.
5(a)(v) To encourage the provision and co-ordination of community services and facilities.	<ul style="list-style-type: none"> The revised proposal, as part of the Project, would improve access and connectivity in both the local community and the wider Sydney Metropolitan region.
5(a)(vi) To encourage the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats.	<ul style="list-style-type: none"> The revised proposal has been designed to minimise impacts on the environment and is not expected to create impacts to threatened species and populations, and ecological communities and their habitats.
5(a)(vii) To encourage ecologically sustainable development.	<ul style="list-style-type: none"> Ecologically sustainable development is considered in Sections 7.2.1– 7.2.4 below.
5(a)(viii) To encourage the provision and maintenance of affordable housing.	<ul style="list-style-type: none"> Not relevant to the project.
5(b) To promote the sharing of the responsibility for environmental planning between different levels of government in the State.	<ul style="list-style-type: none"> Not relevant to the project.
5(c) To provide increased opportunity for public involvement and participation in environmental planning and assessment.	<ul style="list-style-type: none"> Stakeholders and community members were consulted during the planning process for the project (refer to Chapter 6 of the Project REF). The Project REF was placed on public display for community comment and feedback, and this feedback was considered during the detailed design process and prior to this Addendum REF. Consultation would continue during the construction and operation phases of the overall project.

7.2.1 The precautionary principle

The precautionary principle deals with uncertainty in decision-making. It provides that if there is a threat of serious or irreversible environmental damage, a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

As with the project, the revised proposal would not threaten serious or irreversible environmental damage that would result in impacts of a permanent nature. All measures considered to be necessary to safeguard environmental values have been identified and included in preparation of

this assessment. No serious or irreversible environmental damage is predicted to occur with the implementation of the identified environmental safeguards.

7.2.2 Intergenerational equity

Intergenerational equity provides that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

The project would benefit future generations by improving access and connectivity for the wider Sydney Metropolitan region by reducing traffic congestion, reducing travelling times, improving road safety. It would also provide for greater access, connectivity and safety for pedestrians and cyclists. Should the Project not proceed, travelling times and traffic volumes would be expected to increase over time.

The revised proposal would create minor, temporary impacts during construction and require the removal of roadside vegetation that would be replanted. These impacts are not considered to be of a nature or extent that would disadvantage future generations.

Implementation of the safeguards outlined in this Addendum REF would ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

7.2.3 Conservation of biological diversity and ecological integrity

The conservation of biological diversity and ecological integrity was a fundamental consideration during the development of both the determined REF and this Addendum REF for the revised proposal. Conservation of biological diversity and ecological integrity has been considered at all stages of the proposed works and would be further considered during the construction phase of the project. Where possible, impacts to biological diversity and ecological integrity have been avoided and mitigated as outlined in this Addendum REF and the Project REF.

7.2.4 Improved valuation, pricing and incentive mechanisms

The principle of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a Project, including air, water, land and living things. While it is often difficult to place a reliable monetary value on the residual, environmental and social effects of the alternative bridge design, environmental and social issues were considered in the planning and establishment of the need for this activity. The value placed on environmental resources is evident in the extent of the planning, environmental investigations and design of management measures.

Environmental and social issues were considered in the strategic planning and establishment of the need for the revised proposal, and in consideration of various proposal options. The value placed on environmental resources is evident in the extent of the planning and environmental investigations, and in the design of the proposed mitigation measures and safeguards. Implementation of these mitigation measures and safeguards would result in an economic cost to Roads and Maritime, which would be included in both the capital and operating cost of the Project.

7.3 Conclusion

The revised proposal is subject to assessment under Part 5 of the EP&A Act. This Addendum REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the revised proposed activity. This has included consideration of conservation agreements and plans of management under the NPW Act, joint management and biobanking agreements under the TSC Act, wilderness areas, critical habitat, impacts on threatened species, populations and ecological communities and their habitats and other protected fauna and native plants. It has also considered potential impacts to matters of national environmental significance listed under the Federal EPBC Act.

Due to its partial location on Sydney Airport land, the revised proposal is subject to:

- Sydney Airport's Development Application and Consent Application process to satisfy the requirements of the Airports Act
- Application for a Building Permit to the Airport Building Controller in accordance with the Airports (Building Control) Regulations 1996. The Sydney Airport Consent Application must comply with the conditions of the Development Approval
- Airspace approval in accordance with the Airports (Protection of Airspace) Regulations 1996
- Compliance with the Airport (Environmental Protection) Regulations 1997.

The environmental impacts of the revised proposal are not likely to be significant and therefore it is not necessary for an environmental impact statement to be prepared and approval to be sought for the Project from the Minister for Planning and Infrastructure under Part 5.1 of the EP&A Act. The revised proposal is unlikely to affect threatened species, populations or ecological communities or their habitats within the meaning of the TSC Act or *Fisheries Management Act 1994* and therefore a Species Impact Statement is not required. The revised proposal would not affect Commonwealth land or have an impact on any matters of national environmental significance.

The revised proposal as described in this Addendum REF is expected to result in minor impacts during the construction period, such as removal of roadside vegetation and temporary visual impacts. Mitigation measures as detailed in the Project REF would ameliorate or minimise these expected impacts. The Project would enable the effective and efficient implementation of the overall project. On balance the revised Project is considered justified and the following conclusions are made:

1. Significant impact to the environment

The environmental impacts of the revised proposal are not likely to be significant and therefore it is not necessary for an environmental impact statement to be prepared and approval to be sought for the proposal from the Minister for Planning under Part 5.1 of the EP&A Act.

2. Significant impact to NSW listed biodiversity matters

The revised proposal is not likely to significantly affect threatened species, populations or ecological communities or their habitats, within the meaning of the *Threatened Species Conservation Act 1995* or *Fisheries Management Act 1994* and therefore a Species Impact Statement is not required.

3. Significant impact to nationally listed biodiversity matters

The revised proposal is not likely to significantly affect threatened species, ecological communities or migratory species, within the meaning of the *Environment Protection and Biodiversity Conservation Act 1999*

4. Commonwealth land and other matters of national environmental significance

The revised proposal does not significantly affect Commonwealth land within the meaning of the *Environment Protection and Biodiversity Conservation Act 1999* and a referral to the Federal Department of the Environment is not required.

The revised proposal is not likely to significantly affect other matters of national environmental significance, within the meaning of the *Environment Protection and Biodiversity Conservation Act 1999* and a referral to the Federal Department of the Environment is not required.

Roads and Maritime has considered the potential need for the design refinements as part of the Airport East Precinct project against its potential benefits and impacts, and has determined that the beneficial outcomes outweigh the potential adverse outcomes, provided adequate mitigation is implemented.

8 Certification

This addendum review of environmental factors provides a true and fair review of the revised 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 revised proposal.



Lucia Coletta
Environmental Approvals Lead
Aurecon Australasia Pty Ltd
Date: 07/03/17

I have examined this addendum review of environmental factors and the certification by Lucia Coletta from Aurecon and accept the addendum review of environmental factors on behalf of Roads and Maritime.



Lindsay Mulligan
Project Manager/Authorised Delegate
Infrastructure Development/Project Delivery
Date: 14/03/17

9 References

Aurecon 2015, *WestConnex Enabling Works – Airport East Precinct Upgrade Detailed Design Stakeholder and Community Participation Plan*, March 2015.

Aurecon 2016, *Airport East Precinct – Addendum review of environmental factors*, April 2016

Australian Standard 1997, *AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting*, December 1997.

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Terms and acronyms used in this REF

ABC	Airport Building Controller
AHIMS	Aboriginal Heritage Information Management System
Airports Act	<i>Airports Act 1996</i>
ARTC	Australian Rail Track Corporation
BMP	Biodiversity Management Plan
CASA	Civil Aviation Safety Authority
CEMP	Construction Environmental Management Plan
CNVMP	Construction Noise and Vibration Management Plan
DECCW	Department of Environment, Climate Change and Water
DIRD	Commonwealth Department of Infrastructure and Regional Development
EEC	Endangered Ecological Community
EIA	Environmental impact assessment
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW). Provides the legislative framework for land use planning and development assessment in NSW
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth). Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
EPL	Environmental Protection Licence
ESD	Ecologically sustainable development. Development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased
FM Act	<i>Fisheries Management Act 1994</i> (NSW)
ISEPP	State Environmental Planning Policy (Infrastructure) 2007
ITS	Intelligent transport systems
LEP	Local Environmental Plan. A type of planning instrument made under Part 3 of the EP&A Act.
LGA	Local Government Area
LOS	Level of Service

NES	Matters of national environmental significance under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> .
NPW Act	<i>National Parks and Wildlife Act 1974 (NSW)</i>
NVMP	Noise and Vibration Management Plan
OEH	Office of Environment and Heritage
OLS	Obstacle Limitation Surface
PACHCI	Procedure for Aboriginal Cultural Heritage Consultation and Investigation
PEMP	Project Environmental Management Plan
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
QA Specifications	Specifications developed by Roads and Maritime Services for use with roadworks and bridgeworks contracts let by Roads and Maritime Services
REF	Review of Environmental Factors
RESA	Runway End Safety Area
RNP	Road Noise Policy
RTA	NSW Roads and Traffic Authority
SACL	Sydney Airport Corporation Limited
SEPP	State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act.
SEPP 64	State Environmental Planning Policy No 64—Advertising and Signage
Sydney Airport	Sydney's Kingsford Smith Airport
TEC	Threatened Ecological Community
The revised proposal	Airport East Precinct project Addendum
TMP	Traffic Management Plan
TSC Act	<i>Threatened Species Conservation Act 1995 (NSW)</i>
VMS	Variable Message Sign

Appendix A

Consideration of clause 228(2) factors and matters of national environmental significance

Clause 228(2) Checklist

In addition to the requirements of the *Is an EIS required?* guideline as detailed in the REF, the following factors, listed in clause 228(2) of the *Environmental Planning and Assessment Regulation 2000*, have also been considered to assess the likely impacts of the revised proposal on the natural and built environment.

Factor	Impact
<p><i>a. Any environmental impact on a community?</i></p> <p>The revised proposal may result in temporary visual, traffic and access impacts during construction, but is not expected to create noticeable overall impacts to nearby residents or users of the road network when compared to the impacts identified in the Project REF.</p> <p>Potential impacts would be minimised with the implementation of the safeguards detailed in Table 6-1 of the Submissions Report.</p>	<p>Short-term, minor, negative</p>
<p><i>b. Any transformation of a locality?</i></p> <p>The revised proposal may result in temporary visual impacts during construction, but is not expected to create noticeable overall impacts to nearby residents or users of the road network when compared to the impacts identified in the Project REF.</p> <p>The revised proposal is not expected to create any long-term visual impacts or changes to the area above those identified in the Project REF. The ITS conduit installation works would also create visual impacts however these would be temporary and short-term, as the conduits would be located underground and the area rehabilitated on completion.</p>	<p>Short-term, minor, negative</p>
<p><i>c. Any environmental impact on the ecosystems of the locality?</i></p> <p>The revised proposal would require the additional removal of small areas of planted roadside vegetation. Vegetation clearing for the revised proposal would not have any significant impact on the ecosystems of the locality, as the revised proposal would not impact habitat or viability of any species, including any threatened flora or fauna species. Biodiversity impacts and proposed safeguard and management measures to be implemented are described further in Section 7.5.4 of the Project REF and Table 6-1 of the Submissions Report.</p>	<p>Long-term, minor, negative</p>
<p><i>d. Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</i></p> <p>During construction, the revised proposal would result in temporary visual impacts to users of the road network. The majority of visual impacts during construction would be caused by construction machinery, compound areas, temporary fencing, signage, light spill and the generation of wastes. These impacts would have already occurred at a greater scale as part of the larger construction works associated with the proposal.</p> <p>Notwithstanding the above visual impacts of the revised proposal, some enhancements would improve the visual amenity for the area in the long term, such as landscaping undertaken in roadside areas following completion of construction.</p>	<p>Short-term, minor, negative</p> <p>Long-term, minor, positive</p>

Factor	Impact
<p>e. <i>Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?</i></p> <p>The revised proposal would not impact on any know heritage items, cultural heritage values places or buildings with an aesthetic, anthropological, archaeological, scientific or socially significant value.</p>	Nil
<p>f. <i>Any impact on the habitat of protected fauna (within the meaning of the National Parks and Wildlife Act 1974)?</i></p> <p>The revised proposal would not remove any good quality native vegetation, threatened ecological communities or threatened species. The removal of modified and exotic vegetation for the revised proposal would not result in a significant impact on the habitat of protected fauna. Measures proposed to minimise the revised proposal's biodiversity impact are outlined in Table 6-1 of the Submissions Report.</p>	Long-term, minor, negative
<p>g. <i>Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</i></p> <p>The revised proposal would not result in impacts to any threatened or endangered species of animal, plant or other form of life, whether living on land, in water or in the air. The removal of modified and exotic vegetation for the revised proposal would not result in a significant impact on the habitat or foraging area for protected fauna.</p> <p>Potential impacts would be minimised with the implementation of the safeguards detailed in Table 6-1 of the Submissions Report.</p>	Nil
<p>h. <i>Any long-term effects on the environment?</i></p> <p>The revised proposal is not expected to result in any long-term effects on the environment beyond those identified in the Project REF.</p>	Nil
<p>i. <i>Any degradation of the quality of the environment?</i></p> <p>The revised proposal is not expected to increase the risk of degradation of the quality of the environment beyond that identified in the Project REF. The project has the potential to degrade the quality of the environment through accidental spills and erosion and sediment during construction. A Soil and Water Management Plan (SWMP) would be prepared and implemented prior to construction to mitigate these impacts (refer to Section 7.8.4 of the Project REF and Table 6-1 of the Submissions Report).</p>	Short-term, minor, negative
<p>j. <i>Any risk to the safety of the environment?</i></p> <p>The revised proposal is not expected to increase the risk of safety to the environment beyond that identified in the Project REF.</p> <p>Construction of the revised proposal has the potential to temporarily decrease safety for other road users and pedestrians due to carrying out construction work adjacent to operating traffic lanes, the movement of construction vehicles to and from the site, and construction works restricting access to pedestrian footpaths. This would be managed through the implementation of the Traffic Control Plan (TCP) prepared for the Project REF (discussed further in Section 7.1.4 of the Project REF).</p>	Short-term, minor, negative
<p>k. <i>Any reduction in the range of beneficial uses of the environment?</i></p> <p>The revised proposal would not result in any reduction in the range of beneficial uses of the environment.</p>	Nil

Factor	Impact
<p><i>l. Any pollution of the environment?</i></p> <p>The revised proposal is not expected to increase the risk of accidental spills during construction beyond that identified in the Project REF.</p> <p>There is the potential for accidental spills of chemicals during construction which could affect the surrounding land, surface water and groundwater.</p> <p>There is the potential for air quality and noise amenity to be reduced during construction activities.</p> <p>The revised proposal is unlikely to cause any significant pollution of the environment if the safeguards detailed in the Project REF are implemented and maintained.</p>	<p>Short-term, minor, negative</p>
<p><i>m. Any environmental problems associated with the disposal of waste</i></p> <p>No environmental problems are anticipated for the disposal of waste as a result of the revised proposal. Potential impacts would be minimised with the implementation of the safeguards detailed in the determined REF.</p>	<p>Short-term, minor, negative</p>
<p><i>n. Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?</i></p> <p>The revised proposal would not increase demands on resources, which are, or are likely to become, in short supply. The revised proposal would require a negligible increase in construction materials above that required for the project.</p>	<p>Nil</p>
<p><i>o. Any cumulative environmental effect with other existing or likely future activities?</i></p> <p>The revised proposal is not expected to increase the timeframe of the project or result in a substantial intensification of activities that could enhance cumulative effects with other projects being undertaken at the same time in the surrounding area. Cumulative impacts associated with the project are discussed in Section 7.16 of the Project REF.</p>	<p>Nil</p>
<p><i>p. Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?</i></p> <p>The revised proposal would not occur in a coastal area and therefore is not expected to result in any impacts on coastal processes and coastal hazards. Issues associated with projected climate change conditions that may affect the revised proposal were considered in the Project REF and these are not expected to affect the revised proposal provided the mitigation measures recommended are implemented.</p>	<p>Nil</p>

Matters of National Environmental Significance

Under the environmental assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999*, the following matters of national environmental significance and impacts on Commonwealth land are required to be considered to assist in determining whether the revised proposal should be referred to the Australian Government Department of the Environment.

The REF identifies that there would not be a significant impact on matters of national significance. As such, a referral is **not** required for proposed actions. Impacts on these matters are assessed as part of the REF in accordance with Australian Government significant impact criteria and taking into account relevant guidelines and policies.

Factor
<p><i>a. Any impact on a World Heritage property?</i></p> <p>The revised proposal would not impact on a World Heritage property.</p>
<p><i>b. Any impact on a National Heritage place?</i></p> <p>The Sydney Kingsford Smith Airport Group is an indicative place on the Commonwealth Australian Heritage Database, and is located to the west of the revised proposal.</p> <p>The revised proposal includes installation of a retaining wall on the western side of General Holmes Drive, within the heritage curtilage of the Sydney Kingsford Smith Airport Group. SACL have requested the inclusion of this retaining wall in the Airport East Project so facilitate their future construction activities. This would not require an extension of the part of the curtilage identified to be reduced in the Project REF. The revised proposal is therefore not expected to result in an impact to the Sydney Kingsford Smith Airport Group. Heritage has been assessed in the Project REF and revised proposal is not expected to result in impacts not previously assessed.</p>
<p><i>c. Any impact on a wetland of international importance?</i></p> <p>The revised proposal would not directly impact on a wetland of international importance or increase the potential for the project to cause such impacts. However, the proposal is located near Mill Ponds, which are part of the Botany Wetlands complex. The Botany Wetlands are nationally important wetlands however do not comprise a wetland of international importance</p> <p>Sedimentation and erosion control measures to avoid indirect impact on the Mill Ponds and Botany Wetlands complex would be applied during construction (refer to Section 7.8.4 of the Project REF and Table 6-1 of the Submissions Report).</p>
<p><i>d. Any impact on a listed threatened species or communities?</i></p> <p>Nil- vegetation to be removed are exotic planted species and no threatened species or communities would be impacted by the revised proposal. Biodiversity impacts and proposed safeguard and management measures to be implemented are described further in Section 7.5.4 of the Project REF and Table 6-1 of the Submissions Report.</p>
<p><i>e. Any impacts on listed migratory species?</i></p> <p>The revised proposal would require the removal of small areas of planted roadside vegetation. Vegetation clearing for the revised proposal would not have any significant impact on migratory species. Biodiversity impacts and proposed safeguard and management measures to be implemented are described further in Section 7.5.4 of the Project REF and Table 6-1 of the Submissions Report.</p>
<p><i>f. Any impact on a Commonwealth marine area?</i></p> <p>The revised proposal would not impact on a Commonwealth marine area.</p>

Factor
<p><i>g. Does the proposal involve a nuclear action (including uranium mining)?</i></p> <p>The revised proposal does not involve a nuclear action.</p>
<p><i>h. Water resource, in relation to coal seam gas development and large coal mining development?</i></p> <p>The revised proposal would not impact any water resource and does not involve a coal seam gas development or large coal mining development.</p>
<p><i>i. Additional, any impact (direct or indirect) on Commonwealth land?</i></p> <p>Sections of the revised proposal would be located on Commonwealth land prescribed under the <i>Airports Act 1996</i>. Sydney Airport is leased to SACL and approval for components of the revised proposal that would occur on Commonwealth land would be obtained from SACL (refer to Section 3.1).</p>

Appendix B

Assessment on whether the proposal is a 'major airport development'

Appendix B1: Assessment on whether the proposal is a ‘major airport development’

	Development type	Y/N/NR	Reason
Airports Act s.89(1) Meaning of major airport development For the purposes of this Act, a <i>major airport development</i> is a development that is carried out at an airport site and that consists of:			
(a)	constructing a new runway	No	The revised proposal does not involve constructing a new runway.
(b)	extending the length of a runway; or	No	The revised proposal would not extend the length of a runway.
(ba)	altering a runway (other than in the course of maintenance works) in any way that significantly changes: <ul style="list-style-type: none"> • flight paths; or • the patterns or levels of aircraft noise; or 	No	The project would require two one-week restrictions of the east-west runway, about six months apart. This would temporarily affect flight paths and patterns of aircraft noise for the areas. The noise sharing assessment concluded that the additional noise impacts associated with redistributed flights as a result of the restrictions of the east-west runway is minor (refer to Section 7.2 of the Project REF). The assessment found that the noise impacts and the changes to flight paths would not be significant. The revised proposal would not change these requirements by the project.
(c)	constructing a new building wholly or principally for use as a passenger terminal, where the building’s gross floor space is greater than 500 square metres; or	No	The revised proposal does not involve construction of any buildings for use as a passenger terminal.
(d)	extending a building that is wholly or principally for use as a passenger terminal, where the extension increases the building’s gross floor space by more than 10%; or	No	The revised proposal does not involve extension of any passenger terminals.
(e)	constructing a new building, where: <ul style="list-style-type: none"> (i) the building is not wholly or principally for use as a passenger terminal; and (ii) the cost of construction exceeds \$20 million or such higher amount as is prescribed; or 	No	No new buildings would be constructed as part of the revised proposal.
(f)	constructing a new taxiway, where: <ul style="list-style-type: none"> (i) the construction significantly increases the capacity of the airport to handle movements of passengers, freight or aircraft; and 	No	The revised proposal does not involve constructing a new taxiway.

	Development type	Y/N/NR	Reason
	(ii) the cost of construction exceeds \$20 million or such higher amount as is prescribed; or		
(g)	extending a taxiway, where: (i) the extension significantly increases the capacity of the airport to handle movements of passengers, freight or aircraft; and (ii) the cost of construction exceeds \$20 million or such higher amount as is prescribed; or	No	The revised proposal does not involve extending a taxiway.
(h)	constructing a new road or new vehicular access facility, where: (i) the construction significantly increases the capacity of the airport to handle movements of passengers, freight or aircraft; and (ii) the cost of construction exceeds \$20 million or such higher amount as is prescribed; or	No	The project involves extending the Wentworth Avenue access road to form a new intersection with General Holmes Drive. The total cost of construction for this would exceed \$20 million. However, the construction of this road would not significantly increase the capacity of the airport to handle movements of passengers, freight or aircraft; rather this would only increase the capacity of the road network to meet predicted traffic volumes for 2018 (refer to Section 5.2.1 of the Project REF). The revised proposal would not change this.
(j)	extending a road or vehicular access facility, where: (i) the extension significantly increases the capacity of the airport to handle movements of passengers, freight or aircraft; and (ii) the cost of construction exceeds \$20 million or such higher amount as is prescribed; or	No	The project would involve widening General Holmes Drive and Joyce Drive. The total cost of construction would exceed \$20 million. However, this construction would not significantly increase the capacity of the airport to handle movements of passengers, freight or aircraft. The project has been designed to cater for the increase in general traffic to improve the level of service on these roads. The revised proposal would not change this.
(k)	constructing a new railway or new rail handling facility, where: (i) the construction significantly increases the capacity of the airport to handle movements of passengers, freight or aircraft; and (ii) the cost of construction exceeds \$20 million or such higher amount as is prescribed	No	The revised proposal does not involve the construction of a new railway or new rail handling facility.
(l)	extending a railway or rail handling facility, where: (i) the extension significantly increases the capacity of the airport to handle movements of passengers, freight or aircraft; and	No	The revised proposal does not involve extending a railway or a rail handling facility.

	Development type	Y/N/NR	Reason
	(ii) the cost of construction exceeds \$20 million or such higher amount as is prescribed		
(m)	a development of a kind that is likely to have significant environmental or ecological impact; or	No	The environmental assessment carried out in this Addendum REF has confirmed that the revised proposal would not have a significant environmental or ecological impact during construction or operation (refer to Section 7).
(n)	a development which affects an area identified as environmentally significant in the environment strategy; or	No	The revised proposal would not affect any areas identified as environmentally significant. Overall, while the project area discharges into the Mill Ponds (also known as the Sydney Airport Wetlands, and makes up part of the Botany Wetlands) which is an environmentally significant area in the environment strategy, the effect to water quantity and quality has been determined to be negligible (refer to Section 7.6 and 7.8 of the Project REF). The non-Aboriginal heritage and biodiversity assessments have also confirmed that the project would not have an impact on the wetlands (refer to Section 7.4 and 7.5 of the Project REF).
(na)	a development of a kind that is likely to have a significant impact on the local or regional community; or	No	Socio-economic impacts associated with the project have been assessed in Section 7.13 of the Project REF. This found the project would not have a significant impact on the local or regional community. The revised proposal would not result in additional changes.
	a development in relation to which the Minister has given an approval under section 89A	No	The Minister has not given approval to the project under section 89A of the Airports Act.
(o)	a development of a kind specified in the regulations	No	This revised proposal is not a development of a kind specified in the regulations for which a major development plan would need to be prepared.
Airports Act 1996 – Sect 89, item (4)			
(4)	Airports Act 1996 – Sect 9, item (4). The Minister may determine in writing that specified developments that are carried out at an airport site together constitute a major airport development if:	No	The revised proposal does not involve multiple specified developments. Furthermore, the revised proposal does not meet criteria specified in (1)(e)(i), (f)(i), (g)(i), (h)(i), (j)(i), (k)(i) or (l)(i),

	Development type	Y/N/NR	Reason
	Each individual development is : covered by subparagraph (1)(e)(i), (f)(i), (g)(i), (h)(i), (j)(i), (k)(i) or (l)(i); but not covered by subparagraph (1)(e)(ii), (f)(ii), (g)(ii),(h)(ii), (j)(ii), (k)(ii) or (l)(ii); and the developments are: consecutive or concurrent projects; or extensions to existing buildings.		as the revised proposal does not include constructing a new building, and its purpose is not to increase the capacity of the airport. Rather its purpose is to meet the projected demand in general traffic for the project area. The cost of construction for the project exceeds \$20 million.
	“Significant Impact on Local/ Regional Community” Guide - January 2012	No	In consideration of the significant impact guidelines and significant impact on local/regional community guide, there was found to be no significant impact as a result of the project (refer Chapter 7 of the Project REF). The revised proposal would not change this result.
Potential impacts include:			
(a)	noise	No	A construction and operational noise assessment confirmed that the impact of the project is not significant (refer to Section 7.3 of the Project REF). The revised proposal would not change this result.
(b)	odour	No	The revised proposal would not generate odour.
(c)	dust or other physical intrusions	No	An air quality impact assessment (refer to Section 7.10 of the Project REF) and impact to airport operations assessment (Section 7.2 of the Project REF) have found that the dust generated during construction of the project and the temporary physical intrusion into the protected airspace as a result of construction are not significant. The revised proposal would not alter these findings.
(d)	noticeable traffic impacts such as increased traffic congestion at certain times or an increase in heavy vehicle traffic	No	The revised proposal would not have a significant impact to traffic flows during construction with the implementation of appropriate traffic control measures and by maintaining through traffic during peak periods. Furthermore, operation of the overall project would improve traffic flows, network performance and

	Development type	Y/N/NR	Reason
			reduce travel times within the project area (refer to Section 7.1 of the Project REF).
(e)	impacts on public transport linkages or services	No	The project would maintain public transport infrastructure within the project area. The improvement to the network performance, traffic flows and travel times is likely to have a positive flow-on effect to bus services that pass through the project area (refer to Section 7.1 of the Project REF).
(f)	commercial impacts affecting the viability of business centres in the surrounding areas	No	The project and revised proposal would not reduce the viability of business centres in the surrounding areas (refer to Section 7.1 of the Project REF).
(g)	lighting impacts on residential areas or other businesses	No	The revised proposal would not affect lighting on any residential areas or other businesses.
(h)	hazardous materials or dangerous goods	No	The revised proposal would not generate any hazardous materials or dangerous goods.
(i)	impacts on implementation of local and regional planning schemes, including land use and transport planning	No	The revised proposal is consistent with the Project REF, which reviewed the proposal against the Botany Bay Local Environmental Plan 2013 and Sydney Airport Master Plan objectives (refer to Section 5.4.1 and 5.6.1 of the Project REF). The review has found that the proposal is consistent with the objectives of the zones that it is located within.
(j)	impacts on the safety, security or amenity of local communities	No	The project would have a beneficial impact on the safety of the local community, by removing the railway level crossing, which currently poses a risk to road users. The project would also improve the amenity of the local community as it would rehabilitate and restore the area of disused land between General Holmes Drive and the Port Botany Freight Rail Line.
(k)	impediments to emergency planning and response access or services	No	Improvements to the road network such as reduced travel times and improved traffic flows would have positive flow-on benefits to access for emergency services through the project area.

	Development type	Y/N/NR	Reason
Airports should ask themselves the following questions:			
(l)	Is the type of development proposed of known concern to the community or government?	No	<p>Several years ago, Sydney Airport undertook a project to construct a runway end safety area (RESA) at the western end of the east-west runway. This resulted in the operation of that runway being affected for around 18 months which, in turn, resulted in a significant change to the distribution of aircraft noise around the airport. At the time, this concerned many in the community. However, as outlined in the reasons for section 89(1)(ba) above, with respect to this project, the additional noise impacts associated with this project are expected to be minor. This is because the period during which runway operations will be affected is significantly less than occurred for the RESA project.</p> <p>The Sydney Airport Community Forum was briefed about the project at its meeting on 21 November 2014. No concerns were raised by the forum.</p>
(m)	Is the proposed development in conflict with planning schemes for the local and regional communities surrounding the airport?	No	Not applicable.
(n)	Have similar types of development raised substantial community concerns in the past?	No	See response to paragraph (l) above.
(o)	Are there any other potential community impacts	No	Other potential community impacts are addressed elsewhere in this table.
<p>Dealing with cumulative impacts</p> <p>Intermittent and cumulative effects need to be considered and if the proposed development is to be undertaken in stages over a period of time, the impacts of the development once completed need to be considered, even if the potential impacts will not be evident in the first instance.</p>			
(p)	Will the development be undertaken in stages over a period of time?	No	
External consultation			

Development type	Y/N/NR	Reason
<p>The Guidelines indicate that:</p> <p><i>Airport lessee companies should undertake early consultation with their local consultation groups to allow a reasonable time for issues to be worked through and to avoid delays to development schedules. Effective consultation arrangements will be an important part of the process of identifying whether potential impacts are significant enough to warrant a major development plan process.</i></p> <p>For Sydney Airport, the following need to be consulted as part of the process of deciding whether or not the proposed development is of a kind that is likely to have a significant impact on the local or regional community:</p> <p>Sydney Airport Community Forum Planning Coordination Forum City of Sydney Council, City of Botany Bay Council, Marrickville Council; and Rockdale City Council Other people or bodies as appropriate.</p> <p>To enable the consultation to be meaningful, the following information will need to be provided to the stakeholder:</p> <p>A full description of the proposed development, where it is proposed to occur on the airport site and the expected timeframe. Maps, diagrams or a photo montage showing the proposal are recommended; A preliminary list of the anticipated environmental and/or community impacts associated with the development. Refer to paragraphs (a) to (o) above as a guide to what should be included. These should address impacts associated with construction and any impacts expected to occur once the development is operational; and Where negative impacts are anticipated, a description of what action(s) will be undertaken to ameliorate those impacts (both during construction and once operational).</p> <p>Stakeholders should be given a period of not less than two weeks in which to provide their comments (and preferably more). This will allow time to brief them directly if needed. The feedback received should be assessed to gauge the likely level of community concern about the proposed development.</p>		

Appendix C

Consultation record

Consultation records

Hardie Street Doorknock - 09 February 2017

12 properties door knocked on Hardie Street.

Hardie Street	Property type	Comments
74	Residential	Resident not home
76	Residential	Resident not home
76	Residential	Resident not home
78	Residential	Stakeholder was aware that the traffic signs with restricted right turn times were removed in mid 2016. Assumed this was a permanent change and was happy with the change as the road is very dangerous and believed this would reduce traffic incidents. Informed that a few people still turn right into the street and the police need to crack down on it. Confirmed that there was not any consultation before this change, he just noticed one day that the signs were removed.
80	Residential	Stakeholder was aware that the right turn signs had been removed in 2016 and stated that she only knew because she turned right into the street and was stopped by the police who gave her a warning. Stated that she should have been told about this change before the signs were removed as she has lived in the street a very long time and was so used to turning right that she didn't notice the signs were gone. Informed that there is a proposal in from Council to turn Hollingshed Street into a one-way street from Botany Rd to Johnson Street. Stated she is not happy with this change as it will make it almost impossible for her to get home (her garage is in Botany Lane) and could add 20 minutes to her travel times. Informed that there is a petition going around the neighbourhood to stop this proposal.
81	Residential	Resident not home
82		Residential construction site
83	Residential	Resident not home
84	Residential	Resident not home
85	Residential	Resident not home
86	Residential	No concerns raised with the change to the access into Hardie Street from Wentworth Avenue. Stated that they were busy and did not have time to discuss.
87	Residential	Was aware of the changes to the right turn into Hardie Street when he noticed the signs gone in 2016. Was happy that the change was permanent, as he believes the right turn was too dangerous anyway. Informed that some people still turn right into the street.

Hardie Street Doorknock – 20 February 2017

30 properties doorknocked on Hardie Street

Hardie Street	Property type	Comments
44	Residential	Resident not home
45B	Commercial	No concerns with the right turn changes.
46	Residential	Resident not home
47	Residential	Resident not home
48	Residential	Does not drive anymore so has no issues with right turn changes. No concerns with the project.

49	Residential	Resident not home
50	Residential	Does not have any issues with the right turn changes as too dangerous to turn right anyway.
51	Residential	Resident not home
52	Residential	Does not have any issues with the right turn changes.
53	Residential	Does not have any issues with the right turn changes.
54	Residential	Does not have any issues with the right turn changes.
55	Residential	Resident not home
56	Residential	Resident not home
57	Residential	Resident not home
58	Residential	Resident not home
60	Residential	Resident not home
61	Residential	Resident not home
62	Residential	Stakeholder was unwell and did not want to talk to SC and AB about the changes.
63	Residential	Resident not home
64	Residential	Does not have any issues with the right turn changes.
65	Residential	Resident not home
66	Residential	Does not have any issues with the right turn changes.
67	Residential	Resident not home
67 A	Residential	Resident not home
69	Residential	Does not have any issues with the right turn changes.
70	Residential	Only babysitter was home so was unable to comment.
73	Residential	Resident not home
75	Residential	Does not have any issues with the right turn changes as believes this intersection was too dangerous for a right turn anyway. Happy with the change.
79	Residential	Resident not home
84	Residential	Does not have any issues with the right turn change.



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