WestConnex
Rozelle Interchange

JOHN HOLLAND | CPB CONTRACTORS

JHCPB Joint Venture

Utilities Management Strategy Rozelle Interchange

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Document Control

Approval and authorisation

Title	Rozelle Interchange Project Utilities Management Strategy
Endorsed by Environment Representative	[redacted]
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Glossary / Abbreviations

Abbreviation	Expanded text
Area of Interest	Areas within and adjacent to the project boundary as defined in the EIS Utilities Management Strategy where utility works are proposed as part of the M4-M5 Link project. Works within the Project boundary are assessed within the EIS, while those outside the Project Boundary have been subject to environmental assessment as part of the EIS Appendix F. In combination, these have been approved as part of the Project and are referenced as 'Areas of Interest' in this document.
CoA	Conditions of Approval
CSSI	Critical State significant infrastructure
CS	Communication Strategy
CEMP	Construction Environmental Management Plan
DBYD	Dial-Before-You-Dig
DPE	Department of Planning & Environment
EMF	Electric Management Field
EPL	Environment Protection Licence under the *Protection of the Environment Operations Act 1997* (NSW)
EWMS	environmental work method statements
Feeder	A 11kV to 33 kV cable going from substation to substation. Note: A 33kV to 132kV is a sub transmission cable and above 132kV is a transmission cable.
HAMU	Historical Archaeological Management Units
High impact	Utility works that are to be undertaken during construction
HV	High voltage
JHCPB	John Holland CPB Contractors Joint Venture
kV	Kilo Volts
Low impact utility work	The definition of low impact utility work considers type of works, duration of work, time period of works and type of impact in the context of the following parameters: noise, traffic and access, biodiversity, heritage, dust, surface water and lighting. The definition of low impact utility work is outlined in Section 6 of this document.
LEP	Local Environmental Plan
LV	Low voltage
MOC	Motorway operations complex
NCA	Noise catchment area
OOHW	Out of Hours Work
the Project	Design and Construction of Rozelle Interchange Project
REMM	Revised Environmental Management Measure as detailed in the Submissions & Preferred Infrastructure Report
ROL	Road occupancy licence
SL	Street light / Lighting
STA	State Transit Authority.
UCM	Utilities Coordination Manager
UMS	Utility Management Strategy

1. Introduction

1.1. M4-M5 Link Overview

WestConnex is one of the NSW Government's key infrastructure projects that aims to ease congestion, create jobs and connect communities. The 33 kilometre motorway linking Sydney's west and south-west with the Sydney Central Business District, Sydney Airport and Port Botany is being delivered by Sydney Motorway Corporation (SMC), formerly WestConnex Delivery Authority) and Roads and Maritime Services (Roads and Maritime) as a series of separate projects.

The M4-M5 Link is the Stage 3 component of the WestConnex scheme. The M4-M5 Link comprises a new multi-lane road link with twin tunnels approximately 7.5 kilometres in length between the M4 East Motorway at Haberfield and the New M5 Motorway at St Peters (the Mainline Tunnel). The M4-M5 Link includes an interchange at Lilyfield and Rozelle (the Rozelle interchange) and a tunnel connection between Anzac Bridge and Victoria Road, east of Iron Cove Bridge (Iron Cove Link). A connection to the proposed future Western Harbour Tunnel and Beaches Link M4-M5 Link will be constructed at the Rozelle interchange. Figure 1 illustrates the extent and scope of the M4-M5 Link in the context of the wider WestConnex scheme.

On 3 March 2016 the M4-M5 Link was declared by the Minister for Planning to be State Significant Infrastructure (SSI) under section 5.13 of the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act). The M4-M5 Link has also been declared critical State Significant Infrastructure (critical SSI) under Schedule 5, Clause 4 of the State Environmental Planning Policy (State and Regional Development) 2011.

An Environmental Impact Statement (EIS) (AECOM 2017) was prepared and placed on public exhibition from 18 August to 16 October 2017. Submissions were received from government, agencies, organisations and the public in response to the M4-M5 Link. A Submissions and Preferred Infrastructure Report was prepared by SMC in response to submissions received during the exhibition period. The M4-M5 Link was approved by the Minister for Planning on 17 April 2018.

Figure 1 Overview of the Project

1.2. Project Staging

The project will be constructed in two stages and be made operational in two stages. Stage 1 would include:

- Construction of the mainline tunnels between the M4 East at Haberfield and the New M5 at St Peters, stub tunnels to the Rozelle interchange (at the Inner West subsurface interchange) and ancillary infrastructure at the Campbell Road motorway operations complex (MOC5).

Stage 2 would include construction of the Rozelle interchange and Iron Cove Link including:

- Connections to the stub tunnels at the Inner West subsurface interchange (built during Stage 1), ancillary infrastructure at the Rozelle West motorway operations complex (MOC2), Rozelle East motorway operations complex (MOC3) and Iron Cove Link motorway operations complex (MOC4) and connections to the surface road network at Lilyfield and Rozelle; and
- Construction of tunnels, ramps and associated infrastructure as part of the Rozelle interchange to provide connections to the proposed Western Harbour Tunnel and Beaches Link project.

2. Stage 2 – M4-M5 Link Rozelle Interchange

JHCPB proposes to commence a series of utility works within Iron Cove, Rozelle, Lilyfield, Leichhardt and Annandale. The utility works that form the low impact package for Rozelle Interchange are the primary subject of this Utilities Management Strategy (UMS). In the event that the Construction Environmental Management Plan (CEMP) is approved prior to the completion of the low impact utility work scope, the works may continue in accordance with either this UMS or the CEMP. All high impact utility works (construction) will be managed utilising the management measures included in the CEMP and are described in Section 5.

2.1. Justification

2.1.1. Iron Cove

Low impact utility work proposed at Iron Cove comprises a series of utility connections, disconnections and relocations to minimise the cumulative impacts associated with the Stage 2 main construction works (in particular, noise and traffic/access) on the residents within the vicinity of Victoria Road at Iron Cove. A more detailed scope for the low impact utility works in Iron Cove is presented in Section 5.1.1.

2.1.2. Rozelle

Low impact utility works proposed at Rozelle are required to identify and isolate existing Ausgrid assets within the former Rozelle Rail Yards. The works are required to confirm whether the cables are live. Due to the uncertainty of their electrified status, they present a high risk to the program of works at Rozelle which would cause an unnecessary extension to community and cumulative impacts associated with the Rozelle construction works.

The Rozelle low impact utility works scope includes the relocation of an existing 11 kV Sydney Trains supply connection along James Craig Road to the Rozelle Rail Yards. These works along James Craig Road and across The Crescent and City West Link are required to maintain connections and minimise the potential for impacts on Sydney Train infrastructure during construction works within the Rozelle Rail Yards.

Low impact utility work proposed during site establishment is required within the Rozelle civil and tunnel site, Victoria Road civil site and within the project boundary to the north of The Crescent. These works are required to enable site establishment activities to occur, to allow for the operation of the sites and to allow for construction works to commence at a later date. The scope includes:

- Utility disconnections for demolition activities, including removal of redundant utility services. This is required to allow site establishment activities to be undertaken, and
- The installation and connection of essential site services including low voltage power, water, communication and sewer. In order to connect to the existing utility work, site connections will occur from within the site and adjacent roads. Further discussion of these connection points is provided in Section 5.2.

2.1.3. Lilyfield and Leichhardt

Low impact utility works proposed within Leichhardt and Lilyfield includes sections of the construction power route. Since the EIS, the route has been revised in order to reduce assessed environmental impacts and to accommodate additional power requirements at the Rozelle civil and tunnel site (C5). This has resulted in a revised cable route to connect the Leichhardt Zone Substation to the Rozelle Rail Yards.

Sections of the construction power route have been classified as low and high impact work in accordance with Section 6.1. Low impact utility work was identified to de-risk delays to the project program, to commence works early which have long lead items where possible. A more detailed scope of work to occur within Lilyfield and Leichhardt is presented in Section 5.3.1

2.2. Objectives

The M4-M5 Link Rozelle Interchange utilities shall be designed and constructed to achieve the following objectives:

- To minimise the environmental impacts;
- To ensure respite is provided to the community, as required under Condition E78,
- To minimise the cumulative impacts of works to local residents by staging the works;
- To provide Ausgrid with sufficient time to identify and isolate existing de- energised electrical cables at Rozelle Rail Yard;
- To de-risk any delays to the program's critical path by undertaking works that are considered long lead items and provide greenfield sites where possible; and
- To inform design development during the main D&C tender interactives.

2.3. Options assessment

For some of the proposed works there have been multiple potential route options that have been assessed with the view to minimising the impact to the environment and community. In determining a preferred route option, the following criteria was considered:

- The requirements of the relevant utility service provider;
- The location of existing utility services in relation to the project infrastructure and surrounding exiting utilities;
- Minimising the potential impact of the works to meet the definition of 'low impact';
- Locating infrastructure in areas of previous disturbance such as road reserves or infrastructure corridors;
- Adopting the shortest feasible route (all other considerations allowing);
- Allowing ease of access for both construction workers and the public;
- Minimising commercial and schedule risk; and
- Cumulative impacts with other concurrent or overlapping projects.

2.4. Utility Management Strategy (UMS)

2.4.1. Requirements of the Minister's Conditions of Approval

A Utilities Management Strategy (UMS) is required to be prepared and implemented for all utility works in accordance with CoA E140. This UMS has been prepared for the M4-M5 Link Rozelle Interchange. A separate UMS will be prepared for the Mainline Tunnel works.

CoA 140 requires a Utilities Management Strategy must be prepared and implemented for all utility works. The Strategy must identify how utility works will be defined and managed.

The Utilities Management Strategy requirements and other COA relevant to this Strategy are detailed in Table 1. A cross reference is also included to indicate where the condition is addressed in this Strategy or other Project management documents.

Table 1 Minister Conditions of Approval

CoA	CoA Requirement	Where addressed	How addressed
B6	A Public Liaison Officer(s) must be appointed for construction ancillary facility(s) and for utility works to assist the public with questions and complaints they may have at any time during construction. The Public Liaison Officer(s) must be available at all times that works are occurring.	Section 3.4	The predominant consultation pathway for the community to the project team will be through the Public Liaison Officer who will be engaged during the works.

CoA	CoA Requirement	Where addressed	How addressed
E78	All works undertaken for the delivery of the CSSI, including those undertaken by third parties, must be coordinated to ensure respite periods are provided. The Proponent must: (a) reschedule any works to provide respite to impacted noise sensitive receivers so that the respite is achieved in accordance with Condition E76; or	Section 3.1	The UCM will meet with Roads and Maritime representatives and Utility Service Providers regularly (where required) to communicate progress, any constraints identified, potential changes to program and interactions with the community.
	(b) consider the provision of alternative respite or mitigation to impacted noise sensitive receivers; and	Section 3.1	The UCM will meet with Roads and Maritime representatives and Utility Service Providers regularly (where required) to communicate progress, any constraints identified, potential changes to program and interactions with the community.
	(c) provide documentary evidence to the AA in support of any decision made by the Proponent in relation to respite or mitigation.	Section 3.1	Documentary evidence will be provided to the AA in support of any decision made in relation to respite or mitigation
E140	A Utilities Management Strategy must be prepared and implemented for all utility works. The Strategy must identify how utility works will be defined and managed. The Utilities Management Strategy must include: (a) a definition of low impact utility work. The definition must consider parameters including, but not limited to, type of works, duration of works, hours of works, noise impacts, and traffic and access impacts	Section 6	The definition of low impact utility works considers type of works, duration of work, time period of works and type of impact in the context of the following parameters: noise, traffic and access, biodiversity, heritage, dust, surface water and lighting.
	(b) the functions of the Utility Coordination Manager as required by Condition E141	Section 3.1	The functions of the Utility Coordination Manager include: ▪ The management and coordination of all utility works associated with the delivery of the CSSI, to ensure respite is provided to the community, as required under CoA E75 and E78 ▪ Providing advice to the Public Liaison Officer(s), regarding upcoming utility works, including the scope of the works and responsibility for the works, and ▪ Investigating complaints received from the Community Complaints Mediator or the Public Liaison Officer(s), relating to utility works, and providing a response to the Community Complaints Mediator or Public Liaison Officer(s).

CoA	CoA Requirement	Where addressed	How addressed
	(c) a description of all utility works to be undertaken, including low impact utility works and how they meet the definition in subclause (a)	Refer to Section 5 for a description of all utility works to be undertaken. Refer to Section 7 and Annexure A for assessment of how they meet the definition of low impact utility work.	All utility works are described in Section 5 of this UMS. An assessment has been undertaken and provided in Section 7 and Annexure A that identifies how low impact utility works meets the definition in subclause (a).
	(d) the management measures that will be implemented to manage dust, noise, traffic, access and lighting impacts associated with low impact utility works.	Section 8	Management measures that will be implemented to manage dust, noise, traffic, access and lighting impacts associated with low impact utility works are outlined in Section 8 of this UMS.
E141	(a) the management and coordination of all utility works associated with the delivery of the CSSI, to ensure respite is provided to the community, as required under Condition E75;	Section 3.1	The UCM will meet with Roads and Maritime representatives and Utility Service Providers regularly to communicate progress, any constraints identified, potential changes to program and interactions with the community.
	(b) providing advice to the Public Liaison Officer(s), regarding upcoming utility works, including the scope of the works and responsibility for the works; and	Section 3.1	The UCM will provide advice to the Public Liaison Officer(s), regarding upcoming utility works, including the scope of the works and responsibility for the works.
	(c) investigating complaints received from the Community Complaints Mediator or the Public Liaison Officer(s), relating to utility works, and providing a response to the Community Complaints Mediator or Public Liaison Officer(s).	Section 3.1	The UCM will assist the communications team in investigating complaints received directly by the project team or through the Community Complaints Mediator (CoA B14) or Public Liaison Officers.

The Utilities Management Strategy must be submitted to the Secretary for approval at least one (1) month prior to the commencement of low impact utility works.

Note: Utility works that are not low impact are considered to be construction and appropriate management measures would be included in the CEMP.

2.4.2. Purpose of this UMS

The purpose of this UMS is to:

- Outline the proposed M4-M5 Link Rozelle Interchange utilities;
- Outline the role and responsibilities of the Utility Coordination Manager in accordance with CoA E141;
- Describe all utility works to be undertaken, including low impact utility works in accordance with CoA 140;
- To demonstrate the proposed low impact utility work scope meets the definition for low impact utility works; and
- Outline the management measures to be implemented during the low impact utility works to manage and minimise potential environmental impacts.

2.5. Consultation

The utility service providers associated with the proposed M4-M5 Link Rozelle Interchange have been consulted to develop and plan the scope, including the implementation of management measures required to meet the definition of low impact utility works.

The utility service providers associated with the works are:

- Ausgrid;
- Sydney Water;
- Sydney Trains;
- Jemena; and
- Telecommunication providers (e.g. Telstra, Uecomm)

Consultation with utility service providers will continue throughout the works to provide appropriate respite as required by CoA E75 and E78, and to address any unforeseen events during the works program.

Roads and Maritime has also engaged with the Department of Planning and Environment and the NSW Environment Protection Authority (EPA) in the development of the low impact utility definition.

Roads and Maritime Services consulted with the Inner West Council regarding the low impact utility works scope near Iron Cove and Rozelle in 2018. Further to this, JHCPB wrote to Inner West Council on 24 April 2019, providing details of utilities work including the construction power supply route and offering a briefing to further discuss the works. Correspondence was also sent regarding the provision of access to local roads to complete the work; it was noted that this access would be sought through powers under the *Roads Act 1993.*

The community engagement process which will be used for all utility works is detailed within the Community Communications Strategy required by CoA B1.

3. Responsibilities

3.1. Utility Coordination Manager

To ensure that the potential cumulative environmental impacts associated with proposed utility works are effectively managed it is essential that various individual utility works are co-ordinated.

CoA E141 requires a Utility Coordination Manager must be appointed for the duration of the CSSI works and provides the requirements that the Utility Coordination Manager must undertake (refer to Table 1).

The main responsibility of the UCM is to organise the programming of utilities works and oversee the construction of the utilities works undertaken to ensure that:

- Works are undertaken in accordance with this document;
- Works are coordinated to minimise the duration of the works while minimising impacts associated with cumulative works within the same work area;
- Works meet the definition of low impact;
- Works remain on program;
- Seek and implement feedback from the relevant Council on utility works; and
- Any deviation in program is communicated to the Public Liaison Officers (CoA B6) and Roads and Maritime to facilitate communication of changes to the sensitive receivers impacted by the works.

It is noted that Roads and Maritime has already undertaken consultation with utility service owners to confirm the scope of works and location of the utility relocations.

The UCM is primarily responsible for ensuring the works are undertaken in accordance with the scope and design agreed with the utility service owners and the requirements of the UMS,

including any respite requirements agreed with the community. To meet the obligations under CoA E141 and associated responsibilities the UCM will:

- Consult with utility service owners to confirm the proposed scope of works and confirm any required agreements with utility service owners;
- Regularly liaise with utility service owners and construction personnel to discuss any issues identified during works. The utility works program will also be discussed to ensure respite requirements for the community are met;
- Regularly liaise with the Public Liaison Officer(s) (PLO) and community team to discuss any complaints, respite requirements (including as required by Condition E75 and E78), and upcoming utility works in the program. Updates on the utility works program will be communicated to the PLO during weekly internal Contractor project meetings; and
- Regularly inspect the utility works to confirm that works are being undertaken in accordance with the requirements of the UMS and remain within the definition of low impact as defined in Section 6.1 of the UMS.

The UCM will assist the communications team in investigating complaints received directly by the project team, through the Community Complaints Mediator (CoA B14) or Public Liaison Officers. This will occur through written correspondence, regular meetings and verbal communication between the UCM and the and the Public Liaison Officers.

The UCM will meet with Roads and Maritime representatives and Utility Service Providers regularly to communicate progress, any constraints identified including cumulative impacts, and respite as required under Condition E75 and E78, potential changes to program and interactions with the community. The UCM will undertake pro-active site visits to the low impact work sites to ensure that works are being constructed in an appropriate manner.

3.2. Environment and Sustainability Manager

The Environment and Sustainability Manager would ensure that all environmental approvals are in place prior to the commencement of any utility works at any stage of the project. The Environment and Sustainability Manager will ensure that:

- The UMS is approved by the Department of Planning and Environment (DPE) prior to commencement of any low impact utility works,
- All works are in accordance with project environmental protection licence requirements (if applicable), and
- All construction support teams are aware of the Scope of Works and any community notifications required. The Environment and Sustainability Manager will interact with the UCM, Environmental Advisors, Public Liaison Offices, Community Complaints Mediator and site team to assist in meeting the obligations of the UMS.
- In conjunction with the Environmental Advisor responsibilities identified in Section 3.3 are undertaken

3.3. Environment Advisor

The Environment Advisor will oversee the utility works, and in conjunction with the Environment and Sustainability Manager, will be responsible for:

- Interaction with the Contractor's site team (including environment representatives), UCM, Public Liaison Officer and Community Complaints Mediator (where required);
- Review and approval of the Contractor's environmental work method statements (EWMS) to ensure they include the controls required by the UMS;
- Monitoring the effectiveness of site controls implemented to achieve the low impact definition;
- Monitoring contractor's training and induction records to ensure all site personnel have been inducted into the EWMS; and

- Monitoring environmental controls and liaising with the team to identify new controls as necessary to achieve low impact utility works.

3.4. Public Liaison Team

The project team will notify impacted community and stakeholders directly abutting the utility routes, as a minimum within approximately 50m of the activity, prior to works commencing in the vicinity of their property. Where residents are not home during the initial door knock, calling cards will be left to facilitate the residents contacting the project team to discuss the works. All community consultation will be undertaken in accordance with the Communication Strategy (CS) (CoA B1).

The project team will take the opportunity of meeting residents individually (where available) to discuss the upcoming works, the duration of works and proposed management measures for the works.

The predominant consultation pathway for the community to the project team will be through the Public Liaison Officer during the works. All community and stakeholder feedback, enquiries and complaints will be managed in line with the Complaints Management System described in the CS. The CS also describes the complaints escalation procedure. Where required, the Community Complaints Mediator will, in accordance with CoA B15, review unresolved disputes and make recommendations to satisfactorily address complaints, resolve disputes or mitigate against the occurrence of future complaints or disputes.

3.5. Contractors' Responsibilities

The Contractor, its subcontractors and utility service providers (Jemena, Telstra and Ausgrid) are responsible for undertaking the low impact utility works in a manner to achieve the low impact definition as set out in this UMS. This document sets outs the likely controls necessary to achieve low environmental impact for the proposed works and predicted construction methods, however the Contractor must implement modifications (where required) to their works processes and implement all other controls necessary to achieve low environmental impacts, in consultation with Roads and Maritime, the Environmental Representative, the Acoustic Advisor (where related to noise and vibration impacts) and the UCM.

4. Existing Environment

4.1. Overview

The following section provides a description of the existing environment in which the low impact utility works are to be undertaken. The constraints are based on the assessments undertaken during the Environmental Impact Statement and Consistency Assessments.

Sensitive area maps are attached in Annexure F.

4.2. Iron Cove

Table 2 Iron Cove Existing Environment

Environmental Aspects	Existing conditions
Land Use	The low impact utility works area is primarily surrounded to the north and east by the established residential area of Rozelle with some limited commercial development including a car dealership and liquor store fronting Victoria Road and an area of open space (King George Park) adjacent to Iron Cove Bridge. The topography of this area falls toward Iron Cove to the north-west and toward Manning Street and King George Park in the south-west. The residential area includes a number of local streets that run between Victoria Road and Manning Street, a number of which are relatively narrow and quite steep. King George Park forms part of a network of open space along this eastern shoreline of Iron Cove. The Bay Run is a regional pedestrian and cycling link which runs around Iron Cove and joins Iron Cove Bridge near Byrnes Street. A car parking area is available along Manning Street to serve King George Park. There is also an existing Ausgrid substation located in Manning Street adjacent to King George Park.
Traffic and Transport	Victoria Road is a major road on the northern extent of the low impact utility works area with three to four lanes of traffic in each direction. It has limited on-street parking and clearways and bus lanes operating during peak hours. Bus services operate along both sides of Victoria Road. Local streets within the low impact utility works area include Byrnes Street, Clubb Street, Toelle Street, Callan Street, Springside Street, Moodie Street, Manning Street and McCleer Street. For the most part, these are residential streets with on-street parking and footpaths on either side of the road. A number of these streets are narrow, with only one effective trafficable lane due to on-street parking.
Non-Aboriginal Heritage	Two HAMU were identified adjacent within or adjacent to the low impact utility works area. These were identified as Iron Cove (HAMU 8) and Manning Street bio retention facility (HAMU 9). HAMU 8 was considered as having no archaeological significance while HAMU 9 was considered as having low potential for locally significant archaeological remains. There are no listed non-Aboriginal sites within the low impact utility works area. The closest site is Iron Cove Bridge which is identified as being of local significance under the SREP 26. There are no Heritage Conservation Areas within the investigation area. The closest is the Iron Cove Heritage Conservation Area on the north east side of Victoria Road.
Aboriginal Heritage	There are no registered Aboriginal sites or sensitive areas in the low impact utility works area. The King George Park Draft Plan of Management referred to two ‘incomplete land claims’ lodged by Metropolitan Local Aboriginal Land Council. These claims were not deemed relevant to the EIS as they were not complete and land claims under the Aboriginal Land Rights Act 1983 (NSW) do not necessarily denote Aboriginal cultural or scientific archaeological values. One of the claims has been determined by way of refusal. The remaining incomplete claim is adjacent to the low impact utility works area on a small triangle of land adjacent to Manning Street and King George Park. This area is not being disturbed by the low impact utility works area.

Environmental Aspects	Existing conditions
Sensitive Receivers	Residential properties within a close proximity to the low impact utility works area are located on Warayama Place to the north of Victoria Road and Byrnes Street, Clubb Street, Toelle Street, Callan Street, Springside Street, Moodie Street, Manning Street and McCleer Street to the south of Victoria Road. There is a children's playground located within King George Park to the west of Byrnes Street.
Waterways and Biodiversity	Iron Cove is located immediately adjacent to the proposed Jemena high pressure low impact utility works area. A number of mature trees are located within King George Park. A stand of Casuarina sp is located along the foreshore area of Iron Cove (non- threatened ecological community). Small to medium size street trees are located within a number of the local streets and within the boundary of some residential properties.
Geology, Soils and Contamination	The land within the low impact utility works area includes land classified as Class 5 acid sulphate soils. There is a discrete area of Class 2 acid sulphate soils extending east from Iron Cove adjacent to Manning Street towards the existing substation. There is the possibility of encountering acid sulphate soils for activities which are likely to lower the water table below one metre within 500 m of the Class 2 acid sulphate soils land. Soils landscapes within the investigation area consist of the Gymea – erosional soil landscape east of Manning Street and the Hawkesbury – colluvial soil landscape west of Manning Street. The low impact utility works area consists of a lithology of medium to coarse grained quartz sandstone east of Manning Street and man-made fill overlying silty to peaty quartz sand west of Manning Street. The low impact utility works area does not include any sites identified on the NSW EPA Contaminated Lands Register. The NSW EPA, in its submission on the EIS, confirmed that the service station located to the south east at 178–180 Victoria Road does not require regulation under the Contaminated Land Management Act 1997.
Noise Environment	Background noise in the investigation area is dominated by traffic on Victoria Road and also occasional noise associated with the operation of flight paths from Sydney Airport. Traffic noise levels associated with Victoria Road decrease closer to Manning Street (i.e. away from Victoria Road) and are likely to be less in the evening/night period. Noise Management Levels (NML) for the closest Noise Catchment Area (NCA) south of Victoria Road (NCA36) are 54dB during the day period and 45dB and 36dB for the evening and night periods respectively. NMLs for NCA35 on the northern side of Victoria Road are 75dB during the day period and 65dB and 51dB during the evening and night periods respectively.

4.3. Rozelle

Table 3 Rozelle Existing Environment

Environmental Aspects	Existing conditions
Land Use	The area surrounding the Rozelle Rail Yards is dominated by industrial land uses with associated open spaces, recreational areas, public services and facilities, commercial areas and transport infrastructure. Residential areas adjoin the northern boundary. Land use within the Rozelle Rail Yards primarily comprises redundant industrial and transport infrastructure that has been removed as part of a separate site management works project. Roads and Maritime has completed site management works on part of the Rozelle Rail Yards site to manage existing environmental and safety issues at the site and improve access to surface conditions, which would allow for further investigation into the location of utilities and the presence of contamination and waste. Residents located on Lilyfield Road back onto the northern boundary Rozelle Rail Yard. The other closest sensitive receivers are located on Bayview Crescent to the south and Cashman Street / Hutcheson Street and Lilyfield Road to the west. There are no residents located to the east.

Environmental Aspects	Existing conditions
Traffic and Transport	The Rozelle Rail Yard is bordered by Lilyfield Road to the north, the City West Link/The Crescent to the south, Victoria Road to the east and Catherine Street to the west. Low impact utility works are also planned on James Craig Road and The Crescent/City West Link which are located to the south of the Rozelle Rail Yards. The City West Link/The Crescent is a major arterial route linking Parramatta Road to Victoria Road and the city (via the ANZAC Bridge). James Craig Road is a local road connecting industrial and commercial premises along Rozelle Bay and White Bay to The Crescent. Lilyfield Road is a local road connecting Rozelle and Lilyfield.
Non-Aboriginal Heritage	Five Historical Archaeological Management Units (HAMUs) have been identified within or adjacent to the low impact utility works area. HAMUs were identified on Lilyfield Road and Gordon Street (HAMU 3), Victoria Road/The Crescent (HAMU 4, Rozelle Rail Yards west (HAMU 5) and east (HAMU 6) and White Bay Power Station (HAMU 7). The EIS assessed HAMU 3 and 6 as having low to high potential for archaeological presence. HAMU 7 is considered to have high potential for state significant archaeological remains associated with the White Bay Power Station. HAMU 4 and 5 do not meet the threshold for significance. With the exception of the White Bay Power Station, the EIS identified that some or most sites or features were likely to have been disturbed by sandstone quarrying, levelling and subsequent modifications of the Rozelle Rail Yards and road infrastructure development.
Aboriginal Heritage	There are no registered Aboriginal sites or sensitive areas in the low impact utility works area. One Aboriginal Heritage Information Management System (AHIMS) site was identified adjacent to the project footprint, around 50 m north of the Rozelle Rail Yards. This site is Lilyfield Cave (site #45-6-2278) and is a rock shelter with midden. No surface expressions of Aboriginal objects or places were identified within the project footprint during the surveys. In addition, the Metropolitan Local Aboriginal Land Council (MLALC) Aboriginal Sites Officer did not identify any specific areas of Aboriginal cultural attachment or intangible cultural heritage values within the project footprint. The potential for subsurface Aboriginal archaeology is also considered negligible given the areas of previous disturbance and the nature of the soils underlying the low impact utility works area.
Sensitive Receivers	The nearest sensitive receivers are residents located on Lilyfield Road that back onto the northern boundary Rozelle Rail Yard. The other closest sensitive receivers are located on Bayview Crescent to the south and Cashman Street / Hutcheson Street and Lilyfield Road to the west. The closest residents to the east are located within approximately 350m.
Waterways and Biodiversity	Rozelle Bay is located approximately 200 m from the Rozelle Rail Yards and 50 m from James Craig Road. There are no waterways within the low impact utility works area.
Geology, Soils and Contamination	Land within the Rozelle Rail Yards has been identified as contaminated with contaminants including but not limited to lead, polyaromatic hydrocarbons (PAH), asbestos containing materials and petroleum hydrocarbons. Preliminary waste classifications of the soils within the low impact utility works area include general solid waste, restricted solid waste and special waste – asbestos (general solid waste). Light Non-Aqueous Phase Liquid (LNAPL) may also be located adjacent to one of the proposed excavation sites. Land within the Rozelle Rail Yards and north towards Balmain Road and to the northwest of Brenan Street is also classified as Class 3 acid sulphate soils. The area around the Rozelle Rail Yards is defined as man-made fill overlying silty to peaty quartz sand. The low impact utility works area does not include any sites identified on the NSW Environment Protection Authority (NSW EPA) Contaminated Lands Register. The State Transit – Leichhardt Depot is located to the west of the low impact utility works area at the corner of Balmain Road and City West Link and is currently listed as ‘under assessment’ on the List of NSW contaminated sites notified to NSW EPA.

Environmental Aspects	Existing conditions
Noise Environment	Background noise in the investigation area is dominated by traffic on City West Link and The Crescent to the south and Victoria Road to the east. It is likely that background traffic noise levels decrease during evenings and night periods, although traffic noise from City West Link is likely to still dominate the noise environment. NML for the closest NCA (NCA25) at Lilyfield Road are 61dB during the day period and 56dB and 50dB during the evening and night periods respectively.

4.4. Lilyfield and Leichhardt

Table 4 Lilyfield and Leichhardt Existing Environment

Environmental Aspects	Existing conditions
Land Use	The Lilyfield and Leichhardt areas are associated primarily with residential land use and some open space, public services and facilities, commercial areas and transport infrastructure Areas of open space include Pioneers Memorial Park, located east of Norton Street, and War Memorial Park, located west of Catherine Street. The State Transit Authority (STA) Leichhardt Depot and Sydney Secondary College Leichhardt Campus are located west of Balmain Road and south of City West Link, with a small commercial precinct on Moore Street west of Mackenzie Street.
Traffic and Transport	Major arterial roads in Lilyfield and Leichhardt include: • The City West Link which links Parramatta Road to Victoria Road and the city (via the ANZAC Bridge), • Parramatta Road which links the city and western suburbs. All other roads, including Lilyfield Road, Henry Street, William Street, Norton Street, Allen Street, Arthur Street and Short Street, are primarily residential streets with one lane of traffic in each direction, on-street parking and footpaths on either side of the road.
Non-Aboriginal Heritage	A number of listed non-Aboriginal heritage items are located in Lilyfield and Leichhardt, near to the low impact utility works. The items are listed under the Leichhardt Local Environmental Plan (LEP), Sydney Regional Environmental Plan No 26 – City West (SREP 26) or the State Agency section 170 Heritage and Conservation Register of the Heritage Act 1977 (NSW) and include: ▪ Leichhardt Hotel, including interiors, located at 1 Short Street, Leichhardt (local significance) ▪ Wetherill Estate Heritage Conservation Area located between North Street and Derbyshire Road south of Allen Street (refer to controls and guidelines of Inner West Council; Wetherill Estate C14) ▪ Leichhardt Street / Stanley Street Heritage Conservation Area located between Balmain Road and McKenzie Street (refer to controls and guidelines of Inner West Council; Leichhardt Street and Stanley Street C11) ▪ Pioneers Memorial Park located east of Norton Street between Allen Street and William Street (Landscape heritage item, local significance) ▪ Street trees – Row of Brush box and one Ficus Hillii along Henry Street, Leichhardt (local significance) ▪ Street trees – Avenue of Brush Box and one Brachychiton along Lilyfield Road, Leichhardt (local significance)
Aboriginal Heritage	There are no registered Aboriginal sites or sensitive areas in the early works footprint. One Aboriginal Heritage Information Management System (AHIMS) site was identified adjacent to the project footprint, around 50 m north of the Rozelle Rail Yards. This site is Lilyfield Cave (site #45-6-2278) and is a rock shelter with midden. The potential for subsurface Aboriginal archaeology is also considered negligible given the areas of previous disturbance and the nature of the soils underlying the early works area.

<table>
<tr><th>Environmental Aspects</th><th>Existing conditions</th></tr>
<tr><td>Sensitive Receivers</td><td>The nearest sensitive receivers are residents located in the suburbs of Leichhardt and Lilyfield on Short Street, Arthur Street, Allen Street, Norton Street, William Street, Henry Street and Lilyfield Road. Small businesses are also located along Balmain Road, Short Street and Norton Street.
The following sensitive receivers are located in proximity to the low impact utility works:
Leichhardt Medical and Dental Centre (32-38 Short Street, Leichhardt), located about 40m east of the low impact utility works
Leichhardt GP Local Doctors (210 Norton Street, Leichhardt), located about 10m west of the low impact utility works
Pioneers Memorial Park (east of Norton Street between Allen Street and William Street, Leichhardt), located adjacent to the low impact utility works
St Gerasimos Greek Orthodox Church (21 Henry Street, Leichhardt), located 10m east of the low impact utility works</td></tr>
<tr><td>Waterways and Biodiversity</td><td>There are no immediate waterways within Lilyfield and Leichhardt.
Vegetation within the is primarily limited to mature street trees of various sizes located between local roads and property boundaries. There are a number of mature trees, including significant trees and landscaped vegetation. There are heritage street trees on Henry Street and Lilyfield Street which are identified under the Leichhardt LEP as having local significance.</td></tr>
<tr><td>Geology, Soils and Contamination</td><td>The following soil landscapes are present:
Blacktown – residual soil landscape south west and south of Catherine Street and Lilyfield Road
Gymea – erosional soil landscape east of Catherine Street along Lilyfield Road; and
Disturbed terrain soil landscape generally within the Rozelle Rail Yards.
The low impact utility works area is on land classified as Class 5 acid sulphate soils and does not include any sites identified on the NSW Environment Protection Authority (NSW EPA) Contaminated Lands Register.
The Leichhardt Bus Depot, 70 m east of the proposed route on Henry Street, has been listed on the List of NSW contaminated sites notified to NSW EPA.</td></tr>
<tr><td>Noise Environment</td><td>Background noise in the area of the low impact utility works is representative of the residential neighbourhood. The NMLs during the day, evening and night periods for where the low impact utility works traverse are shown below.
<table>
<tr><th rowspan="2">Noise Catchment Area</th><th colspan="3">Noise Management Level</th></tr>
<tr><th>Day</th><th>Evening</th><th>Night</th></tr>
<tr><td>11</td><td>56</td><td>54</td><td>47</td></tr>
<tr><td>12</td><td>56</td><td>52</td><td>45</td></tr>
<tr><td>13</td><td>56</td><td>52</td><td>45</td></tr>
<tr><td>14</td><td>56</td><td>52</td><td>45</td></tr>
<tr><td>16</td><td>59</td><td>57</td><td>49</td></tr>
</table></td></tr>
</table>

5. Proposed Works

5.1. Iron Cove

5.1.1. Low Impact Utility Work

The Iron Cove low impact utility works are shown in Figure 2 and comprise:

- Multiple sections of below ground Jemena medium pressure gas mains along Manning Street and adjacent streets. The primary scope is trenching a new gas main along Manning Street and connections where required into adjacent streets. A single trench will be excavated on Manning Street for the medium pressure gas main and the Telstra network detailed below. These works will be completed during standard working hours, with an indicative duration of 12 weeks;
- Below ground Telstra communication network from the southern side of Victoria Road, south along Moodie Street and west along Manning Street. Connections will be made into the southern end of each of the local streets perpendicular to Manning Street to connect to existing infrastructure. This will involve trenching along Moodie, Manning Streets and into the southern end of each of the local streets perpendicular to Manning Street. These works will be completed during standard working hours with an indicative duration of 14 weeks;
- Reconfiguration of below ground and overhead Ausgrid distribution network south along Byrnes Street and east along Manning Street to Clubb Street. The underground crossing of Victoria Road will be completed by directional drill adjacent to Byrnes Street. Sections of Manning Street will be trenched to connect to the overhead network. These works will be completed during standard working hours with an indicative duration of 15 weeks;
- Disconnection of Ausgrid overhead low voltage cables across Victoria Road, installation of two new power poles on the northern side of Victoria Road and stringing of new low voltage cable along the northern side of Victoria Road. These works are required outside of standard working hours to comply with the requirements of the Road Occupancy Licence with an indicative duration of one week;
- Below ground Jemena secondary (high pressure) gas main from the northern side of Victoria Road to a new connection off Manning Street, adjacent to Toelle Street, Rozelle. The proposed trenched route is along the foreshore of King George Park to Manning Street. These works will be completed during standard working hours with an indicative duration of 14 weeks. These works are the subject of a Consistency Assessment; and
- Disconnection and removal of utility services from properties within the Iron Cove Link civil site the adjacent footpath on Victoria Road where services connect into the network. This includes electricity, gas, water, sewer and telecommunications services as part of site establishment. The disconnections will occur for properties that have been vacated and are proposed to be demolished as part of the site establishment works for the Project. These works would generally be undertaken during standard working hours with an indicative duration of 6 weeks. Part of the works (up to 2 shifts) may need to be undertaken outside of standard working hours under a Road Occupancy Licence (ROL) (limited to weekdays in the evening/night period, unless otherwise directed by Traffic Management Centre / Sydney Coordination Office).
- Installation and connection of essential site services including power, water, communication and sewer. In order to connect to the existing utility work, site connections will occur at the site boundary, within the construction footprint, adjacent to Byrnes, Toelle, Callan and Springside Streets. Works will be undertaken during standard working hours with an indicative duration of 6 weeks.

LEGEND

Proposed utilities relay routes
- High pressure
- Medium pressure
- Distribution network
- Under ground cable
- Over head cable

Proposed adjustment areas
- Communications (Telstra)
- Electrical (AusGrid)
- Utility disconnections and connections

Existing boundaries
- Indicative lot boundary

0 50 100 m

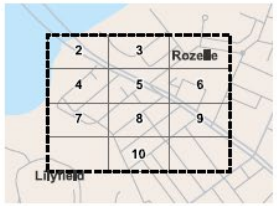

Figure 2-1 A3
Page 1 of 20
GDA 1994 MGA Zone 56
M4-M5 LINK - ROZELLE INTERCHANGE
PROPOSED EARLY WORKS AREA
IRON COVE - OVERVIEW
WESTCONNEX M4-M5 LINK
ROADS AND MARITIME SERVICES
SG 60566191
DB 24/06/2018
WCXM4M627 03 60566191

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Figure 2 Proposed Iron Cove Low Impact Utility Works

The scope of the Iron Cove works and known environmental constraints associated with the works is detailed in Table 5. Sensitive area maps identifying environmental constraints are attached in Annexure F.

Table 5 Proposed Iron Cove Low Impact Utility Works

Utility Services	Work element	Environmental constraints
Jemena High Pressure (Subject to Consistency Assessment)	Excavation and trenching along the foreshore of King George Park.	The existing high-pressure main is fixed to the footings on the northern span of the Iron Cove Bridge and runs west as a submarine cable. The Iron Cove Bridge is identified as being of local significance under the SREP26. The connection to the existing gas main will be made in the ground adjacent the bridge footings, mitigating any potential impacts on the bridge. A stand of Casuarina sp. (non-threatened ecological community) along the eastern side of the foreshore footpath south of the bridge structure will require pruning of branches and roots on eastern side of the pathway. The trenching works may require a temporary reduction in the width of the footpath/cycleway along the Bay Run for approximately 150m. In the event that access cannot be adequately maintained, access assistance will be provided at the stairwell beneath Iron Cove bridge. All trenching and excavation works will be undertaken during standard working hours. The closest sensitive receiver is located approximately 75m from the work area at the southern end of King George Park.
	Excavation and trenching for High Pressure gas main east along Manning Street. Connection into existing gas main on Manning Street, adjacent Toelle Street.	The new gas main will be constructed along the road reserve at Manning Street during standard work hours. The cable route is a disturbed area with no known biodiversity constraints. A section of land immediately south of Byrnes Street on Manning Street is subject to an undetermined Aboriginal land claim. The gas main route is south of this land and the works are not impacting the footprint of this claim. There are no other known heritage constraints within the vicinity of the Manning Street works. The excavation and trenching works will be undertaken during standard working hours. The closest sensitive receivers for noise are located between 20-50 m from the work area.
Jemena Medium Pressure	Excavation and trenching for new mains route along Manning Street	The new gas main route will be trenched along the southern side of Manning Street between Byrnie and Callan Streets and the northern side of Manning between Callan and Moodie Streets. A single trench will be used for the Jemena medium pressure gas main and the Telstra communication services. The trenching works will require the temporary closure and diversion of local traffic off Manning Street (one way between Callan and Moodie Street). Local traffic will be diverted up Callan Street, along McCleer Street and onto Moodie Street. The temporary closure is likely to be limited to a maximum of one week for each block (i.e. two weeks). A section of land immediately south of Byrnes Street on Manning Street is subject to an undetermined Aboriginal land claim. The works are not impacting the footprint of this claim. There are no other known heritage constraints within the vicinity of the Manning Street works. All excavation and trenching will be undertaken during standard working hours. The closest sensitive receivers for noise are located approximately 10 m from the work area on the northern side of Manning Street.

Utility Services	Work element	Environmental constraints
Ausgrid (11 kV and Distribution)	Directional drilling beneath Victoria Road near Byrnes Street	The new distribution cable will be installed using a directional drill. An entry and receival site will need to be constructed at each end of the connection. Both sites require the removal of vegetation. The vegetation adjacent Byrnes Street was assessed in the EIS and/or Submissions and Preferred Infrastructure Report (SPIR). The vegetation on the northern side of Victoria Road was assessed in a Consistency Assessment. No threatened species are located within these areas. The distribution cable route is a disturbed area with no known heritage constraints. All directional drilling will be undertaken during standard working hours. The closest sensitive receiver for noise at the receiving site is located approximately 10 m from the work area at Warayama Place. The closest sensitive receiver to the entry site is located approximately 30 m from the work area on Byrnes Street.
	Excavation and trenching for new line route along Victoria Road, Byrnes Street and Manning Street	A short section of trenching is required on the northern side of Victoria Road to connect into existing utility connections. A short section of trenching is also required along Byrnes Street to connect from the direction drill site to a small kiosk off Byrnes Street in King George Park. Another section of below ground distribution cabling is required on the southern side of Manning Street between Byrnes Street and just east of Clubb Street. The cable will be located within the road reserve. A section of land immediately south of Byrnes Street on Manning Street is subject to an undetermined Aboriginal land claim. The trench is located north of this area and the works are not impacting the footprint of this claim. There are no other known heritage constraints within the vicinity of the works. All excavation and trenching will be undertaken during standard working hours. The closest sensitive receivers for noise are located approximately 10-15 m from the work area on the northern side of Manning Street.
	Ausgrid re- stringing on Victoria Road	Two new power poles require installation on the northern side of Victoria Road. Installation of the poles will be undertaken during standard working hours under a Road Occupancy Licence (ROL). Removal of existing overhead wires across Victoria Road and stringing of new wires along the northern side of Victoria Road will be undertaken outside of standard working hours under a ROL (limited to weekdays in the evening/night period, unless otherwise directed by TMC/SCO). Traffic flow and pedestrian traffic will likely be temporarily disrupted on the northern side of Victoria Road during the works under the ROL. The closest sensitive receivers for noise are located approximately 10-15m from the work area on the southern side of Warayama Street.
Telstra	Excavation and trenching for new line route along Moodie Street.	The trenching for the Telstra infrastructure will be undertaken on the western side of the road surface. The trenching works will require the temporary removal of on-street parking on Moodie Street for the extent of works undertaken each day. The cable route is a disturbed area with no known biodiversity or heritage constraints. The trenching works will be undertaken during standard working hours. The closest sensitive receivers for noise are located approximately 5-10 m from the work area on the western side of Manning Street.

Utility Services	Work element	Environmental constraints
	Excavation and trenching for new line route along Manning Street.	The trenching will be undertaken within the road surface along Manning Street in the same trench as the Jemena medium pressure gas main. Local traffic diversions will be required around the work areas as works progress. The trenching works will require the temporary closure and diversion of local traffic off Manning Street (one way between Callan and Moodie Street). Local traffic will be diverted up Callan Street, along McCleer Street and onto Moodie Street. The temporary closure of Manning Street for Telstra works will be coordinated with local residents to maintain property access. A section of land immediately south of Byrnes Street on Manning Street is subject to an undetermined Aboriginal land claim. The excavation works are north of this area and the works are not impacting the footprint of this claim. There are no other known heritage constraints within the vicinity of the Byrnes or Manning Street works. The trenching works will be undertaken during standard working hours. The closest sensitive receivers for noise are located approximately 10-15 m from the work area on the northern side of Manning Street.
	Connections will be made into the southern end of each of the local streets perpendicular to Manning Street.	Trenching works are required up the local roads of Byrnes, Clubb, Toelle, Callan and Springside Streets to connect into the existing Telstra network. The works will be undertaken within the footpath. Local pedestrian diversions will be required around the work areas as works progress a short distance up the streets. The cable route is a disturbed area with no known biodiversity or heritage constraints. The trenching works will be undertaken during standard working hours. The closest sensitive receivers for noise are located approximately 5-10 m from the work area.
Existing utility disconnections	Service disconnections from within and outside property boundary	Utility disconnections will occur within the Iron Cove Link property premises and along the adjacent footpath on Victoria Road where services connect into the network. The works will occur for properties that have been vacated and are proposed to be demolished as part of the site establishment works for the Project. The nearest sensitive receivers are located around 30m north of the southern footpath on Victoria Road. Services will be inspected (gas, water, sewer, power and telecommunications), and where required minor excavation works will be undertaken in order to cap and disconnect the services or install the service from / to the network. Disconnections of existing overhead wires across Victoria Road to properties along the southern side of Victoria may need to be undertaken outside of standard working hours under a Road Occupancy Licence (ROL) (up to two shifts), limited to weekdays in the evening/night period, unless otherwise directed by Traffic Management Centre / Sydney Coordination Office). Traffic flow and pedestrian traffic will likely be temporarily disrupted on the southern side of Victoria Road during the works under the ROL. There are no known biodiversity or heritage constraints.
Connection of essential site services	Service installation and connection	Connections are required on the boundary of the Iron Cove Link site, within the construction footprint, on the local roads of Byrnes, Toelle, Callan and Springside Streets. The works will be undertaken within the footpath during standard working hours. Local pedestrian diversions will be required around the work areas. The are no known biodiversity or heritage constraints. The closest sensitive receivers for noise are located approximately 5m from the work area.

5.1.2. High Impact

Table 6 identifies construction (high impact) utility works at Iron Cove that are required as part of the Project, under the management of the CEMP

Table 6 Iron Cove Construction (High Impact) Utility Works

Reference	Utility Service	Asset Type	Existing Location	Proposed Management Measure (protect, relocate or realign)	Within Area of Interest
SEW-SWC-D-001	Sydney Water	Sewer / Trunk	Crossing under Victoria Road to the west of Terry Street and Toelle Street.	Relocate Under east bound bus lane turning across Victoria Road to reconnect in Moodie Street	Yes
SEW-SWC-D-002	Sydney Water	Sewer / Reticulation	Under west bound lanes of Victoria Road west of Terry Street	Relocate Under east bound bus lane and connect into trunk sewer main.	Yes
SEW-SWC-D-003	Sydney Water	Sewer / Reticulation	Under Victoria Road between Crystal Street and Terry St	Relocate Extend existing main in Springside Street to intercept Victoria Road sewer	No
WAT-SWC-D-001	Sydney Water	Water / Reticulation	Northern verge of Victoria Road at Iron	Realign Along Victoria Road	Yes
ELE-AUS-D-016	AusGrid	Electrical low voltage (LV) and street light (SL) / Distribution	Overhead powerlines along southern verge of Victoria Road	Remove New lighting is to be installed along new alignment as part of the road lighting	Yes
ELE-STC-D-001*	Sydney Trains	Fibre Optic Pilot Cable	NA	Relocate From Rozelle zone substation on Manning Road toward the Rozelle switching station. Note that the majority of route will utilise existing conduit.	No
ELE-AUS-D-021 (Permanent Power)	Ausgrid	Electrical Transmission	NA	New Rozelle zone substation, along Manning Street and Toelle Street into Victoria Road.	Yes
Victoria Rd Utility Easement	Multiple	Existing utility easement	North side of Victoria Road between Iron Cove Bridge and Terry Street	Ausgrid terminations	No

5.2. Rozelle

5.2.1. Low Impact Utility Works

The Rozelle low impact utility works are shown in Figure 3 and Figure 4, and comprise:

- Identification and isolation of 132 kV and 33 kV cables at nine locations within the Rozelle Rail Yards and east of the Victoria Road Bridge. This will involve the excavation of pits to expose the nominated cables. These works will be completed during standard working hours with an indicative duration of 12 weeks.
- Relocation of a Sydney Trains 11 kV cable connection to a new connection along James Craig Road and across to the Rozelle Rail Yards via The Crescent and City West Link. The connection along James Craig Road will be trenched to the intersection with The Crescent during standard working hours with an indicative duration of 22 weeks. An above ground cable connection will be constructed to cross The Crescent and City West Link. The restringing across The Crescent and City West Link is required to be undertaken outside standard work hours with an indicative duration of one week.
- Utility work proposed during site establishment is required within the Rozelle civil and tunnel site, Victoria Road civil site and within the project boundary to the north of The Crescent. These works will be completed intermittently during standard working hours over a 6-month period, extending into the construction phase of the project. This work includes:
  - Utility disconnections for demolition activities, including removal of redundant utility services, and
  - The installation and connection of essential site services including low voltage power, water, communication and sewer. In order to connect to the existing utility work, site connections will occur from existing points within the site, Lilyfield Road between the western boundary of the Rozelle civil and tunnel site to Gordon Street and The Crescent, near James Craig Road and Johnston Street.

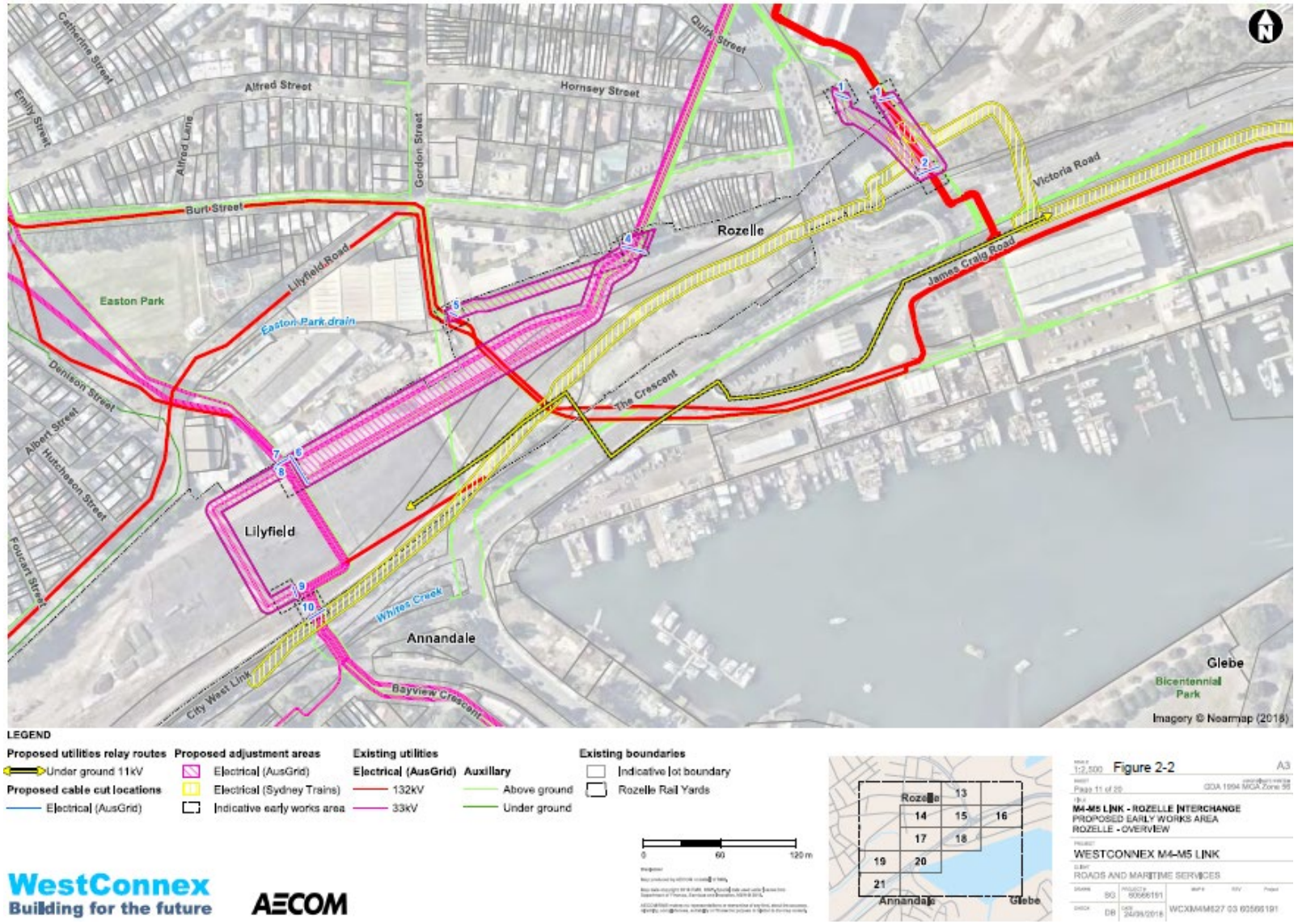

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Figure 3 Proposed Rozelle Low Impact Works

Figure 4 Proposed Rozelle Low Impact Utility Works Site Connections

The scope of the Rozelle works and known environmental constraints associated with the works is detailed in Table 7. Sensitive area maps identifying environmental constraints are attached in Annexure F.

Table 7 Proposed Rozelle low impact utility works

Utility Services	Work element	Environmental constraints
Sydney Trains (11 kV feeder)	Excavation and trenching of new cable route along James Craig Road	The new cable route has been selected to follow the kerb of James Craig Road. The majority of these works will be undertaken during standard working hours under a Road Occupancy Licence (ROL) as the trench is required along the northern side of the road. However, ROL restrictions at the roundabout on James Craig Road require works to be undertaken on Saturdays between 8 am and 6 pm. Traffic impacts are likely to be minor and restricted to controlled traffic movement around the work sites. The cable route is a disturbed area with no known biodiversity or heritage constraints. The closest sensitive receivers are located approximately 120m from the work area on the southern side of Lilyfield Road, Rozelle, between Victoria Road and Gordon Street.
	Overhead cable connection across The Crescent and City West Link	High voltage underground cables run parallel to James Craig Road which precludes using an under bore as an option for crossing James Craig Road. An overhead power connection and new power poles will be provided across James Craig Road at The Crescent and across City West Link to mitigate the need for trenching across The Crescent and City West Link. Most of this work would be undertaken during the day. with the excavation for the required power poles and stringing of the connection undertaken under an ROL outside of standard hours (limited to weekdays in the evening/night period, unless otherwise directed by TMC/SCO). The closest sensitive receivers are located approximately 150m from the work area on the southern side of Lilyfield Road, Rozelle, between Victoria Road and Gordon Street.
	Connection to Sydney Trains substation	Connection to Sydney Trains substation will be undertaken within the Rozelle Rail Yards where there are no known traffic, biodiversity or heritage constraints. The connection will be undertaken during standard working hours. The closest sensitive receivers are located 150m from the work area on Bayview Crescent.
Ausgrid Transmission (33 kV and 132 kV feeders)	Excavation of pits for the identification of feeders	Excavation of pits will be undertaken within the Rozelle Rail Yards where there are no known traffic, biodiversity or heritage constraints. Excavation of the pits will be undertaken during standard working hours. Contaminated soil has been identified in the Rozelle Rail Yards. All contaminated soil excavated for the pits will be appropriately classified and removed from site to a licenced waste facility. The closest excavation to sensitive receivers is on the Rozelle Rail Yard boundary with properties between 40 and 44 Lilyfield Road. The distance between the site and the houses is approximately 10m.
	Isolation of feeders by Ausgrid	The isolation of the feeders requires a mechanical cut of the cables within the excavated pit. Isolation will be undertaken during standard working hours. The closest excavation to sensitive receivers is on the Rozelle Rail Yard boundary with properties between 40 and 44 Lilyfield Road. The distance between the site and the houses is approximately 10m.

Utility Services	Work element	Environmental constraints
Site establishment utility work	Utility disconnections	Utility disconnections, including removal will occur within the Rozelle civil and tunnel site, Victoria Road civil site and within the project boundary to the north of The Crescent during standard working hours. The nearest sensitive receivers are located on Lilyfield Road, approximately 10m from the site. Services will be inspected (gas, water, sewer, power and telecommunications), and where required minor excavation works will be undertaken in order to cap and disconnect the services. Excavation will be undertaken where there are no known traffic, biodiversity or heritage constraints. Excavation will be undertaken during standard working hours. Contaminated soil has been identified in the Rozelle Rail Yards. All contaminated soil excavated will be appropriately classified and removed from site to a licenced waste facility.
	Essential utility services connections	The installation and connection of essential site services including power, water, communication and sewer will occur from existing points within the site (for power and sewer), from Lilyfield Road between the western boundary of the Rozelle civil and tunnel site to Gordon Street (for water and communication) and The Crescent, near James Craig Road and Johnston Street (for power, water, communication and sewer) during standard working hours. The nearest sensitive receivers are located on Lilyfield Road and Hornsey Street approximately 10m from the sites. Traffic impacts are likely to be minor and restricted to controlled traffic movements around the Lilyfield Road work site. A traffic control plan will be prepared and implemented for the works. Heritage street trees are located Lilyfield Road (heritage items of local significance on Leichhardt LEP). High retention value trees are located on Lilyfield Road, Victoria Road and The Crescent. Excavation will be undertaken where there are no known traffic, biodiversity or heritage constraints. Excavation will be undertaken during standard working hours. Contaminated soil has been identified in the Rozelle Rail Yards. All contaminated soil excavated will be appropriately classified and removed from site to a licenced waste facility.

5.2.2. High Impact

Table 8 identifies construction (high impact) utility works at Rozelle that are required as part of the Project, under the management of the CEMP. Note that some of the utilities listed below cross into adjacent suburbs, including Lilyfield and Annandale (these utilities are marked up with an asterisk).

Table 8 Rozelle Construction (High Impact) Utility Works

Reference	Utility Service	Asset Type	Existing Location	Proposed Management Measure	Within Area of Interest
ELE-AUS-D-001	Ausgrid	Electrical high voltage (HV) and LV / Distribution	Overhead from Solomons Way to underground across Victoria Road west of Anzac Bridge	Relocate New crossing of Victoria Road to the east of existing to reconnect in James Craig Drive	Yes
ELE-AUS-D-002	Ausgrid	Electrical HV and LV / Distribution	Along western side of Victoria Road between Quirk Street and Lilyfield Road, including road crossing	Relocate Along new widened verge on west side of Victoria Rd including new road crossing	Yes
ELE-AUS-D-003	Ausgrid	Electrical HV Distribution	Along eastern side of Victoria Road across to James Craig Drive turning east along northern verge	Relocate New crossing of Victoria Road to reconnect James Craig Drive, east of existing location	Yes
ELE-AUS-D-004	Ausgrid	Electrical HV, LV & SL Distribution	Along northern verge of James Craig Drive and southern side of The Crescent up to Victoria Road	Remove Isolate, cut and abandon cables	Yes
ELE-AUS-D-005	Ausgrid	Electrical HV Transmission	Under eastbound carriageway between The Crescent and Victoria Road turning north after the bridge towards the power station	Remove Isolate, cut, purge and abandon cables	Yes
ELE-AUS-D-007	Ausgrid	Electrical HV and Kiosk substation	On eastern verge of Gordon Street at southern most point	Remove Isolate, cut and abandon cables	Yes
ELE-AUS-D-008	Ausgrid	Electrical HV, LV & SL and Kiosk substation	Both verges of The Crescent/CWL west of James Craig Intersection	Relocate	Yes

Reference	Utility Service	Asset Type	Existing Location	Proposed Management Measure	Within Area of Interest
				New conduit south from Gordon Street, crossing CWL and connection on southern verge near James Craig Drive	
ELE-AUS-D-010*	Ausgrid	Electrical HV Distribution	Under southbound lane of The Crescent between Johnson Street and CWL	Remove Isolate, cut and abandon cables	Yes
ELE-AUS-D-011 .	Ausgrid	Electrical LV & SL Distribution	Along southern verge of Lilyfield Road opposite Hutcheson Street	Relocate Move to northern verge	Yes
ELE-AUS-D-012*	Ausgrid	Electrical LV & SL Distribution	Along southern verge of Lilyfield Road opposite Ryan Street	Relocate Move to northern verge	Yes
ELE-AUS-D-013	Ausgrid	Electrical AUX cables	From Gordon Street and Lilyfield Road intersection south through the rail yard to Whites Creek	Remove Isolate, cut and abandon cables	Yes
ELE-AUS-D-014*	Ausgrid	Electrical HV Distribution	Intersection of Denison Street and Lilyfield Road, south through the rail yard to the utility bridge crossing Whites Creek	Relocate Run parallel to Lilyfield Road within site boundary to Gordon Street	Yes
ELE-AUS-D-017 Note: This also includes the low impact utility works scope	Ausgrid	Electrical Transmission Cables	Intersection of Denison Street and Lilyfield Road, south through the rail yard to the utility bridge crossing Whites Creek	New New empty conduits to be installed at end of project	Yes
ELE-AUS-D-018 Note: This also includes the low impact utility works scope	Ausgrid	Abandoned 132kV Transmission cables	East of Victoria Road bridge running north south between White Bay Power Station and James Craig Drive	New New empty conduits to be installed at end of project	Yes
ELE-AUS-D-019*	Ausgrid	Electrical HV and Kiosk substation	North-western corner of The crescent and Johnson Street intersection	Relocate Southern side of Johnson street	Yes

Reference	Utility Service	Asset Type	Existing Location	Proposed Management Measure	Within Area of Interest
WAT-SWC-D-002	Sydney Water	Potable water reticulation and trunk mains	South bound lanes and eastern verge of Victoria Road into James Craig Drive	Relocate New crossing of Victoria Road to reconnect James Craig Drive, east of existing location	Yes
WAT-SWC-D-003*	Sydney Water	Potable water reticulation main	Under eastbound lanes on The Crescent from James Craig Drive along to intersection with Johnson Street	Relocate Locate in new verge on southern side of The Crescent Turning south to Johnson Street	Yes
WAT-SWC-D-004	Sydney Water	Potable water reticulation main	Along western verge of Gordon Street	Relocate/Remove Isolate, cut and abandon	Yes
SEW-SWC-D-004	Sydney Water	Sewer reticulation main	Running east/west through Rozelle Rail yard to the south of Gordon Street	Relocate Along project boundary parallel to Lilyfield Road	Yes
SEW-SWC-D-006	Sydney Water	Sewer reticulation main	Crossing Victoria Road from Lilyfield Street to Sommerville Road	Relocate From Lilyfield road intersection west to existing manhole	Yes
SEW-SWC-D-007*	Sydney Water	Sewer reticulation main	Across Buruwan Park to The Crescent	Relocate New alignment south of the existing, to reconnect in The Crescent	Yes
ELE-STC-D-001* (pilot and transmission cabling of switching station)	Sydney Trains	Electrical Transmission lines	Intersection of Denison Street and Lilyfield Road, south through the rail yard to the utility bridge crossing Whites Creek	Relocate New alignment north south through the rail yard from Gordon street (including Pilot Cable from Rozelle Zone Substation) to across City West Link and down The Crescent. The line to run in new galvanised steel trough in light rail corridor terminating opposite Gladstone Street.	No
ELE-STC-D-002	Sydney Trains	Electrical Switching Station	On the northern verge of the CWL opposite The Crescent.	Relocate New switching station around 40 metres to the north	Yes
ELE-STC-D-003	Sydney Trains	Electrical HV Distribution	From the Switching station east, under Victoria Road	Relocate	Yes

Reference	Utility Service	Asset Type	Existing Location	Proposed Management Measure	Within Area of Interest
			Bridge, then south to James Craig Drive	New line to cross City West Link and run along the eastbound lane of James Craig Drive	
ELE-STC-D-004*	Sydney Trains	Overhead electrical transmission lines	Along northern verge of CWL to the Switching Station	Relocate Temporary relocation to overhead east through site to the switching station	Yes
COM-TEL-D-002	Telstra	Telstra trunk fibre optics	Along eastern verge of Victoria Rd, under the bridge and across to James Craig Drive	Relocate New crossing of Victoria Road to reconnect James Craig Drive, east of existing location	Yes
COM-TEL-D-003	Telstra	Telstra distribution. Fibre optic and copper	Western verge of Victoria Road between Lilyfield Road and Quirk Street	Relocate Relay along new western verge	Yes
COM-TEL-D-005*	Telstra	Telstra distribution. Optic fibre and copper	Southern verge of The Crescent turning south over Whites Creek and continuing to Johnson Street	Relocate Locate in new verge on southern side of The Crescent Turning south to Johnson Street	Yes
COM-UEC-D-001	Uecomm	Local Distribution	Eastern side of Gordon Street	Remove Isolate cut and remove cable	Yes
GAS-JEM-D-003	Jemena	Gas / Medium Pressure	Eastern verge of Victoria Road across the bridge and turning west along The Crescent	Relocate New crossing of Victoria Road to the east of existing to reconnect in James Craig Drive	Yes
GAS-JEM-D-003*	Jemena	Gas / Medium Pressure	Eastern verge of The Crescent from Johnson Street turning east on the southern verge	Relocate Locate in new verge on southern side of The Crescent Turning south to Johnson Street	Yes

5.3. Lilyfield and Leichhardt

5.3.1. Low Impact Utility Works

The Leichhardt and Lilyfield low impact utility works are shown in Figure 5, and comprise:

- Multiple sections of below ground Ausgrid high voltage power (construction power supply) from the power supply point located at the Leichhardt substation on Balmain road and the connection point at Rozelle civil and tunnel site. These works will be completed during standard working hours, with an indicative duration of 7 months. The length of the construction power route is around 2.4 kilometres (refer to Figure 5), with the following stages predicated on meeting the definition of low impact utility works:
  - Stage 1: Installation of construction power along Short Street, Arthur Street, Allen Street and Norton Street (southern),
  - Stage 2: Installation of construction power along Norton Street (northern) and William Street)
  - Stage 3: Installation of construction power along Lilyfield Road from Balmain Road. It is noted that this stage is around 1 km long and would progress sufficiently to ensure that traffic impacts will be of less than two weeks in a localised area of Lilyfield Road. This stage is also partially located in Rozelle.

Figure 5 Proposed Leichhardt and Lilyfield Low Impact Utility Works

The scope of the Lilyfield and Leichhardt works and known environmental constraints associated with the works is detailed in Table 9. Sensitive area maps identifying environmental constraints (including heritage listed trees) are attached in Annexure F.

Table 9 Proposed Lilyfield and Leichhardt low impact utility works

Utility Services	Work element	Environmental constraints
Rozelle Construction Power Stage 1 – Short Street, Arthur Street, Allen Street and Norton Street (southern end)	Excavation and trenching of construction power route	The construction power route has been selected to follow the parking lane and road verge (including footpath). These works will be undertaken during standard working hours. Traffic impacts are likely to be minor and restricted to controlled traffic movements around the work site. A traffic control plan will be prepared and implemented for the works. Parking impacts will be for one consecutive week or less and alternate on-street parking is available within 100 m of the parking area impacted by the works The route is within the Leichhardt Street / Stanley Street Heritage Conservation Area, Wetherill Estate Heritage Conservation Area and in proximity to the Leichhardt hotel located at 1 Short Street, Leichhardt and Pioneers Memorial Park (heritage items of local significance on Leichhardt LEP). Site specific measures have been developed to ensure that these items are not adversely affected or potentially adversely affected by the works (refer to Section 8.2). The route is not within any areas with known biodiversity constraints. Trees (non-heritage listed) are located adjacent to the footpath in the road verge. A pre-clearance survey will be undertaken to ensure that no threatened species or threatened ecological communities (within the meaning of the Biodiversity Conservation Act 2016) are adversely affected or potentially adversely affected by the proposed works. The closest sensitive receivers are located around 5m from the work area, located on Short Street, Arthur Street, Allen Street and Norton Street.
Rozelle Construction Power Stage 2 – Norton Street (northern end) and William Street	Excavation and trenching of construction power route	The construction power route has been selected to follow the parking lane and road verge (including footpath). These works will be undertaken during standard working hours. Traffic impacts are likely to be minor and restricted to controlled traffic movements around the work site. A traffic control plan will be prepared and implemented for the works. Parking impacts will be for one consecutive week or less and alternate on-street parking is available within 100 m of the parking area impacted by the works The route is in proximity to the Pioneers Memorial Park (heritage item of local significance on Leichhardt LEP). Works would occur outside the cadastral boundary the Pioneers Memorial Park. Site specific measures have been developed to ensure that these items are not adversely affected or potentially adversely affected by the works (refer to Section 8.2). The route is not within any areas with known biodiversity constraints. Trees (non-heritage listed) are located adjacent to the footpath in the road verge. A pre-clearance survey will be undertaken to ensure that no threatened species or threatened ecological communities (within the meaning of the Biodiversity Conservation Act 2016) are adversely affected or potentially adversely affected by the proposed works. The closest sensitive receivers are located around 5m from the work area, located on Norton Street, William Street and Henry Street.
Rozelle Construction Power Stage 3 – Lilyfield Road	Excavation and trenching of construction power route	The construction power route has been selected to follow the road with a number for crossings to ensure AusGrid requirement are met. These works will be undertaken during standard working hours. Works along Lilyfield Road has been identified as requiring rock hammering due to the ground conditions.

Utility Services	Work element	Environmental constraints
(from Balmain Road)		Traffic impacts are likely to be minor and restricted to controlled traffic movements around the work site. A traffic control plan will be prepared and implemented for the works. Given the extent of Lilyfield Road, it is envisioned that the works will progress a considerable distance along Lilyfield Road to the extent that traffic impacts will be of less than two weeks in a localised area of Lilyfield Road. Construction progress will be followed, and any delays will be communicated to monitor compliance with the definition of low impact utility works Parking impacts will be for one consecutive week or less and alternate on-street parking is available within 100 m of the parking area impacted by the works Heritage street trees (heritage items of local significance on Leichhardt LEP) are located to 20m west of the low impact utility works on Lilyfield Road. Works in the vicinity of heritage street trees will be undertaken as high impact during construction. The route is in proximity to trees (non-heritage listed) that are located adjacent to the footpath in the road verge and include high retention value trees within identified retention areas or areas where further retention investigation is required. A pre-clearance survey will be undertaken to ensure that no threatened species or threatened ecological communities (within the meaning of the Biodiversity Conservation Act 2016) are adversely affected or potentially adversely affected by the proposed work. The closest sensitive receivers are located around 5m from the work area, located on Lilyfield Road.

5.3.2. High Impact

Construction (high impact) utility works in Lilyfield and Leichhardt that are required as part of the Project, under the management of the CEMP include the high impact works associated with the Ausgrid high voltage power (construction power supply) (refer to Figure 5). This includes:

- Out-of-hours works that is required along the proposed route where Road Occupancy Licences are restricted to the evening or night period.
- Works in proximity to heritage street trees located on Henry Road and Lilyfield Road.

All out-of-hours works will be undertaken as ‘construction works’ in accordance with the requirements and mitigation measures detailed in the Noise and Vibration Management Plan (NVMP) and OOHW Protocol.

Works on Henry Street and Lilyfield Road (between Henry Street and Balmain Road) will be undertaken as ‘construction works’ in accordance with the requirements and mitigation measures detailed in the Non-Aboriginal Heritage Management Plan (NAHMP)

Note that some of the utilities listed in Table 8 cross into adjacent suburbs, including Rozelle, Lilyfield and Annandale.

5.4. Relocation Methodology

The methodology for the low impact utility work would vary according to the type of utility service, the scale of the work and the location. However, typically the methodology for constructing an underground utility service includes:

- Establishing temporary work area including storage, laydown and stockpiling areas within the works footprint. Note there will be no ancillary facilities required for the low impact utility works. Unoccupied Roads and Maritime property at Iron Cove may be used for temporary parking to minimise impacts on local on-street parking;
- Securing work areas such as with temporary fencing;
- Installing pre-construction environmental management controls, e.g. sandbags at stormwater drainage outlets (where required);

- Investigations to confirm location of existing utility services such as potholing and
- Works to protect or relocate services as required;
- Removing and managing/protecting vegetation as described in the EIS, SPIR or Consistency Assessment;
- Concrete wet saw cutting to remove concrete or asphalt pavement;
- Trench excavations;
- Installation of directional drilling (Byrnes Street) launch/receiving sites;
- Stockpiling excavated materials within the work area for reuse or removal for off- site disposal;
- Preparing sub-grade surface (e.g. stabilised sand) to accommodate utility services;
- Laying utility services either as pipes, cables or conduits;
- Constructing joint bays and pits (where required);
- Pulling feeders and cables through conduits;
- Connecting utility services to existing networks;
- Testing and commissioning of utility services;
- Backfilling trenches and re-instating ground surface to an appropriate condition;
- Removing or suitably isolating redundant services where practical;
- Rehabilitating areas disturbed by works; and
- Site clean-up and decommissioning temporary work areas and environmental management controls.

The low impact utility work will be completed in stages and, with the exception of the directional drilling works, would proceed in a linear manner along the route. The depth and width of excavation will depend on a number of factors such as the type of utility service, local topography, the location of existing services and sub-surface conditions. Typically, the depth of the excavation is less than one metre.

5.5. Typical Equipment Used

The type of equipment that can be used varies according to the type of utility service, and the location. Typically, equipment may include items such as:

- Asphalt/concrete cutting saws;
- Excavators (1 tonne, 3 tonne or 5 tonne; note a 12 tonne is required on Lilyfield Road);
- Excavator mounted rock breaker (only proposed for those excavations which hit bedrock, or require the removal of sub-surface asphalt or concrete);
- Directional drilling machine (required for Ausgrid works adjacent Byrnes Street);
- Diesel power generators for directional drilling works (low noise generators required);
- Hand tools and jackhammers;
- Vacuum excavation trucks, (required for identification works in Rozelle and connections into existing utility networks);
- Water tankers and road sweepers (if required to remove sediment from roadways);
- Assorted power tools;
- Small trucks to transport plant, equipment, excavated spoil and materials;
- Light vehicles;
- Cable pulling machines;
- Tar truck/hotbox;
- Concrete agitator truck
- Vibration roller (ride on).

5.6. Standard Working Hours

Construction associated with utility works will be undertaken between the following standard working hours (except where stated in Section 5.7):

- 7.00am and 6.00pm Monday to Friday; and

- No work on Saturday, Sunday or public holidays.
- Highly noise intensive works are restricted to commence from 8am.

The Traffic Management Centre (TMC) has advised that the ROL works on James Craig Road will need to be undertaken on a Saturday where the lane width is restricted. As such, Saturday works are proposed for the James Craig Road site only between the hours of 8am-6pm (as permitted by CoA E69) where required by TMC.

5.7. Work Required Outside of Standard Working Hours

Works outside standard work hours have been limited to:

- Stringing and removal of Ausgrid distribution cables on Victoria Road;
- Stringing of new Sydney Trains distribution cable across The Crescent and City West Link and installation of two power poles; and
- Utility disconnections immediately adjacent to the Iron Cove civil site

There may also be requirements for non-standard working hours work in the event of an emergency (to be undertaken in accordance with CoA 74) or where utility providers require the connection/reinstatement of disrupted services outside standard working hours (to minimise impacts to customers during daytime hours).

All works outside of standard working hours will be undertaken in accordance with the Out-of-Hours Works Protocol prepared in accordance with CoA 77.

5.8. Timing and Duration of Low Impact Utility Works

The low impact utility works will be undertaken between June 2019 and December 2019. Where feasible, these works will be undertaken concurrently. The duration of the proposed low impact utility work is estimated in Table 10.

Table 10 Indicative low impact utility work program

Low Impact Utility	Program (Months)									Duration (Weeks)
	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	
Iron Cove										
Jemena Medium Pressure				■	■	■	■			14
Telstra Communications			■	■	■	■				14
Byrnes Street directional drilling (Jemena/Ausgrid)					■	■				6
Ausgrid 11kV and distribution			■	■	■	■				15
Ausgrid re-stringing on Victoria Road						■				1
Jemena High Pressure			■	■	■					12
Iron Cove Link civil site utility disconnections	■	■								6
Iron Cove utility connections			■	■						6
Rozelle										
Ausgrid identification and isolation of cables within the Rozelle Rail Yard and east of Victoria Road bridge			■	■	■					12
Sydney Trains 11kV		■	■	■	■	■				18
Rozelle utility disconnections		■	■							6
Rozelle utility connections		■	■	■	■	■	■			24
Leichhardt and Lilyfield*										
Ausgrid HV (Construction Power) – Stage 1	■	■	■	■			■			20
Ausgrid HV (Construction Power) – Stage 2	■	■	■				■			16
Ausgrid HV (Construction Power) – Stage 3	■	■	■	■			■			20

* High impact work associated with the construction power route will commence upon approval of the CEMP

6. Approach to Proposed Utility Works

The following section details the approach that the project has taken to planning the proposed low impact utility work. Low impact utility works have been predicated on meeting the definition of low impact utility works, as required by CoA E140.

6.1. Definition of Low Impact Utility Works

Utility works proposed for the low impact utility works are limited to works identified and assessed as low impact utility works in accordance with CoA E140. The definition of low impact utility works considers:

- Type of works;
- Duration of works;
- Time period of works; and
- Type of impact.

Consideration of each of the above parameters is described in the following sections.

6.1.1. Noise Impacts

The understanding of 'noise impact' in the context of utility works is not limited to one characteristic of the work (i.e. the absolute level of noise), it is a combination of many factors including but not limited to:

- The duration of the noise-generating activity;
- The associated level of noise that is experienced by a receiver, including any annoying characteristics such as impulsiveness and tonality;
- The sensitivity of the time period in which works are undertaken.

The potential impact of noise generated by utility works differs between the periods of a day (i.e. daytime, evening, night as per Interim Construction Noise Guideline) due to the level of background noise typically experienced at a receiver. Daytime background noise levels are higher as they are predominantly impacted by traffic noise which decreases in the evening and night time periods. Noise impacts are considered greater during the night time period (10pm – 5am) due to the potential for sleep disturbance.

For the purposes of the assessment of noise impacts in Section 6, the degree of noise impact is calculated using the parameters and descriptors in Table 11.

Table 11 Noise Impact matrix

Parameter	Score	Descriptor
Time Period	1	Low - Works are limited to standard daytime only
	2	Moderate - Works are conducted during Evening periods as defined by the ICNG
	3	High - Works are conducted during Night as defined by the ICNG
Noise Levels* (standard hours)	1	Low - Noise levels do not exceed the applicable NML + 5dB
	2	Moderate - Noise levels greater than the applicable NML + 5dB but below 75 dB
	3	High - Noise levels that exceed 75 dBA (highly noise affected)
Noise Levels* (outside standard hours)	1	Low - Noise levels do not exceed the applicable NML
	2	Moderate - Noise levels below NML + 10 dB
	3	High - Noise levels greater than NML + 10 dB
Duration of activity**	1	Low - Works less than 3 weeks or 1-night works event per week**
	2	Moderate - Works between 3 weeks and 6 weeks or 2-night works events per week**

Parameter	Score	Descriptor
	3	High - Works greater than 6 weeks or greater than 2-night works events per week** Note: Sensitive receivers will be included in the assessment of duration where they are within 100 metres of the works area

* Including any penalties for annoying characteristics as described in the ICNG

** The three-week period is based on the short-term duration definition in the Interim Construction Noise Guideline (ICNG). The 6-week period is based on the Roads and Maritime Construction Noise and Vibration Guideline (CNVG).

The degree of noise impact is calculated by summing the numbers for the time period, noise level (either standard hours or out-of-hours) and duration and then comparing it to the overall noise impact category below.

Assessed activities with impact category of 6 or lower is low impact and suitable to be undertaken as low impact utility works in line with CoA E140.

Low noise impact: 3 to 6
Moderate noise impact: 7 to 8
High noise impact: 9 and above

Table 12 provides an assessment of the proposed utility works to demonstrate that each activity would meet the definition of low impact and qualify to be completed as low impact utility work under CoA E140.

The table includes each of the parameters described in Table 11, i.e. duration, time period and noise level as well as an assessment of residual impacts upon implementation of mitigation and management measures.

The residual impacts calculated in Table 12 have been used in the low impact utility works impact-based assessment matrix presented in Annexure A.

Table 12 Impact Profile for High Noise Generating Activities

Location	Equipment	Noise Level @ 10 m	Approx. distance to nearest receiver	Estimated Noise level @ nearest receiver with mitigation *	NML @ nearest receiver	Discussion	Risk (level of impact)			Pre-Mitigation Overall Impact	Post Mitigation Impact
							Time Period	Noise Level	Duration		
Iron Cove (if rock/ concrete encountered)	5T rock breaker (day)	83 dBA to 92 dBA	2 m	>80 dBA	54 dBA	Breaking may be required where rock is encountered in trenches. Depending on the amount of breaking required, a hand jackhammer may replace a rock hammer where it will achieve a lower noise level at the nearest sensitive receiver. The works would be shallow (up to 800 mm) and as such would not be for prolonged periods. Works are associated with trenching and as such, would progress along the works corridor	Day (1)	High (3)	Low (1)	Low (Total 5)	Low (Total of 5)
Iron Cove	Directional drill machine Generator set (day)	80 dBA	25 m	65 dBA	54 dBA	A directional drill is required for the crossing beneath Victoria Road for Ausgrid 11 kV. The drill will be located adjacent to Bay Run footpath at Byrnes Street in an area to be cleared for the construction of a new bio-retention basin. The main noise output associated with the drill is the requirement for a diesel generator set to operate the drill. The Contractor will be required to provide a low noise generator set.	Day (1)	Moderate (2)	Low (1)	Low (Total 4)	Low (Total of 4)
Iron Cove	Concrete saw (day)	85 dBA	2 m	>80 dBA	54 dBA	Concrete cutting may be required periodically through utility works to cut concrete pedestrian paths. Works are associated with trenching and as such, would progress along the works corridor	Day (1)	High (3)	Low (1)	Low (Total 5)	Low (Total of 5)
Iron Cove	Vacuum truck (day)	81 dBA	2 m	80 dBA	54 dBA	Vacuum trucks may be required for non-intrusive utility works where utilities are required to be identified prior to excavation. Works are associated with trenching and as such, would progress along the works corridor	Day (1)	High (3)	Low (1)	Low (Total 5)	Low (Total of 5)
Iron Cove	5T Excavator (day)	65 dBA	2 m	65 dBA	54 dBA	Small excavators will be used to excavate ground surfaces during trenching works, including pulling up footpaths and/or road surfaces. They will be limited in size to a maximum of 5 tonne.	Day (1)	Moderate (2)	Low (1)	Low (Total 4)	Low (Total of 4)
Iron Cove	Jack hammer (day)	95 dBA	2 m	>80 dBA	54 dBA	The preference is for rock breakers to be replaced by jackhammers where feasible to reduce noise levels associated with rock breaking.	Day (1)	High (3)	Low (1)	Low (Total 5)	Low (Total of 5)
Iron Cove	Boom lift (night)	N/A	6 m	<50 dBA	51 dBA	A boom lift will be required to assist lift the transmission cabling to the new power poles	Night (3)	Low (1)	Low (1)	Low (Total 5)	Low (Total of 5)

Location	Equipment	Noise Level @ 10 m	Approx. distance to nearest receiver	Estimated Noise level @ nearest receiver with mitigation *	NML @ nearest receiver	Discussion	Risk (level of impact)			Pre-Mitigation Overall Impact	Post Mitigation Impact
							Time Period	Noise Level	Duration		
Iron Cove	Cherry Picker / EWP (night) Hand tools (night)	60 dBA	25 m	<50 dBA	51 dBA	A EWP / Cherry Picker will be required to assist personnel in reaching and disconnecting nearby cabling from power poles.	Night (3)	Low (1)	Low (1)	Low (Total 5)	Low (Total of 5)
Rozelle (if rock/ concrete encountered)	5T rock breaker (day)	83 dBA to 92 dBA	125 m	50 dBA	61 dBA	Breaking may be required where rock is encountered in trenches. Depending on the amount of breaking required, a hand jackhammer may replace a rock hammer where it will achieve a lower noise level at the nearest sensitive receiver. The works would be shallow (up to 800 mm) and as such would not be for prolonged periods. Works are associated with trenching and as such, would progress along the works corridor	Day (1)	Low (1)	Low (1)	Low (Total 3)	Low (Total of 3)
Rozelle	Concrete saw (day)	85 dBA	125 m	50 dBA	61 dBA	Concrete cutting may be required periodically through utility works to cut concrete pedestrian paths. Works are associated with trenching and as such, would progress along the works corridor	Day (1)	Low (1)	Low (1)	Low (Total 3)	Low (Total of 3)
Rozelle	Vacuum truck (day)	81 dBA	125 m	50 dBA	61 dBA	Vacuum trucks may be required for non-intrusive utility works where utilities are required to be identified prior to excavation. Works are associated with trenching and as such, would progress along the works corridor	Day (1)	Low (1)	Low (1)	Low (Total 3)	Low (Total of 3)
Rozelle	5T Excavator (day)	65 dBA	125 m	<40 dBA	61 dBA	Small excavators will be used to excavate ground surfaces during trenching works, including pulling up footpaths and/or road surfaces. They will be limited in size to a maximum of 5 tonne.	Day (1)	Low (1)	Low (1)	Low (Total 3)	Low (Total of 3)
Rozelle	Jack hammer (day)	95 dBA	125 m	50 dBA	61 dBA	The preference is for rock breakers to be replaced by jackhammers where feasible to reduce noise levels associated with rock breaking.	Day (1)	Low (1)	Low (1)	Low (Total 3)	Low (Total of 3)
Rozelle	Boom lift (night)	N/A	155 m	<40 dBA	50 dBA	A boom lift will be required to assist lift the transmission cabling to the new power poles	Night (3)	Low (1)	Low (1)	Low (Total 5)	Low (Total of 5)
Lilyfield / Leichhardt (if rock/ concrete encountered)	5T rock breaker (day)	83 dBA to 92 dBA	2 m	>80 dBA	56 dBA	Breaking may be required where rock is encountered in trenches. Depending on the amount of breaking required, a hand jackhammer may replace a rock hammer where it will achieve a lower noise level at the nearest sensitive receiver. The works would be shallow (up to 800 mm) and as such would not be for prolonged periods.	Day (1)	High (3)	Low (1)	Low (Total 5)	Low (Total of 5)

Location	Equipment	Noise Level @ 10 m	Approx. distance to nearest receiver	Estimated Noise level @ nearest receiver with mitigation *	NML @ nearest receiver	Discussion	Risk (level of impact)			Pre-Mitigation Overall Impact	Post Mitigation Impact
							Time Period	Noise Level	Duration		
						Works are associated with trenching and as such, would progress along the works corridor					
Lilyfield / Rozelle (if rock/ concrete encountered)	12T excavator with rock breaker (day)	98 dBA	2 m	>80 dBA	56 dBA	Breaking will be required where rock is encountered in trenches along Lilyfield Road. Depending on the amount of breaking required, a hand jackhammer may replace a rock hammer where it will achieve a lower noise level at the nearest sensitive receiver. Minimum working distances will be maintained for human response criteria (7m) in accordance with RMS CNVG 12T excavator will be used to excavate ground surfaces during trenching works, including pulling up footpaths and/or road surfaces.	Day (1)	High (3)	Low (1)	Low (Total 5)	Low (Total of 5)
Lilyfield / Leichhardt	Concrete saw (day)	85 dBA	2 m	>80 dBA	56 dBA	Concrete cutting may be required periodically through utility works to cut concrete pedestrian paths. Works are associated with trenching and as such, would progress along the works corridor	Day (1)	High (3)	Low (1)	Low (Total 5)	Low (Total of 5)
Lilyfield / Leichhardt	Vacuum truck (day)	81 dBA	2 m	80 dBA	56 dBA	Vacuum trucks may be required for non-intrusive utility works where utilities are required to be identified prior to excavation. Works are associated with trenching and as such, would progress along the works corridor	Day (1)	High (3)	Low (1)	Low (Total 5)	Low (Total of 5)
Lilyfield / Leichhardt	5T Excavator (day	65 dBA	2 m	65 dBA	56 dBA	Small excavators will be used to excavate ground surfaces during trenching works, including pulling up footpaths and/or road surfaces. They will be limited in size to a maximum of 5 tonne.	Day (1)	Moderate (2)	Low (1)	Low (Total 4)	Low (Total of 4)
Lilyfield / Leichhardt	Jack hammer (day)	95 dBA	2 m	>80 dBA	56 dBA	The preference is for rock breakers to be replaced by jackhammers where feasible to reduce noise levels associated with rock breaking.	Day (1)	High (3)	Low (1)	Low (Total 5)	Low (Total of 5)

6.1.2. Vibration Impacts

Potential vibration impacts are assessed in terms of human comfort and cosmetic damage. For the purposes of the assessment of vibration impacts in Section 6, the degree of impact is assessed using the parameters and descriptions in Table 13.

Table 13 Vibration Impact Matrix

Descriptor
Low – Vibration level at residence does not exceed human comfort criteria*
Moderate – Vibration level at residence exceeds human comfort level for greater than two consecutive days but does not exceed cosmetic damage criteria^
High – Vibration level at residence exceeds cosmetic damage criteria^

* As defined in the Department of Environment and Conservation Assessing Vibration: a technical guideline (DEC February 2006)

^ As defined in the British Standard, BS7385-2:1993 Evaluation and measurement for vibration in buildings

6.1.3. Traffic and Access Impacts

The potential impact associated with changes to established traffic routes (including pedestrian and cyclist) or flows is considered predominantly associated with the duration of the change and the inconvenience of any associated diversions put in place for traffic around the construction works.

For the purposes of the assessment of traffic and access impacts in Section 6, the degree of impact is calculated using the parameters and descriptors in Table 14.

Table 14 Traffic and Access Impact Matrix

Parameter	Score	Descriptor
Duration of change	1	Low - Works directly impact traffic movement for less than 2 consecutive weeks
	2	Moderate - Works directly impact traffic movement for between 2 and 4 consecutive weeks
	3	High - Works directly impact traffic movement for greater than 4 weeks
Traffic Impact	1	Low - Delay of less than 10 minutes around work area
	2	Moderate - Delay of between 10 and 20 minutes around work area
	3	High - Delay of greater than 20 minutes around work area
Pedestrian and cyclist impact	1	Low - Diversion distance less than 100 m
	2	Moderate - Diversion distance between 100 m and 500 m
	3	High - Diversion distance greater than 500 m

If there are special community needs or additional accessibility obstacles on the diversion pathway for pedestrians and cyclists (e.g. a stairwell) created for the works, the impact is considered high unless appropriate mitigation measures are put in place.

For the purposes of the assessment of traffic impacts in Section 7, the degree of traffic or pedestrian/cyclist impact is calculated by summing the duration and impact (either traffic or pedestrian) scores, and then comparing it to the overall traffic impact category below.

Assessed activities with impact category of 3 or lower is low impact and suitable to be undertaken as low impact utility works in line with CoA E140.

Low traffic impact: 2 to 3
Moderate traffic impact: 4 to 5
High traffic impact: Above 5

6.1.4. Residential Parking

On-street parking impacts are deemed to be low where the loss of parking at the location of the works is for one consecutive week or less and alternate on-street parking is available within 100 m of the parking area impacted by the works.

If special community needs for parking have been determined through consultation with affected stakeholders utilising existing on-and off-street parking stock, the impact is considered high unless appropriate mitigation measures are put in place.

6.1.5. Biodiversity

Biodiversity impacts are deemed to be low where no threatened species or threatened ecological communities (within the meaning of the Biodiversity Conservation Act 2016) are adversely affected or potentially adversely affected by the proposed utilities works, unless otherwise determined by the Secretary in consultation with OEH or DPI Fisheries (in the case of impact upon fish, aquatic invertebrates or marine vegetation).

The removal of vegetation (excluding threatened ecological communities) and weed species is deemed as low impact where the vegetation removal has been identified in the EIS, SPIR or a Consistency Assessment.

It is noted that the definition of construction in the CoA excludes “(e) clearing of vegetation, as identified in the EIS and Submissions and Preferred Infrastructure Report”. However, where threatened species or threatened ecological communities are adversely affected or potentially adversely affected by any low impact utility work that work is deemed construction unless determined by the Secretary in consultation with OEH or DPI Fisheries.

6.1.6. Heritage

Heritage impacts are deemed to be low if known or potential heritage sites or artefacts are not adversely affected or potentially adversely affected by the proposed utilities work, unless otherwise determined by the Secretary in consultation with OEH.

It is noted that the definition of construction excludes “(j) archaeological testing under the Code of practice for archaeological investigation of Aboriginal objects in NSW (DECCW, 2010) or archaeological monitoring undertaken in association with [a]-[i] [in the construction definition list] to ensure that there is no impact on heritage items”.

However, where heritage items are adversely affected or potentially adversely affected by any low impact utility works, that work is deemed construction unless determined by the Secretary in consultation with OEH.

6.1.7. Dust

Dust impacts are deemed to be low if dust is maintained within the vicinity of the low impact utility works area and not creating a nuisance or adversely impacting on sensitive receiver.

6.1.8. Surface Water Management

Surface water impacts are deemed to be low if runoff and tracking from the low impact utility works area is controlled to prevent pollution of waterways.

6.1.9. Lighting Impacts

Lighting impacts for works outside of standard working hours are deemed to be low if sensitive receivers are not adversely impacted by nuisance lighting (i.e. lighting is not directed into sensitive receivers properties).

6.2. Identifying Utility Services

Impacting underground services can have significant safety, environmental and community impacts. Existing utility services (underground and overhead services) have been identified by:

- Dial-Before-You-Dig (DBYD) data searches;
- Review of plans and drawings provided by utility service providers;
- Site walkovers;
- Use of electronic tracing and ground penetrating radar; and
- Surface level survey.

Investigations will continue throughout the design, planning and construction of low impact utility works in consultation with utility service providers to identify the utility services likely to be impacted by the low impact utility works.

The existing services will be positively located prior to commencement of intrusive work.

7. Assessment of Environmental Impacts

7.1. Overview

The environmental impacts of works comprising the low impact utility works have been assessed by undertaking a risk assessment of the generic work activities associated with the works. In addition, site specific environmental impacts were also identified which respond to the environmental condition of each site. The risk assessment matrix for the low impact utility work activities is presented as Annexure A.

The sections below provide a summary of the key environmental impacts as determined by the risk assessments and summarise them on an environmental aspect basis. Mitigation measures required to achieve a low impact for all environmental impacts are presented in Section 8.

7.2. Noise and Vibration

Though noise and vibration impacts are unavoidable during these works, assessment of the level of impact (Table 12 and Annexure A) demonstrates they would meet the noise definition of low impact. Noise generating equipment would include, but not be limited to:

- Concrete/asphalt saws;
- Excavator mounted rock breakers (if required);
- Vacuum tankers required for non-intrusive utility works or dewatering of trenches;
- Small excavators;
- Vibratory rollers; and
- Cable pulling equipment.

The majority of these activities would be during standard working hours, of short duration (due to the scope of the works) and transition progressively along the utility service corridor thereby impacting particular receivers for only a limited period of time. It is anticipated that an average of 15m of trenching per day would occur along each utility service corridor.

Out-of-hours works are required for the following nominated works due to the requirement for a ROL:

- Stringing and removal of Ausgrid distribution cables on Victoria Road;
- Stringing of new Sydney Trains distribution cable across The Crescent and City West Link; and
- Utility disconnections immediately adjacent to the Iron Cove civil site

The ROL for the James Craig Road excavation works restricts works to Saturday where the existing road narrows and two-way traffic cannot be maintained (e.g. at the roundabout). Where required by the ROL, works will be undertaken on a Saturday between 8am and 6pm in accordance with Condition E69.

Vibratory generating equipment would include the use of rock breakers, vibratory rollers and hand-held jackhammer and hand-held compactors.

In order to ensure that the vibration level at residences does not exceed human comfort criteria, the recommended minimum working distances identified in the CNVG will be adopted.

Potential vibration impacts on heritage structures are discussed in Section 7.6.

Low impact utility works which are noisy or generate vibration impacts would be managed by implementing the measures detailed in Chapter 8. Out-of-hours works will be undertaken in accordance with the OOHW Protocol required by CoA E77.

7.3. Traffic

Traffic related impacts will include:

- Temporary additional traffic generated by construction vehicles and personnel impacting on the local road network;
- Temporary car parking required by construction staff at utility work sites
- Temporary closure of roads or traffic lanes and associated diversions of traffic and traffic delays;
- Temporary delay to road users during road closures under a ROL for OOHW;
- Temporary removal of some areas of on-street parking;
- Temporary closure of sections of footpaths or cycle paths and associated diversions; and
- Temporary traffic flow restrictions caused by ROLs for works outside of standard work hours at Victoria Road.

These traffic and parking impacts would be temporary and will be managed by implementing the management measures detailed in Chapter 8. Construction progress will be followed by the UCM, and any delays will be communicated to the PLO. Where required, the UCM will reschedule or adjust the program to maintain compliance with the traffic definition of low impact utility works.

Note: On-street parking impacts are being managed through the UMS for the low impact utility work. A Construction Parking and Access Strategy has not been prepared for the low impact utility work as this is requirement is triggered by the commencement of construction.

7.4. Air Quality

Potential air quality impacts may include:

- Generation of dust from excavation and loading/unloading of spoil and construction materials;
- Tracking of soil from plant and equipment onto the local road network;
- Odour in the event that construction works encounter acid sulphate soils or contaminated soil and groundwater; and
- Emissions from plant and equipment including heavy vehicles.

These impacts would be temporary and will be managed by implementing the management measures detailed in Chapter 8.

7.5. Biodiversity

There are no identified threatened species or threatened ecological communities (within the meaning of the Biodiversity Conservation Act 2016) within the low impact utility works area and therefore none are likely to be impacted by the low impact utility works. A Biodiversity Assessment undertaken for the early works by Eco Logical Australia (August 2018) confirmed "*No micro-bat roosting sites or other important habitat features were observed within the study area, including areas observed under the Iron Cove bridge.".* All vegetation identified within the early work areas is consistent with 'Urban Exotic and Native Cover' as mapped by OEH (2013; Sydney Metropolitan Catchment Management Authority Vegetation Mapping project).

Vegetation (non-threatened ecological communities) along the foreshore at King George Park requires pruning to facilitate the trenching works on the eastern side of the existing footpath. Trees may also require pruning for Ausgrid overhead works. Vegetation on the northern side of Victoria Road and within the proposed bio retention basin adjacent Byrnes Street may require removal to facilitate Ausgrid distribution trenching works and directional drill works. Vegetation along Norton Street and Lilyfield Road may require pruning for the construction power route.

There is also potential for root disturbance to planted trees along Manning Street, Clubb Street Toelle Street, Norton Street and Lilyfield Road.

The proposed construction power route predominantly follows established road reserves and therefore has been designed to avoid areas of established vegetation as far as practicable along the route.

The works will not cause adverse impacts or potential adverse impacts (such as clearing, removal, pruning or trimming) on trees or vegetation identified as heritage items (including local heritage as defined in a LEP) or threatened species (under the meaning of the NSW Biodiversity Conservation Act 2016).

Potential impacts will be managed by implementing the management measures detailed in Section 8.

7.6. Non-Aboriginal Heritage

The proposed cable route passes through or adjacent to a number of heritage items identified in the *Leichhardt Local Environmental Plan 2013* (refer to Table 4).

Any works that have the potential to impact on the significant characteristics of the HCA will not be undertaken as part of the UMS as these works are deemed construction. Where works have the potential to impact the significant characteristics of the HCA these will be undertaken by implementing the CEMP and sub-plan controls.

Significant characteristics contributing to HCAs (such as sandstone kerbs) will not be adversely or potentially adversely affected. Mitigation measures specific to the HCA's are detailed in Table 16 to ensure that no permanent modifications or permanent physical affects occur to significant characteristics of HCAs.These measures have been developed by reviewing the Inner West Council controls and guidelines found at https://www.innerwest.nsw.gov.au/develop/planning-controls/heritage-and-conservation/heritage-conservation-areas.Vibratory intensive activities such as rock breaking or compaction that have the potential to adversely affect adjacent heritage structures, including Pioneers Memorial Park, Leichhardt Hotel or attributes of HCAs will be undertaken as construction works. Plant and equipment have been selected to minimise the generation of vibration (i.e. use of jack-hammers) and site-specific measures including the development of minimum working distances and validation vibration monitoring would occur.

The low impact utility works would be able to meet the heritage requirement through the implementation of management measures detailed in Section 8, ensuring that the listed items are not adversely affected or potentially adversely affected by the works.

7.7. Aboriginal Heritage

There are no direct or indirect Aboriginal heritage impacts likely to be associated with the low impact utility works.

The services routes on Manning Street have been chosen to avoid impacts on the piece of land south of Byrnes Street on Manning Street that is the subject of an undetermined Aboriginal Land Claim.

7.8. Visual Amenity

Potential temporary visual impacts during construction works will include:

- Pruning/removal of vegetation on Victoria Road (north and south), Norton Street, Lilyfield Road and along the foreshore of King George Park, and
- Views from sensitive receivers of trench excavation and plant equipment.

These impacts will be managed by implementing the management measures detailed in Chapter 8.

7.9. Land Use and Socio-Economic Impacts

Potential land use and socio-economic impacts will include:

- Temporary impacts on property access (e.g. driveways) noting that existing property access would be maintained other than for short periods to enable trenching across driveways at times agreed with the property owner;
- Temporary impacts on access to walkways (i.e. Bay Run, and areas adjacent to Pioneer Memorial Park) and areas of public open space; and
- Temporary amenity impacts on residential land uses adjacent to the work areas.

These impacts will be managed by implementing the management measures detailed in Chapter 8.

7.10. Soil and Water

Potential soil and water impacts may include:

- Erosion of ground surfaces and sediment runoff in the vicinity of the works;
- Localised sedimentation on ground surfaces from dewatering of excavated trenches (note this will not be undertaken near stormwater drains);
- Impacts on soil and water quality from spills; and
- Disturbance of contaminated soils (as referred to in section 7.11).

These impacts will be managed by implementing the management measures detailed in Chapter 8.

7.11. Contamination

Potential impacts from contamination during low impact utility works may include:

- Disturbance and disposal (to a suitably licenced waste facility) of contaminated soils and/or groundwater including unexpected contamination;
- Mobilisation of contamination in soils or groundwater by earthworks and/or movement of plant and equipment;
- Mobilisation of contaminants in exposed soils by rainfall or surface water run-off; and
- Spills of hydraulic oils and fuels from vehicles and plant equipment impacting soil and/or water quality.

These impacts will be managed by implementing the management measures detailed in Chapter 8.

7.12. Waste

Potential waste impacts are limited to the requirement for classification and disposal of excess spoil and/or materials to a suitably licenced waste facility. Waste will be managed by the implementation of management measures detailed in Chapter 8.

7.13. Electric and Magnetic Fields

Equipment that forms part of an electricity network, including overhead or underground powerlines, has current flowing through it and produces electric and magnetic fields (EMF).

Electricity produces an electric field and a magnetic field and the strengths of these fields decrease rapidly with distance from their source. The level of magnetic fields from the electricity network depends on the amount of current/electrical load, the way the network is configured and the

distance from the equipment. The level is not directly related to the voltage. Everyone who regularly uses electricity or electrical appliances is exposed to EMF on an ongoing basis. The balance of current scientific evidence does not indicate that EMF causes adverse health effects.

Proposed utility works that involve power supply connections or which require existing Ausgrid or Sydney Trains electrical infrastructure to be relayed have the potential to produce EMF. These utility works will be located within existing road reserve and/or in designated utility service corridors within the project footprint either below ground or above ground. In these locations there will be a reasonable separation distance provided to the closest receivers.

8. Management Measures

8.1. Environmental Management Measures

Typical management measures that will be implemented during utility works are outlined in Table 15. The effectiveness of these controls will be reviewed as works progress and modified if required to ensure the low impact utility works comply with the requirements of the UMS. The relevant REMMS detailed in Annexure C have been incorporated into Table 15.

Any environmental incidents that occur during the low impact utility works will be reported to Roads and Maritime in accordance with the Roads and Maritime Environmental Incident Procedure and Environmental Incident Form (Annexure E).

Table 15 Utility works management measures

Score	Descriptor
Noise	▪ All low impact utility works are to be undertaken in accordance with the noise and vibration requirements detailed in the conditions relevant to the low impact utility works as defined in Annexure C of this UMS. ▪ All works shall be undertaken during standard working hours (Monday to Friday) with the exception of those works detailed in Section 6.2 of this UMS ▪ Excavation works during standard working hours are restricted from commencing before 8am. ▪ Respite will be implemented for highly noise intensive works (as defined in the Project Approval) undertaken during standard working hours in the form of works in continuous blocks that do not exceed three hours with a minimum one-hour respite in between each block. Note, no highly noise intensive works are permitted outside of standard working hours. ▪ Where practical a respite period of two hours will be considered in between blocks of three hours of high noise generating activities. Consideration will be guided by consultation with sensitive receivers adjacent to the works ▪ Appropriate respite periods for out of hours works will be identified and implemented in consultation with the community at each affected location in accordance with CoA E76 ▪ Where feasible, hand tools will replace excavator mounted rock breakers to minimise the noise levels associated with removing rock (if encountered). Where hand held jackhammers are used, noise blankets will be used to reduce impacts on sensitive receivers. Where excavators are required, they will be limited to a 12T excavator or less with a small breaker attachment along Lilyfield Road, and a 5T excavator or less with a small rock breaker attachment for all other works ▪ Where feasible, noise sources will be shielded using acoustic noise blankets while ensuring that the occupational health and safety of workers is maintained ▪ For work outside of standard working hours (limited to those detailed in Section 6.2), the following additional management measures will apply: ▪ Works to be undertaken in accordance with the OOH Work Protocol (CoA E77) ▪ Noise monitoring will be undertaken by the Contractor during works outside standard working hours to confirm that noise levels are within those modelled for the works ▪ Notification to sensitive receivers detailing work activities, dates and hours, impacts and mitigation measures and contact telephone number. Notification will be undertaken in accordance with the OOH Work Protocol and the Community Communication Strategy (CoA B1).
Vibration	▪ Maintain minimum working distances between vibration intensive works and sensitive building structures for human response criteria where reasonable and feasible in accordance with RMS CNVG. The RMS CNVG minimum distances

<table>
<tr><th>Score</th><th>Descriptor</th></tr>
<tr><td></td><td>
are quoted for both “cosmetic” damage (refer BS 7385) and human comfort (refer OH&E’s Assessing Vibration - a technical guideline)

Complete pre and post-construction condition assessments for residential properties where vibration generating activities will be undertaken within the minimum working distance for cosmetic damage as defined in Table 2 RMS CNVG 2016.

<table>
<tr><th rowspan="2">Plant item</th><th rowspan="2">Rating / Description</th><th colspan="2">Minimum working distance</th></tr>
<tr><th>Cosmetic damage (BS 7385)</th><th>Human response (OH&E Vibration guideline)</th></tr>
<tr><td rowspan="6">Vibratory Roller</td><td>< 50 kN (Typically 1-2 tonnes)</td><td>5m</td><td>15m to 20m</td></tr>
<tr><td>< 100 kN (Typically 2-4 tonnes)</td><td>6m</td><td>20m</td></tr>
<tr><td>< 200 kN (Typically 4-6 tonnes)</td><td>12m</td><td>40m</td></tr>
<tr><td>< 300 kN (Typically 7-13 tonnes)</td><td>15m</td><td>100m</td></tr>
<tr><td>> 300 kN (Typically 13-18 tonnes)</td><td>20m</td><td>100m</td></tr>
<tr><td>> 300 kN (> 18 tonnes)</td><td>25m</td><td>100m</td></tr>
<tr><td>Small Hydraulic Hammer</td><td>(300 kg - 5 to 12t excavator)</td><td>2m</td><td>7m</td></tr>
<tr><td>Medium Hydraulic Hammer</td><td>(900 kg – 12 to 18t excavator)</td><td>7m</td><td>23m</td></tr>
<tr><td>Large Hydraulic Hammer</td><td>(1600 kg – 18 to 34t excavator)</td><td>22m</td><td>73m</td></tr>
<tr><td>Vibratory Pile Drive</td><td>Sheet piles</td><td>2m to 20m</td><td>20m</td></tr>
<tr><td>Pile Boring</td><td>≤ 800 mm</td><td>2m (nominal)</td><td>4m</td></tr>
<tr><td>Jackhammer</td><td>Hand held</td><td>1m (nominal)</td><td>2m</td></tr>
</table>
Note: More stringent conditions may apply to heritage or other sensitive structures (see Section 8.2 for site specific measures)
</td></tr>
<tr><td>Traffic and access</td><td>

Develop temporary works that minimise conflicts with the existing road network and maximises spatial separation between work areas and travel lanes
Complete a pre and post condition assessment of local roads used during low impact utility works
Isolate work areas from general traffic through the implementation of appropriate traffic and access controls
Notify affected communities about temporary traffic and access disruptions
Minimise on-street parking removal to extent required for each work week
Construction workers utilise designated off-street car parking areas where available
Minimise periods of time during which roads and footpaths would be closed
Property access is to be maintained in consultation with property owners
Access to be maintained for public using the Bay Run, Pioneers Memorial Park and associated pedestrian pathways and cycleways. Where access is temporarily restricted, the Contractor will provide staff to assist the public use the existing stairway beneath the Iron Cove Bridge
Install signage to advise road users of any closures and alternative arrangements
Pedestrian access will be maintained. Diversions around work areas will be of a distance less than 100 m

</td></tr>
</table>

Score	Descriptor
	▪ For any utility works on main arterial roads, a Road Occupancy Licence (ROL) and coordination with the Sydney Coordination Office (SCO)/Traffic Management Centre (TMC) would be required.
Air quality	▪ Use of water sprays (where feasible) to minimise dust generation during trench excavation ▪ Construction activities with the potential to generate dust will be modified or ceased during unfavourable weather conditions to reduce the potential for dust generation. ▪ Remove deposits of loose materials (e.g. soils) from impervious surfaces to reduce potential for dust generation ▪ Disturbed areas will be permanently stabilised as soon as practicable to minimise the potential for ongoing dust generation ▪ Cover truck loads to minimise tracking of dust ▪ Regular maintenance of plant and equipment to minimise exhaust emissions ▪ Turn off vehicles and equipment when not in use
Biodiversity	▪ Do not remove vegetation beyond areas identified in EIS, SPIR or Consistency Assessment. ▪ Undertake a pre-clearing biodiversity survey by an ecologist ▪ Stabilise and reinstate areas of vegetation at completion of works, unless the vegetation will be impacted by construction activities. ▪ Stabilise areas of removed vegetation where future works are scheduled ▪ Establish tree protection zones (where required) around trees to be retained prior to commencement of works potentially impacting the tree ▪ Undertake tree removal using a suitably qualified arborist in accordance with AS 4373-2007 Pruning of Amenity Trees and NSW WorkCover Code of Practice for the Amenity Tree Industry (1998) ▪ Where appropriate, utilise sensitive construction techniques such as non-destructive digging to mitigate impacts on root zones of retained trees ▪ Minimise removal of vegetation. Where required, replacement of trees and/or vegetation is to be undertaken by the main works contractor. The low impact utility works contractor is required to keep a record of any trees removed during low impact works utility and provide the details to Roads and Maritime.
Non-Aboriginal heritage	▪ Route options selected that do not disturb listed or potential heritage items ▪ Excavation work within Historical Archaeological Management Units (HAMU) is to be undertaken in accordance with the Historical Archaeological Research Design (HARD) ▪ Excavation in the HAMU is to be undertaken under the supervision of the Excavation Director where required. ▪ Establish protection zones (where required) around heritage features ▪ Minimise the use of vibration-intensive equipment and manage associated activities in the vicinity of listed or potential heritage items to avoid potential cosmetic damage (refer to vibration mitigation measures) ▪ Implement the Roads and Maritime unexpected heritage finds protocol (Annexure D)
Aboriginal heritage	▪ Implement the Roads and Maritime unexpected heritage finds protocol (Annexure D) ▪ Modify route if unexpected Aboriginal heritage finds are identified ▪ No trenching is to be undertaken within the grassed area between Manning Street and the King George Park car parking area which is the subject of an undetermined Aboriginal Land claim

Score	Descriptor
Visual	▪ Minimise the extent of work areas and maintain worksites in a clean and tidy manner
Land use	▪ Undertake prior notification of works to residential, business and other property owners who may be affected ▪ Minimise the footprint of works impacting the Bay Run walkway.
Soil and water	▪ Erosion and Sediment Control Plans (ESCP) are to be prepared in accordance with the Blue Book ▪ Manage surface water and soils to minimise potential erosion and sedimentation of drains and watercourses in accordance with the requirements of the Blue Book ▪ Minimise areas of exposed soil surfaces to reduce erosion ▪ Install sediment control measures prior to commencing excavation or vegetation clearing works ▪ Stabilise disturbed areas at the completion of low impact utility works ▪ Store oils and fuels in a suitably bunded, covered and secure area with sufficient capacity to contain at least 110 percent of the volume of the largest container ▪ No concrete washout to be undertaken on site
Contamination	▪ Implement an unexpected contaminated land finds protocol ▪ All waste materials to be classified and disposed in accordance with the NSW EPA Waste Classification Guidelines.
Waste	▪ Wastes will be managed in accordance with relevant NSW legislation and government policies including using the waste hierarchy principles ▪ Characterise and manage waste in accordance with the NSW EPA's Waste Classification Guidelines ▪ Where feasible, recyclable material is to be segregated from spoil to maximise recycling opportunities
Electric magnetic fields	▪ Optimise feeder and feeder/joint bay configurations (if required)
Cumulative impacts	▪ Scheduling of work with other overlapping utility relocations to minimise potential cumulative impacts ▪ Progressively stage low impact utility works to minimise impacts such as traffic, noise and visual impacts

8.2. Site Specific Management Measures

In addition to the measures detailed in Table 15, the risk assessment presented in Annexure A, the following additional measures identified in Table 16 are required at the specific sites listed.

Table 16 Site Specific Management Measures

Site	Environmental Issue	Site specific impacts / management measures
King George Park	Vegetation clearing	▪ Preclearing report by arborist ▪ Establish clearing boundary prior to commencing works. Identify trees to be retained within clearing boundary ▪ Replacement of removed tress along foreshore by Main Works Contractor

Site	Environmental Issue	Site specific impacts / management measures
	Pedestrian/cycleway access to pathway	▪ If access is restricted on the Bay Run north of the Iron Cove bridge, pedestrians/cyclists are to be diverted through King George Park to the stairwell beneath the bridge. Construction staff will aid users of the stairwell (i.e. help carry prams, bicycles etc
Victoria Road Rozelle	Vegetation clearing	▪ Preclearing report by arborist ▪ Establish clearing boundary prior to commencing works. Identify trees to be retained within clearing boundary ▪ Replacement of removed tress by Main Works Contractor (if required)
	Out of hours work	▪ Road Occupancy Licence required for works impacting Victoria Road during restringing of Ausgrid cables or Iron Cove civil utility disconnections ▪ Noise monitoring at sensitive receivers ▪ Notification to sensitive receivers detailing work activities, dates and hours, impacts and mitigation measures and contact telephone number
James Craig Road	Out of hours work	▪ Road Occupancy Licence required for stringing works across The Crescent and City West Link ▪ Noise monitoring at sensitive receivers ▪ Notification to sensitive receivers detailing work activities, dates and hours, impacts and mitigation measures and contact telephone number
	Pedestrian and cycle way access	▪ Pedestrians and cyclist to be diverted around low impact utility works area by traffic controllers where works impact shared path
Work along Short Street and Arthur Street	Leichhardt Hotel, including interiors, located at 1 Short Street, Leichhardt (local significance) Wetherill Estate Heritage Conservation Area Leichhardt Street / Stanley Street Heritage Conservation Area	▪ Retain all remaining sandstone kerbs and gutters. ▪ Retain original iron palisade or low brick fences ▪ Retain all street planting schemes. ▪ Avoid interruption of the kerb and gutter line for vehicular access (permanent) ▪ Retain front gardens and street verges as green garden space ▪ Minimum working distance to be developed in consultation with structural engineer, heritage consultant and Inner West Council for Leichhardt Hotel. No vibratory intensive works are permitted within the nominated minimum working distance. ▪ An assessment shall be undertaken by a suitably qualified engineer to determine heritage vibration goals in accordance with DIN 4150 Structural Damage Safe Limits for Short term Building Vibration. Where no assessment has been undertaken the DIN 4150 Group 3 structural damage criteria (Criteria referenced from DIN 4150 Structural Damage Safe Limits for Short term Building Vibration (refer to table insert below)) will be adhered to for heritage structures.

<table>
<tr><th>Site</th><th>Environmental Issue</th><th>Site specific impacts / management measures</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th rowspan="2">Group</th><th rowspan="2">Type of structure</th><th colspan="4">Vibration velocity, mm/s</th></tr>
<tr><th colspan="3">At foundation of frequency of</th><th>Plan of floor uppermost storey</th></tr>
<tr><th></th><th></th><th>1Hz to 10HZ</th><th>10Hz to 50Hz</th><th>50Hz to 100Hz</th><th>All frequencies</th></tr>
<tr><td>3</td><td>Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Group 1 or 2 and have intrinsic value (e.g. buildings under a preservation order)</td><td>3</td><td>3 to 8</td><td>8 to 10</td><td>8</td></tr>
</table>
Validation vibration monitoring at Leichhardt Hotel will be completed when vibratory intensive works are proposed to ensure compliance with the vibration criteria for heritage items
</td></tr>
<tr><td>Work along Allen Street, Norton Street and William Street.</td><td>Pioneers Memorial Park, a landscape heritage item of local significance.</td><td>

Cadastral boundary of Pioneers Memorial Park to be confirmed prior to commencement of works in this area; the works would be undertaken outside the cadastral boundary.
Retaining wall to be protected during all works along Norton Street, when working within 3 metres (i.e. geofabric covering wall adjacent to work area).
No plant of equipment permitted to enter or be stored in park.
Minimum working distance to be developed in consultation with structural engineer, heritage consultant and Inner West Council for Pioneers Memorial Park. No vibratory intensive works are permitted within the nominated safe working distance.
An assessment shall be undertaken by a suitably qualified engineer to determine heritage vibration goals in accordance with DIN 4150 Structural Damage Safe Limits for Short term Building Vibration. Where no assessment has been undertaken the DIN 4150 Group 3 structural damage criteria (Criteria referenced from DIN 4150 Structural Damage Safe Limits for Short term Building Vibration (refer to table insert below)) will be adhered to for heritage structures.

<table>
<tr><th rowspan="2">Group</th><th rowspan="2">Type of structure</th><th colspan="4">Vibration velocity, mm/s</th></tr>
<tr><th colspan="3">At foundation of frequency of</th><th>Plan of floor uppermost storey</th></tr>
<tr><th></th><th></th><th>1Hz to 10HZ</th><th>10Hz to 50Hz</th><th>50Hz to 100Hz</th><th>All frequencies</th></tr>
<tr><td>3</td><td>Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Group 1 or 2 and have</td><td>3</td><td>3 to 8</td><td>8 to 10</td><td>8</td></tr>
</table>
</td></tr>
</table>

Site	Environmental Issue	Site specific impacts / management measures
		intrinsic value (e.g. buildings under a preservation order)
		▪ Validation vibration monitoring at Pioneers Memorial Park will be completed when vibratory intensive works are proposed to ensure compliance with the vibration criteria for heritage items

Annexure A Low Impact Utility Works Risk Assessment

Table 17 Assessment of Environmental Impacts - Generic Activities - Iron Cove

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
Establishing site boundaries	Iron Cove Foreshore- Pruning of Casuarina trees along foreshore	Biodiversity	Removal or pruning of Casuarina trees (non-threatened ecological community)	L	Pre-clearing report by Arborist Replacement of removed trees along foreshore. Vegetation identified for removal through Consistency Assessment.	L
		Visual amenity	Reduced visual amenity along foreshore	L	Replacement of removed trees (where required) along foreshore by Main Works Contractor.	L
	Victoria Road - Removal of vegetation along northern side of road	Biodiversity	Removal of vegetation understorey (non-threatened ecological community)	L	Establish clearing boundary prior to commencing works. Identify trees to be retained within clearing boundary. Vegetation identified for removal through Consistency Assessment.	L
	Byrnes Street – Removal of vegetation adjacent Bay Run footpath for siting of directional drill, generator set and water containment	Biodiversity	Removal of vegetation understorey (non-threatened ecological community)	L	Establish clearing boundary prior to commencing works. Identify trees to be retained within clearing boundary. Vegetation identified for removal through EIS.	L

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
		Visual amenity	Reduced visual amenity along foreshore	L	Disturbed area landscaped as part of future construction works for bio- retention basin. Replacement of removed trees in accordance with project Urban Design and Landscape Plan.	L
Excavation of trenches / pits for all utilities works on all streets (day time)	▪ Concrete saw using wet saw ▪ Breaking of footpath / ground surface using excavator ▪ Excavation of trench using excavator ▪ Rock breaking (where required) using jackhammer (hand tools)	Noise (standard work hours)	Noise nuisance to sensitive receiver	L	Works restricted to daytime hours Refer to Section 8 – Noise and Vibration	L
		Vibration	Vibration nuisance to sensitive receiver Cosmetic damage to property	L	Refer to Section 8 – Noise and Vibration	L
		Dust	Dust nuisance to sensitive receiver	L	Refer to Section 8 - Air quality	L
		Traffic and access	Traffic diversion on Manning Street between Callan and Moodie Streets	L	Traffic diverted up Callan Street to Moodie Street. Notification to residents at least five business days prior to works.	L
		Property access	Temporary disruption to driveways and property entrances	L	Access to driveways and property entrances to be maintained in consultation with property owners.	L
		Traffic and access in King George Park	Temporary disruption to pedestrian and cyclist pathways	L	When construction activities are occurring, diversion of pedestrians / cyclists through King George Park to stairwell. Construction staff to provide assistance using stairwell (i.e. help carry prams, bicycles (if requested)).	L

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
		Parking	Temporary removal of on-street parking spaces on local roads	L	Temporary removal of parking spaces limited to extent of work area for week.	L
Directional drilling of Ausgrid distribution	▪ Byrnes Street – excavation of directional launch/receiving sites ▪ Operation of generator set ▪ Management of drilling muds/spoil	Noise	Noise nuisance to sensitive receiver from drilling, generator set and deliveries	L	Works restricted to daytime hours Low noise generator set to be used. Refer to Section 8 – Noise and vibration	L
		Water pollution	Spillage of drilling muds outside of designated containment area	L	Refer to Section 8 – Soil and Water	L
		Pedestrian and cyclist access	Temporary disruption to pedestrian and cyclist pathways during equipment delivery	L	Work area to be fenced. Work are to be located off pedestrian / cyclist pathway. Traffic controller to direct pedestrians/cyclists during deliveries.	L
		Waste management	Generation of waste material and spoil	L	Refer to Section 8 – Waste and contamination	L
Spoil and materials management	▪ Temporary stockpiling of spoil beside trench ▪ Backfilling trench with in-situ spoil or imported fill ▪ Removal of spoil from site	Noise	Noise nuisance to sensitive receiver from excavation and truck movements and use of compaction of bedding materials	L	Works restricted to daytime hours Refer to Section 8 – Noise and Vibration	L
		Traffic	Increased traffic on local roads causing congestion	L	Refer to Section 8 - Traffic and Access	L
		Water pollution	Spillage of spoil when loading/ unloading. Temporary placement of spoil beside trench Tracking of mud onto public roads	L	Refer to Section 8 – Soil and Water	L

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
		Waste management	Generation of waste material and spoil	L	Refer to Section 8 – Waste and contamination	L
Lay bedding pipes, cables and conduits	▪ Placement of pipes, cables, conduits within trench ▪ Pulling of feeders / cables through conduits	Traffic	Increased traffic on local roads causing congestion	L	Refer to Section 8 - Traffic and Access	L
		Noise	Noise nuisance to sensitive receiver from excavation and truck movements and operation of cable pulling winches	L	Refer to Section 8 – Noise and Vibration	L
Stockpiling of bedding, pipes, cables, conduits	Placement of bedding or construction materials within construction area	Traffic	Increased traffic on local roads causing congestion	L	Refer to Section 8 - Traffic and Access	L
		Water pollution	Spillage of spoil when loading/ unloading. Temporary placement of spoil beside trench Tracking of mud onto public roads	L	Refer to Section 8 – Soil and Water	L
		Dust	Dust nuisance to sensitive receiver	L	Refer to Section 8 - Air quality	L
Reinstatement of finished surfaces	▪ Concrete or asphalt of footpath / road surface ▪ Washout of concrete trucks / equipment ▪ Landscaping/returfing	Traffic	Increased traffic on local roads causing congestion	L	Refer to Section 8 - Traffic and Access	L
		Noise	Noise nuisance to sensitive receiver from excavation and truck movements	L	Refer to Section 8 – Noise and Vibration	L

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
		Water pollution	Spillage of spoil when loading/ unloading. Temporary placement of spoil beside trench Tracking of mud onto public roads Runoff of concrete wash water	L	Refer to Section 8 – Soil and Water	L
Testing and commissioning	▪ Connecting utility services to existing networks ▪ Testing and commissioning of utility services	Amenity	Temporary disruption to local electricity or telecommunication	L	Utility service providers to provide notification to customers of temporary disruptions	L
Restringing of Ausgrid 11kV distribution on Victoria Road (outside standard working hours)	▪ Removal of existing overhead wires ▪ Stringing of new wires	Noise	Noise nuisance to sensitive receiver from truck movements and dropping of cables to ground surface	M	Refer to Section 8 – Noise and Vibration Noise monitoring	L
		Traffic	Disruption to traffic flow caused by lane closure Disruption to pedestrian traffic on the northern side of Victoria Road	M	Road Occupancy Licence Diversion of pedestrian traffic to southern side of Victoria Road	L
		Waste Management	Generation of waste material and spoil	L	Refer to Section 8 – Waste and contamination	L
		Amenity	Temporary disruption to local electricity or telecommunication	L	Utility service providers to provide notification to customers of temporary disruptions	L
Iron Cove utility disconnections	Service disconnections and connection (including excavation of utility services where required)	Noise (standard working hours)	Noise nuisance to from excavator and hand tools	L	Refer to Section 8 – Noise and Vibration	L

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
	Removal of overhead wire from Ausgrid power poles to property premise	Noise (outside standard work hours)	Noise nuisance to sensitive receiver from truck movements and dropping of cables to ground surface	M	Refer to Section 8 – Noise and Vibration Refer to Section 8 - Site Specific Measures	L
		Traffic	Disruption to traffic flow caused by lane closure Disruption to pedestrian traffic on the southern side of Victoria Road	M	Refer to Section 8 – Traffic and Access	L
		Waste	Generation of waste material	L	Refer to Section 8 – Waste and contamination	L

Table 18 Assessment of Environment Impacts - Generic Activities – Rozelle and surrounding suburbs

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
Identification and isolation of Ausgrid transmission services (132kV and 33kV)	▪ Excavation of pits for identification of feeders ▪ Isolation of services ▪ Backfilling of pits	Noise	Noise nuisance to sensitive receiver	L	Works restricted to daytime hours Refer to Section 8 – Noise and Vibration	L
		Dust	Dust nuisance to sensitive receiver	L	Refer to Section 8 - Air quality	L
		Water pollution	Sediment runoff from spoil stockpiles	L	Refer to Section 8 – Soil and Water	L
		Waste management	Generation of waste material and spoil Generation of contaminated waste	L	Refer to Section 8 – Waste and contamination Refer to Section 8 – Waste and contamination	L
Excavation of trenches / pits along James Craig Road	▪ Concrete saw using wet saw ▪ Breaking of footpath / ground surface using excavator ▪ Excavation of trench using excavator ▪ Rock breaking (where required)	Noise (Standard work hours)	Noise nuisance to sensitive receiver	L	Works restricted to daytime hours Refer to Section 8 – Noise and Vibration	L
		Vibration	Vibration nuisance to sensitive receiver Cosmetic damage to property	L	Refer to Section 8 – Noise and Vibration	L
		Dust	Dust nuisance to sensitive receiver	L	Refer to Section 8 - Air quality	L

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
	using jackhammer (hand tools)	Traffic and access	Temporary disruption to traffic flow by traffic controls	L	Road Occupancy Licence Notification provided to businesses along route Works on Saturday (8am – 6pm) at roundabout where required by ROL.	L
		Parking	Temporary disruption to available parking spaces	L	Removal of parking spaces limited to extent of work area.	L
		Pedestrian and cyclist access	Temporary disruption to pedestrian and cyclist pathways	L	Pedestrians and cyclist to be diverted around construction zone by traffic controllers where works impact shared path	L
Excavation of trenches along Short Street, Arthur Street, Norton Street, William Street and Lilyfield Road	▪ Concrete saw using wet saw ▪ Breaking of footpath / ground surface using excavator ▪ Excavation of trench using excavator	Noise (standard work hours)	Noise nuisance to sensitive receiver	L	Works restricted to daytime hours Refer to Section 8 – Noise and Vibration	L
		Vibration	Vibration nuisance to sensitive receiver Cosmetic damage to property	L	Refer to Section 8 – Noise and Vibration	L

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
	▪ Rock breaking (where required) using jackhammer (hand tools)	Heritage	Damage to heritage listed items: ▪ Leichhardt Hotel ▪ Wetherill Estate Heritage Conservation Area ▪ Leichhardt Street / Stanley Street Heritage Conservation Area ▪ Pioneers Memorial Park	M	Refer to Section 8 – Noise and Vibration Refer to Section 8 – Non-Aboriginal Heritage Refer to Section 8 – Biodiversity Refer to Section 8 - Site Specific Measures	L
		Dust	Dust nuisance to sensitive receiver	L	Refer to Section 8 – Air quality	L
		Traffic and access	Increased traffic on local roads causing congestion	M	ROLs Construction Progress Refer to Section 8 – Traffic and Access	L
		Property Access	Temporary disruption to driveways and property entrances	L	Access to driveways and property entrances to be maintained in consultation with property owners.	L
		Parking	Temporary removal of on-street parking spaces on local roads	L	Temporary removal of parking spaces limited to extent of work area for week.	L

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
		Biodiversity	Removal of vegetation (non-threatened ecological community)	L	Establish clearing boundary prior to commencing works. Identify trees to be retained within clearing boundary. Vegetation identified for removal through Consistency Assessment. Refer to Section 8 – Biodiversity	L
Stringing of overhead Sydney Trains 11kV distribution across The Crescent and City West Link (Out of Hours)	▪ Excavation (auger) of holes for new power poles ▪ Stringing of new cables across roads	Noise (Out of Hours)	Noise nuisance to sensitive receiver	L	Refer to Section 8 – Noise and Vibration Noise monitoring	L
		Dust	Dust nuisance to sensitive receiver	L	Refer to Section 7- Air impacts	L
		Traffic	Disruption to traffic flow caused by lane closure / contra-flow	L	Road Occupancy Licence	L
		Pedestrian and cyclist access	Temporary disruption to pedestrian and cyclist pathways	L	Pedestrians and cyclist to be diverted around construction zone by traffic controllers	L
		Waste Management	Generation of waste material and spoil	L	Refer to Section 7 – Waste and contamination	L
Spoil and materials management	▪ Temporary stockpiling of spoil beside trench ▪ Backfilling trench with in-situ spoil or imported fill ▪ Removal of spoil from site	Noise	Noise nuisance to sensitive receiver from excavation and truck movements and use of compaction of bedding materials	L	Works restricted to daytime hours Refer to Section 7- Noise	L
		Traffic	Increased traffic on local roads causing congestion	L	Refer to Section 7 - Traffic	L

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
		Water pollution	Spillage of spoil when loading/ unloading. Temporary placement of spoil beside trench Tracking of mud onto public roads	L	Refer to Section 7 – Water pollution	L
		Waste management	Generation of waste material and spoil	L	Refer to Section 7 – Waste and contamination	L
Lay bedding pipes, cables and conduits	▪ Placement of pipes, cables, conduits within trench ▪ Pulling of feeders / cables through conduits	Traffic	Increased traffic on local roads causing congestion	L	Refer to Section 7 - Traffic	L
		Water pollution	Spillage of spoil when loading/ unloading. Temporary placement of spoil beside trench Tracking of mud onto public roads	L	Refer to Section 7 – Water pollution	L
		Dust	Dust nuisance to sensitive receiver	L	Refer to Section 7- Air impacts	L
Reinstatement of finished surfaces	▪ Concrete or asphalt of footpath / road surface ▪ Washout of concrete trucks / equipment ▪ Landscaping/returfing	Traffic	Increased traffic on local roads causing congestion	L	Refer to Section 7 - Traffic	L
		Noise	Noise nuisance to sensitive receiver from excavation and truck movements	L	Refer to Section 7- Noise	L
		Water pollution	Spillage of spoil when loading/ unloading. Temporary placement of spoil beside trench Tracking of mud onto public roads Runoff of concrete wash water	L	Refer to Section 7 – Water pollution	L

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
Testing and commissioning	Testing and commissioning of new Sydney Trains 11kV feeder.	Amenity	Temporary disruption to local electricity or telecommunication	L	Utility service providers to provide notification to customers of temporary disruptions	L
Site establishment utility disconnection	▪ Disconnection / Isolation of utility service within ancillary facility ▪ Excavation of trench using excavator (i.e. utility removal) ▪ Removal of redundant utility	Noise (standard working hours)	Noise nuisance to from excavator and hand tools	L	Refer to Section 8 – Noise and Vibration	L
		Dust	Dust nuisance to sensitive receiver	L	Refer to Section 8 - Air quality	L
		Water pollution	Spillage of spoil when loading/ unloading. Temporary placement of spoil beside trench	L	Refer to Section 7 – Water pollution	L
		Waste Management	Generation of waste material and spoil	L	Refer to Section 7 – Waste and contamination	L
Essential site establishment utility services (water, communications, power and sewer)	▪ Installation of utility service within ancillary facility ▪ Connection of utility service to existing network on Lilyfield Road ▪ Connection of utility service to existing service on The Crescent	Noise (standard working hours)	Noise nuisance to from excavator and hand tools	L	Refer to Section 8 – Noise and Vibration	L
		Dust	Dust nuisance to sensitive receiver	L	Refer to Section 8 - Air quality	L
		Traffic	Increased traffic on local roads causing congestion	L	Refer to Section 7 - Traffic	L
		Pedestrian and cyclist access	Temporary disruption to pedestrian and cyclist pathways	L	Pedestrians and cyclist to be diverted around construction zone by traffic controllers where works impact shared path	L

Activity	Sub Activity	Environmental Aspect	Environmental Impact	Impact level (Risk)	Mitigation measures	Impact level (Residual risk)
		Water pollution	Spillage of spoil when loading/ unloading. Temporary placement of spoil beside trench Tracking of mud onto public roads	L	Refer to Section 7 – Water pollution	L
		Waste management	Generation of waste material and spoil	L	Refer to Section 7 – Waste and contamination	L

Annexure B Relevant Conditions of Approval

Table 19 Relevant Conditions of Approval

CoA No.	Condition Requirements
A1	The CSSI must be carried out in accordance with the terms of this approval and generally in accordance with the description of the CSSI in the WestConnex M4-M5 Link Environmental Impact Statement – Volumes 1A-C and 2A-J (dated August 2017) (the EIS); the WestConnex M4-M5 Link Submissions and Preferred Infrastructure Report (dated January 2018) (the SPIR); and the WestConnex M4-M5 Link Mainline Tunnel Modification Report (dated September 2018) (Modification 1 Report) as amended by the WestConnex M4-M5 Link Mainline Tunnel Modification Response to Submissions (dated November 2018) (Modification 1 RtS).
A2	The CSSI must be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in the EIS, SPIR, Modification 1 Report and Modification 1 RtS unless otherwise specified in, or required under, this approval.
A3	In the event of an inconsistency between the EIS as amended by the description in the SPIR or any other document required under this approval, and a term of this approval, the term of this approval prevails to the extent of the inconsistency.
A4	The Proponent must comply with all requirements of the Secretary in relation to: (a) the environmental performance of the CSSI; (b) any document or correspondence under the terms of this approval in relation to the CSSI; (c) any notification given to the Secretary under the terms of this approval; (d) any audit of the construction or operation of the CSSI; (e) compliance with the terms of this approval (including anything required to be done under this approval); (f) the carrying out of any additional monitoring or mitigation measures; and (g) in respect of ongoing monitoring and management obligations, compliance with an updated or revised version of a guideline, protocol, Australian Standard or policy required to be complied with under this approval.
A5	In the event that there are differing interpretations of the terms of this approval, including in relation to a condition of this approval, the Secretary's interpretation is final.
A6	Where the terms of this approval require a document or monitoring program to be prepared or a review to be undertaken in consultation with identified parties, evidence of the consultation undertaken must be submitted to the Secretary with the document. The evidence must include:
A7	Where the terms of approval provide for Secretarial discretion (for example in relation to the timing of an action), the Proponent must provide supporting evidence so that the Secretary can consider the need, environmental impacts and consistency of any request.

CoA No.	Condition Requirements
A8	Where a condition of this approval requires the Proponent to submit a document or notification to the Secretary or obtain an approval from the Secretary within a specified time period, the Proponent may make a written request to the Secretary seeking an alternative timeframe. Any request must be made at least one (1) month prior to the submission timeframe stipulated in the condition of approval relating to the variation request.
A9	Without limitation, all strategies, plans, programs, reviews, audits, report recommendations, protocols and the like required by the terms of this approval must be implemented by the Proponent in accordance with all requirements issued by the Secretary from time to time in respect of them.
A11	The Proponent is responsible for any breaches of the conditions of this approval resulting from the actions of all persons that it invites onto any site, including contractors, sub-contractors and visitors.
A12	The CSSI may be constructed and operated in stages. Where staged construction or operation is proposed, a **Staging Report** (for either or both construction and operation as the case requires) must be prepared and submitted to the Secretary for information. The **Staging Report** must be submitted to the Secretary no later than one (1) month prior to the commencement of construction of the first of the proposed stages of construction (or if only staged operation is proposed, one (1) month prior to the commencement of operation of the first of the proposed stages of operation).
A17	Works must not commence until an **Environmental Representative (ER)** has been approved by the Secretary and engaged by the Proponent.
A18	The Secretary's approval of an **ER** must be sought no later than one (1) month prior to the commencement of works.
A19	The proposed **ER** must be a suitably qualified and experienced person who was not involved in the preparation of the EIS or SPIR, and is independent from the design and construction personnel for the CSSI.
A20	The Proponent may engage more than one **ER** for the CSSI, in which case the functions to be exercised by an **ER** under the terms of this approval may be carried out by any **ER** that is approved by the Secretary for the purposes of the CSSI.

CoA No.	Condition Requirements
A21	For the duration of the works until the completion of construction, the approved **ER** must: (a) receive and respond to communication from the Secretary in relation to the environmental performance of the CSSI; (b) consider and inform the Secretary on matters specified in the terms of this approval; (c) consider and recommend to the Proponent any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community; (d) review documents identified in Conditions C1, C4 and C9 and any other documents that are identified by the Secretary, to ensure they are consistent with requirements in or under this approval and if so: (i) make a written statement to this effect before submission of such documents to the Secretary (if those documents are required to be approved by the Secretary), or (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Secretary / Department for information or are not required to be submitted to the Secretary / Department); (e) regularly monitor the implementation of the documents listed in Conditions C1, C4 and C9 to ensure implementation is being carried out in accordance with the document and the terms of this approval; (f) as may be requested by the Secretary, help plan, attend or undertake audits of the development commissioned by the Department including scoping audits, programming audits, briefings and site visits, but not independent environmental audits required under Condition A36 of this approval; (g) as may be requested by the Secretary, assist the Department in the resolution of community complaints; (h) assess the impacts of minor ancillary facilities comprising lunch sheds, office sheds and portable toilet facilities as required by Condition C24 of this approval; (i) consider any minor amendments to be made to the CEMP, CEMP Sub-plans and monitoring programs that comprise updating or are of an administrative nature, and are consistent with the terms of this approval and the CEMP, CEMP Sub-plans and monitoring programs approved by the Secretary and, if satisfied such amendment is necessary, approve the amendment. This does not include any modifications to the terms of this approval; and (j) prepare and submit to the Secretary and other relevant regulatory agencies, for information, an Environmental Representative Monthly Report providing the information set out in the Environmental Representative Protocol under the heading “Environmental Representative Monthly Reports.” The Environmental Representative Monthly Report must be submitted within seven (7) calendar days following the end of each month for the duration of the ER’s engagement for the CSSI, or as otherwise agreed with the Secretary.
A22	The Proponent must provide the **ER** with all documentation requested by the **ER** in order for the **ER** to perform their functions specified in **Condition A21** (including preparation of the **Environmental Representative Monthly Report**), as well as: (a) the complaints register (to be provided on a daily basis); and (b) a copy of any assessment carried out by the Proponent of whether proposed work is consistent with the approval (which must be provided to the ER before the commencement of the subject work).
A23	The Secretary may at any time commission an audit of an **ER’s** exercise of its functions under **Condition A21**. The Proponent must: (a) facilitate and assist the Secretary in any such audit; and (b) make it a term of their engagement of an ER, that the ER facilitate and assist the Secretary in any such audit.

CoA No.	Condition Requirements
A24	A suitably qualified and experienced **Acoustics Advisor (AA**), who is independent of the design and construction personnel, must be nominated by the Proponent and engaged for the duration of works and for no less than six (6) months following completion of construction of the CSSI. The details of the nominated AA must be submitted to the Secretary for approval no later than one (1) month before commencement of works. The Proponent must cooperate with the AA by: (a) providing access to noise and vibration monitoring activities as they take place; (b) providing for review of noise and vibration plans, assessments, monitoring reports, data and analyses undertaken; and (c) considering any recommendations to improve practices and demonstrating, to the satisfaction of the AA, why any recommendation is not adopted.
A25	Any activities generating noise in excess of the 'Noise affected' Noise Management Levels derived from the Interim Construction Noise Guideline must not commence until an **AA**, nominated under **Condition A24** of this approval, has been approved by the Secretary.
A26	The approved **AA** must: (a) receive and respond to communication from the Secretary in relation to the performance of the CSSI in relation to noise and vibration; (b) consider and inform the Secretary on matters specified in the terms of this approval relating to noise and vibration; (c) consider and recommend, to the Proponent, improvements that may be made to avoid or minimise adverse noise and vibration impacts; (d) review all noise and vibration documents required to be prepared under the terms of this approval and, should they be consistent with the terms of this approval, endorse them before submission to the Secretary (if required to be submitted to the Secretary) or before implementation (if not required to be submitted to the Secretary); (e) regularly monitor the implementation of all noise and vibration documents required to be prepared under the terms of this approval to ensure implementation is in accordance with what is stated in the document and the terms of this approval; (f) notify the Secretary of noise and vibration incidents in accordance with Condition A40 of this approval; (g) in conjunction with the ER, the AA must: (i) as may be requested by the Secretary or Community Complaints Mediator (required by Condition B13), help plan, attend or undertake audits of noise and vibration management of the CSSI including briefings, and site visits, (ii) in the event that conflict arises between the Proponent and the community in relation to the noise and vibration performance of the CSSI, follow the procedure in the Communication Strategy approved under Condition B2 to attempt to resolve the conflict, and if it cannot be resolved, notify the Secretary, (iii) consider relevant minor amendments made to the CEMP, relevant sub-plans and noise and vibration monitoring programs that require updating or are of an administrative nature, and are consistent with the terms of this approval and the management plans and monitoring programs approved by the Secretary and, if satisfied such amendment is necessary, endorse the amendment. This does not include any modifications to the terms of this approval, (iv) review the noise impacts of minor construction ancillary facilities, and (v) prepare and submit to the Secretary and other relevant regulatory agencies, for information, a Monthly Noise and Vibration Report detailing the AAs actions and decisions on matters for which the AA was responsible in the preceding month. The Monthly Noise and Vibration Report must be submitted within seven (7) days following the end of each month for the duration of the AA's engagement for the CSSI, or as otherwise agreed by the Secretary.
A27	A **Compliance Tracking Program** to monitor compliance with the terms of this approval must be prepared, taking into consideration any staging of the CSSI that is proposed in a Staging Report submitted in accordance with Conditions A12 and A13 of this approval.

CoA No.	Condition Requirements
A28	The **Compliance Tracking Program** must be endorsed by the ER and then submitted to the Secretary for information at least one (1) month prior to the commencement of works.
A29	The **Compliance Tracking Program** in the form required under **Condition A28** of this approval must be implemented for the duration of works and for a minimum of one (1) year following commencement of operation, or for a longer period as determined by the Secretary based on the outcomes of independent environmental audits, **Environmental Representative Monthly Reports** and regular compliance reviews submitted through **Compliance Reports**. If staged operation is proposed, or operation is commenced of part of the CSSI, the **Compliance Tracking Program** must be implemented for the relevant period for each stage or part of the CSSI.
A40	The Secretary must be notified as soon as possible and in any event within 24 hours of any incident.
A41	Notification of an incident under **Condition A40** of this approval must include the time and date of the incident, details of the incident and must identify any consequent non-compliance with this approval.
A42	All written requirements of the Secretary or relevant public authority, which may be given at any point in time, to address the cause or impact of an incident must be complied with, within any timeframe specified by the Secretary or relevant public authority.
A43	If statutory notification is given to the EPA as required under the POEO Act in relation to the CSSI, such notification must also be provided to the Secretary within 24 hours after the notification was given to the EPA.
B1	A **Communication Strategy** must be prepared to facilitate communication between the Proponent, and the community (including relevant councils, government authorities, adjoining affected landowners and businesses, and others directly impacted by the CSSI).

CoA No.	Condition Requirements
B2	The Communication Strategy must: (a) identify people and organisations to be consulted during the design and work phases; (b) set out procedures and mechanisms for the regular distribution of accessible information about or relevant to the CSSI; (c) identify opportunities to provide accessible information regarding regularly updated site construction activities, schedules and milestones at each construction site including use of construction hoardings to provide information regarding construction specific to the location; (d) identify opportunities for the community to visit construction sites (taking into consideration on-site activities and workplace, health and safety requirements); (e) detail the measures for advising the community in advance of upcoming utility works; (f) provide for the formation of issue or location-based community forums that focus on key environmental management issues of concern to the relevant community(s) for the CSSI; (g) set out procedures and mechanisms for consulting with relevant council(s) and government authorities/agencies, as required under the terms of this approval, including procedures for repeated requests and nil responses; (h) detail the roles and responsibilities of the Public Liaison Officer(s) engaged under Condition B6; (i) set out procedures and mechanisms: (i) through which the community can discuss or provide feedback to the Proponent, (ii) through which the Proponent will respond to enquiries or feedback from the community, and (iii) to resolve any issues and mediate any disputes that may arise in relation to environmental management and delivery of the CSSI.
B3	The **Communication Strategy** must be submitted to the Secretary for approval no later than one (1) month prior to the commencement of any work.
B4	Work for the purposes of the CSSI must not commence until the **Communication Strategy** has been approved by the Secretary.
B5	The **Communication Strategy**, as approved by the Secretary, must be implemented for the duration of the works and for 12 months following the completion of construction.
B6	A **Public Liaison Officer(s)** must be appointed for construction ancillary facility(s) and for utility works to assist the public with questions and complaints they may have at any time during construction. The **Public Liaison Officer(s)** must be available at all times that works are occurring.
B7	Prior to the commencement of works, the Proponent must maintain and operate atoll-free **WestConnex Acquisition Assistance Line** for a period of up to six (6) months following completion of the final acquisition required for the CSSI, unless otherwise agreed by the Secretary. The **WestConnex Acquisition Assistance Line** must provide an ongoing dispute resolution, counselling program and contact information to relevant services for all relocated persons. The **WestConnex Acquisition Assistance Line** must also provide first language support for relocated persons with English as a second language. The management of the assistance line is to be outlined within the Communication Strategy as required by Condition B1 and is to be maintained and operated separately from the standard complaints and enquiries procedure. The Proponent must provide all relevant contact details for the WestConnex Acquisition Assistance Line to relocated persons prior to the commencement of works. Nothing in this condition prevents the Proponent from utilising the existing toll-free WestConnex Acquisition Assistance Line established for the WestConnex M4 East and New M5 projects.

CoA No.	Condition Requirements
B8	A **Complaints Management System** must be prepared prior to the commencement of any works in respect of the CSSI and be implemented and maintained for the duration of construction and for a minimum for 12 months following completion of construction of the CSSI.
B9	The **Complaints Management System** must include a **Complaints Register** to be maintained recording information on all complaints received about the CSSI during the carrying out of any works associated with the CSSI and for a minimum of 12 months following the completion of construction of the CSSI. The **Complaints Register** must record the: (a) number of complaints received; (b) number of people affected in relation to a complaint; and (c) nature of the complaint and means by which the complaint was addressed and whether resolution was reached, with or without mediation.
B10	The **Complaints Register** must be provided to the Secretary upon request, within the timeframe stated in the request.
B11	The following must be available within one (1) month prior to the commencement of works and for 12 months following the completion of construction of the CSSI and appropriately broadcast to manage community enquiries and complaints: (a) a 24 hour toll-free telephone number for the registration of complaints and enquiries about the CSSI; (b) a postal address to which written complaints and enquires may be sent; (c) an email address to which electronic complaints and enquiries may be transmitted; (d) a mediation system for complaints unable to be resolved; and (e) a mechanism for community members to make enquiries in common community languages of the area.
B12	The telephone number, postal address and email address required under **Condition B11** of this approval must be published in a newspaper circulating in the local area and on-site hoarding at each construction site before commencement of works and published in the same way again prior to the commencement of operation. This information must also be provided on the website required under **Condition B17** of this approval.
B13	A **Community Complaints Mediator** that is independent of the design and construction personnel must be nominated by the Proponent, approved by the Secretary and engaged during all works associated with the CSSI. The request nominating the Community Complaints Mediator must be submitted to the Secretary for approval within one (1) month of the date of this approval.
B14	The role of the **Community Complaints Mediator** is to address any complaint where a member of the public is not satisfied by the Proponent's response. Any member of the public that has lodged a complaint which is registered in the Complaints Management System identified in **Condition B8** may ask the **Community Complaints Mediator** to review the Proponent's response. The application must be submitted in writing and the **Community Complaints Mediator** must respond within 28 days of the request being made or other specified timeframe agreed between the **Community Complaints Mediator** and the member of the public.

CoA No.	Condition Requirements
B15	The **Community Complaints Mediator** will: (a) review the Proponent's unresolved disputes between the project and members of the public if the procedures and mechanisms under Condition B2(i)(iii) do not satisfactorily address complaints; and (b) make recommendations to the Proponent to satisfactorily address complaints, resolve disputes or mitigate against the occurrence of future complaints or disputes.
B16	The **Community Complaints Mediator** will not act before the Proponent has provided an initial response to a complaint and will not consider issues such as property acquisition where other dispute processes are provided for in this approval, or clear government policy and resolution processes are available, or matters which are not within the scope of the CSSI.
B17	A website providing information in relation to the CSSI must be established before commencement of works and maintained for the duration of works, and for a minimum of 24 months following the completion of construction of the CSSI. The following up-to-date information (excluding confidential, private and commercial information) must be published prior to works commencing and maintained on the website or dedicated pages: (a) information on the current implementation status of the CSSI; (b) a copy of the documents listed in Condition A1 of this approval, and any documentation relating to any modifications made to the CSSI or the terms of this approval; (c) a copy of this approval in its original form, a current consolidated copy of this approval (that is, including any approved modifications to its terms), and copies of any approval granted by the Minister to a modification of the terms of this approval; and (d) a copy of each licence or permit required and obtained in relation to the CSSI. Where a condition(s) of this approval requires a document(s) be prepared prior to a work or construction or operational activity being undertaken, a current copy of the relevant document(s) must also be published on the website before the work / activity is undertaken.
E46	Access to all utilities and properties must be maintained during construction, where practicable, unless otherwise agreed with the relevant utility owner, landowner or occupier.
E47	Any property access physically affected by the CSSI must be reinstated to at least an equivalent standard, unless otherwise agreed by the landowner or occupier.
E50	Construction vehicles must not use Robert Street, Rozelle to access the White Bay Civil Site.
E52	Construction vehicles (including staff vehicles) associated with the CSSI must be managed to: (a) minimise parking on public roads; (b) minimise idling and queuing on public roads; and (c) ensure spoil haulage vehicles must adhere to the nominated haulage routes identified in the Traffic and Transport CEMP.
E57	Safe pedestrian and cyclist access must be maintained around work sites during construction. In circumstances where pedestrian and cyclist access is restricted or removed due to construction activities, an alternate route which complies with the relevant standards must be provided and signposted prior to the restriction or removal of the relevant pedestrian and cyclist access.

CoA No.	Condition Requirements
E62	If damage to roads occurs as a result of the construction of CSSI, the Proponent must either: (a) compensate the relevant road authority for the damage so caused. The amount of compensation may be agreed with the relevant road authority, but compensation must be paid even if no agreement is reached; or (b) rectify the damage so as to restore the road to at least the condition it was in pre-construction.
E66	A detailed land use survey must be undertaken to confirm sensitive receivers (including critical working areas such as operating theatres and precision laboratories) potentially exposed to construction noise and vibration, construction ground-borne noise and operational noise. The survey may be undertaken on a progressive basis but must be undertaken in any one area prior to the commencement of works which generate construction or operational noise, vibration or ground-borne noise in that area. The results of the survey must be included in the **Construction Noise and Vibration Management Sub-plan.**
E67	All noise and vibration assessment, management and mitigation required by this approval must consider the cumulative noise impacts of approved CSSI and SSI projects. This includes using ambient and background levels which do not include other WestConnex M4 East and New M5 (SSI 6307 and SSI 6788) projects. This condition applies to all works and operation.
E68	Works must be undertaken during the following hours: (a) 7:00 am to 6:00 pm Mondays to Fridays, inclusive; (b) 8:00 am to 1:00 pm Saturdays; and (c) at no time on Sundays or public holidays.
E69	Notwithstanding **Condition E68**, works may be undertaken between 1:00 pm to 6:00 pm on Saturday.
E72	Except as permitted by an EPL, highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken: (a) between the hours of 8:00 am to 6:00 pm Monday to Friday; (b) between the hours of 8:00 am to 1:00 pm Saturday; and (c) in continuous blocks not exceeding three (3) hours each with a minimum respite from those activities and works of not less than one (1) hour between each block. For the purposes of this condition, 'continuous' includes any period during which there is less than a one (1) hour respite between ceasing and recommencing any of the work that are the subject of this condition.

CoA No.	Condition Requirements
E73	Notwithstanding **Conditions E68** to **E72** works may be undertaken outside the hours specified under those conditions in the following circumstances: (a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or (b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or (c) where different construction hours are permitted or required under an EPL in force in respect of the CSSI; or (d) works approved under an Out-of-Hours Work Protocol for works not subject to an EPL as required by Condition E77; or (e) construction that causes LAeq(15 minute) noise levels: (i) no more than 5 dB(A) above the rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009), and (ii) no more than the 'Noise affected' noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses, and (iii) continuous or impulsive vibration values, measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC, 2006), and (iv) intermittent vibration values measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006). Note: Section 5.24(1)(e) of the EP&A Act requires that an EPL be substantially consistent with this approval. Out-of-hours works considered under Conditions E73(c) and (d) must be justified and include an assessment of mitigation measures.
E74	On becoming aware of the need for emergency works in accordance with **Condition E73(b)**, the Proponent must notify the **AA**, the **ER** and the EPA of the need for that work. The Proponent must use best endeavours to notify all noise and/or vibration affected sensitive receivers of the likely impact and duration of those works.
E75	Out-of-hours works that are regulated by an EPL as per **Condition E73(c)** or through the **Out- of-Hours Work Protocol** as per **Condition E77** include: (a) works which could result in a high risk to construction personnel or public safety, based on a risk assessment carried out in accordance with AS/NZS ISO 31000:2009 "Risk Management – Principles and Guidelines"; or (b) where the relevant road network operator has advised the Proponent in writing that carrying out the works and activities could result in a high risk to road network operational performance; or (c) where the relevant utility service operator has advised the Proponent in writing that carrying out the works and activities could result in a high risk to the operation and integrity of the utility network; or (d) where the TfNSW Transport Management Centre (or other road authority) has advised the Proponent in writing that a road occupancy licence is required and will not be issued for the works or activities during the hours specified in Condition E68 and Condition E69; or (e) where Sydney Trains (or other rail authority) has advised the Proponent in writing that a Rail Possession is required. Note: Other out-of-hours works can be undertaken with the approval of an EPL, or through the project's Out-of-Hours Work Protocol for works not subject to a EPL.

CoA No.	Condition Requirements
E76	In order to undertake out-of-hours work described in **Condition E75**, the Proponent must identify appropriate respite periods for the out-of-hours works in consultation with the community at each affected location. This consultation must include (but not be limited to) providing the community with: (a) a schedule of likely out-of-hours work for a period no less than three (3) months; (b) the potential works, location and duration; (c) the noise characteristics and likely noise levels of the works; and (d) likely mitigation and management measures. The outcomes of the community consultation, the identified respite periods and the scheduling of the likely out-of-hour works must be provided to the AA, EPA and the Secretary.
E77	An **Out-of-Hours Work Protocol** must be prepared to identify a process for the consideration, management and approval of works which are outside the hours defined in **Conditions E68** and **E69**, and that are not subject to an EPL. The Protocol must be approved by the Secretary prior to commencement of the works. The Protocol must be prepared in consultation with the EPA and AA. The Protocol must: (a) provide a process for the consideration of out-of-hours works against the relevant noise and vibration criteria, including the determination of low and high-risk activities; (b) provide a process for the identification of mitigation measures for residual impacts, including respite periods in consultation with the community at each affected location, consistent with the requirements of Condition E76; (c) identify procedures to facilitate the coordination of out-of-hours works approved by an EPL to ensure appropriate respite is provided; NSW Government 53 Department of Planning and Environment Conditions of Approval for WestConnex M4-M5 Link SSI 7485 SSI 7485 MOD 1 determined 25 February 2019 (d) identify an approval process that considers the risk of activities, proposed mitigation, management, and coordination, including where: (i) low risk activities can be approved by the ER in consultation with the AA, and (ii) high risk activities that are approved by the Secretary; and (e) identify Department, EPA and community notification arrangements for approved out of hours works, which maybe detailed in the Communication Strategy.
E78	All works undertaken for the delivery of the CSSI, including those undertaken by third parties, must be coordinated to ensure respite periods are provided. The Proponent must: (a) reschedule any works to provide respite to impacted noise sensitive receivers so that the respite is achieved in accordance with Condition E76; or (b) consider the provision of alternative respite or mitigation to impacted noise sensitive receivers; and (c) provide documentary evidence to the AA in support of any decision made by the Proponent in relation to respite or mitigation.
E80	Noise generating works in the vicinity of potentially-affected community, religious, educational institutions and noise and vibration-sensitive businesses and critical working areas (such as theatres, laboratories and operating theatres) resulting in noise levels above the NMLs must not be timetabled within sensitive periods, unless other reasonable arrangements with the affected institutions are made at no cost to the affected institution.

CoA No.	Condition Requirements
E81	Mitigation measures must be implemented with the aim of achieving the following construction noise management levels and vibration criteria: (a) construction 'Noise affected' noise management levels established using the Interim Construction Noise Guideline (DECC, 2009); (b) vibration criteria established using the Assessing vibration: a technical guideline (DEC, 2006) (for human exposure); (c) Australian Standard AS 2187.2 - 2006 "Explosives - Storage and Use - Use of Explosives"; (d) BS 7385 Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2" as they are "applicable to Australian conditions"; and (e) the vibration limits set out in the German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures (for structural damage). Any works identified as exceeding the noise management levels and/or vibration criteria must be managed in accordance with the Construction Noise and Vibration Management Sub-plan. Note: The Interim Construction Noise Guideline identifies 'particularly annoying' activities that require the addition of 5 dB(A) to the predicted level before comparing to the construction Noise Management Level.
E91	At no time can noise generated by construction exceed the National Standard for exposure to noise in the occupational environment of an eight-hour (8hr) equivalent continuous A-weighted sound pressure level of LAeq,8h of 85 dB(A) for any employee working at a location near the CSSI.
E122	The Proponent must construct and operate the CSSI with the objective of minimising light spillage to residential properties. All lighting associated with the construction and operation of the CSSI must be consistent with the requirements of *Australian Standard 4282-1997 Control of the obtrusive effects of outdoor lighting* and relevant Australian Standards in the series *AS/NZ 1158 – Lighting for Roads and Public Spaces* . Notwithstanding, the Proponent must provide mitigation measures to manage any residual night lighting impacts to protect properties adjoining or adjacent to the CSSI, in consultation with affected landowners.
E123	The Proponent must construct and operate the CSSI with the objective of avoiding adverse or distracting lighting configuration, spillage or intensity to aircraft operations. All lighting associated with the construction and operation of the CSSI must adhere to the *Lighting in the Vicinity of Aerodromes: Advice to Lighting Designer* (CASA, 1999) and *National Airports Safeguarding Framework Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports* (DIRD, 2012). Notwithstanding, the Proponent must provide mitigation measures to manage any residual night lighting impacts to protect aircraft operations, in consultation with CASA and DIRD.
E140	A **Utilities Management Strategy** must be prepared and implemented for all utility works. The Strategy must identify how utility works will be defined and managed. The Utilities Management Strategy must include: (a) a definition of low impact utility work. The definition must consider parameters including, but not limited to, type of works, duration of works, hours of works, noise impacts, and traffic and access impacts; (b) the functions of the Utility Coordination Manager as required by Condition E141; (c) a description of all utility works to be undertaken, including low impact utility works and how they meet the definition in subclause (a); and (d) the management measures that will be implemented to manage dust, noise, traffic, access and lighting impacts associated with low impact utility works. The Utilities Management Strategy must be submitted to the Secretary for approval at least one (1) month prior to the commencement of low impact utility works. Note: Utility works that are not low impact are construction and appropriate management measures would be included in the CEMP.

CoA No.	Condition Requirements
E141	A **Utility Coordination Manager** must be appointed for the duration of the CSSI works. The role of the **Utility Coordination Manager** must include, but not be limited to: (a) the management and coordination of all utility works associated with the delivery of the CSSI, to ensure respite is provided to the community, as required under Condition E75; (b) providing advice to the Public Liaison Officer(s), regarding upcoming utility works, including the scope of the works and responsibility for the works; and (c) investigating complaints received from the Community Complaints Mediator or the Public Liaison Officer(s), relating to utility works, and providing a response to the Community Complaints Mediator or Public Liaison Officer(s).
E154	The Proponent must not destroy, modify or otherwise physically affect any heritage items, including human remains, outside of the CSSI boundary, or undertake works in or on Alexandra Canal.
E155	The Proponent must not to harm, modify, or otherwise impact human remains uncovered during the construction of the CSSI.
E157	An **Unexpected Heritage Finds Procedure** must be prepared: (a) to manage unexpected heritage finds in accordance with any guidelines and standards prepared by the Heritage Council of NSW or OEH; and (b) by a suitably qualified and experienced heritage specialist. The Procedure must be included in the Construction Non-Aboriginal Heritage Management Sub-plan and Aboriginal Cultural Heritage Management Sub-Plan required by Conditions C4(g) and (h). Note: Human remains that are found unexpectedly during works are under the jurisdiction of the NSW State Coroner and must be reported to the NSW Police immediately.
E168	Prior to works that have a direct material impact on a Historical Archaeological Management Unit (HAMU), the Proponent must engage a suitably qualified archaeologist whose experience complies with the Heritage Council of *NSW's Criteria for Assessment of Excavation Directors* (July, 2011) (referred to as the Excavation Director) to oversee and advise on matters associated with historic archaeology and to prepare an **Historical Archaeological Research Design and Excavation Methodology**.
E169	The **Historical Archaeological Research Design and Excavation Methodology** must to be submitted to the Heritage Council of NSW (or its delegate) for review and comment prior to finalisation. The Historical Archaeological Research Design and Excavation Methodology must: (a) be consistent with the NSW Heritage Council's Archaeological Assessments Guideline (1996) or as updated; (b) provide for the detailed analysis of any heritage items discovered during the investigations; (c) include management options for discovered heritage items, whether known or unexpected finds (including options for avoidance, salvage, relocation and display); (d) for unexpected finds that are determined to be relics, set out the assessment process that will determine an appropriate archaeological response to managing their significance; (e) include procedures for notifying the Heritage Council of NSW (or its delegate) and Secretary of any relic findings; and (f) if the findings of the investigations are significant, provide for the preparation and implementation of a Heritage Interpretation Plan, as required under Condition E167.

CoA No.	Condition Requirements
E170	Where excavation works are required in the vicinity of potential archaeological sites, the Excavation Director must be consulted to advise on how the works are to be managed and any archaeological impact minimised. The Excavation Director must be given the authority to advise on the duration and extent of oversight required during excavation.
E171	Works within the vicinity of the find must not recommence until the relevant requirements of the **Historical Archaeological Research Design and Excavation Methodology** or advice on unexpected finds from the Excavation Director have been met.
E172	The Proponent must prepare an **Archaeological Excavation Report** containing the findings of any excavations, including artefact analysis and the identification of a final repository of any finds. The report must be submitted to the Secretary within 12 months of completing all archaeological investigations. The **Archaeological Excavation Report** must also be submitted to the Heritage Council of NSW, the local library and the local Historical Society in the relevant local government area(s). A copy of the **Archaeological Excavation Report** must be retained with the relics at all times.
E173	The Proponent must take all reasonable steps so as not to harm, modify or otherwise impact any Aboriginal object associated with the CSSI except as authorised by this approval.
E180	All reasonably practicable erosion and sediment controls must be installed and appropriately maintained to minimise any water pollution. When implementing such controls, any relevant guidance in the *Managing Urban Stormwater* series must be considered.
E184	An **Unexpected Contaminated Land and Asbestos Finds Procedure** must be prepared and must be followed should unexpected contaminated land or asbestos be excavated or otherwise discovered during construction.
E185	The **Unexpected Contaminated Land and Asbestos Finds Procedure** must be implemented throughout construction.
E189	Works on waterfront land must be undertaken in accordance with DPI controlled activity guidelines.
E202	Waste generated during delivery of the CSSI is to be dealt with in accordance with the following priorities: (a) waste generation is to be avoided and where avoidance is not reasonably practicable, waste generation is to be reduced; (b) where avoiding or reducing waste is not possible, waste is to be re-used, recycled, or recovered; and (c) where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of at a waste management facility or premise lawfully permitted to accept the materials or in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, or to any other place that can lawfully accept such waste.
E203	Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the *Protection of the Environment Operations Act 1997,* if such a licence is required in relation to that waste.
E204	All waste generated during construction and operation must be classified in accordance with the EPA's *Waste Classification Guidelines,* with appropriate records and disposal dockets retained for audit purposes.

Annexure C Relevant Revised Environmental Management Measures

REMM Ref	Description
TT03	Develop construction staging and temporary works that minimises conflicts with the existing road network and maximises spatial separation between work areas and travel lanes.
TT05	Isolate work areas from general traffic through the implementation of appropriate traffic and access controls.
TT06	Develop and implement work methods to minimise delays and road user impacts, for example utilising more efficient plant and equipment, and applying different design solutions.
TT09	Provide a mechanism for the community to report incidents and delays, for example a project phone number. Advertise details along the construction site's interface with the road network.
TT10	Schedule construction-related transport movements to avoid peak traffic periods and minimise project-related congestion, where possible.
TT11	Develop and adopt robust community and Stakeholder communication protocols regarding altered traffic conditions.
TT12	Minimise impacts on the pedestrian paths and cycle lanes, and provide timely alternatives during construction where practical and safe to do so.
TT14	Manage local road closures and property access. This will be undertaken in consultation with Roads and Maritime, local councils and property owners likely to be impacted.
AQ03	Regular site inspections will be conducted to monitor potential dust issues. The site inspections, required actions and ongoing issues, will be recorded and actioned appropriately within agreed timeframes by relevant project personnel.
AQ04	Construction activities with the potential to generate dust will be modified or ceased during unfavourable weather conditions to reduce the potential for dust generation.
AQ05	Measures to reduce potential dust generation, such as the use of water carts, sprinklers, dust screens and surface treatments, will be implemented within project sites as required.
AQ07	Where reasonable and feasible, appropriate control methods will be implemented to minimise dust emissions from the project site.
AQ08	Storage of materials that have the potential to result in dust generation will be minimised within project sites at all times
AQ09	All construction vehicles and plant will be inspected regularly and maintained to ensure that they comply with relevant emission standards.
AQ10	Engine idling will be minimised when plant is stationary, and plant will be switched off when not in use to reduce emissions.
AQ13	Suitable dust suppression and/or collection techniques will be used during cutting, grinding or sawing activities likely to generate dust in close proximity to sensitive receivers.
AQ14	The potential for dust generation will be considered during the handling of loose materials. Equipment will be selected and handling protocols developed to minimise the potential for dust generation.
AQ15	All loaded spoil haulage trucks and other project-related heavy vehicles carrying materials with the potential to result in dust generation will be covered to prevent dust emissions during transport in accordance with relevant road regulations.

REMM Ref	Description
AQ19	Areas of soil exposed during construction will be minimised at all times to reduce the potential for dust generation.
AQ21	Exposed soils will be permanently stabilised as soon as practicable following disturbance to minimise the potential for ongoing dust generation.
AQ22	Ensure that stockpiles of materials with the potential to result in dust emissions are adequately protected and managed to reduce potential dust generation.
AQ23	Ensure fine materials are stored and handled to minimise dust.
NV01	A suitably qualified and experienced acoustics advisor Acoustics Advisor, who is independent of the design and construction personnel, will be engaged for the duration of construction of the project. The Acoustics Advisor will be responsible for: ▪ Reviewing management plans related to noise and vibration and endorsing that they address all relevant conditions of approval and requirements of all applicable guidelines ▪ Reviewing location and activity specific noise and vibration impact assessments prepared during the project and endorsing the assessments and proposed mitigation measures ▪ Reviewing proposals regarding works outside standard construction hours, confirming that the works are appropriate and endorsing the proposed mitigation measures ▪ Monitoring noise and vibration from construction generally and: - Confirming that actual noise and vibration levels and impacts are consistent with predictions - Confirming that reasonable and feasible noise and vibration mitigation measures are being implemented - Suggesting additional reasonable measures to further reduce impacts ▪ Monitoring and providing advice in relation to compliance with conditions of approval and project commitments related to noise and vibration ▪ Providing advice in relation to complaints regarding noise and vibration impacts that cannot be resolved between the complaint and the project ▪ Reviewing and endorsing the proposed operational noise controls, the associated noise model and the proposed implementation program
NV04	Location and activity specific noise and vibration impact assessments will be carried out prior to (as a minimum) activities: ▪ With the potential to result in noise levels above 75 dBA at any receiver ▪ Required outside standard construction hours likely to result in noise levels greater than the relevant noise management levels ▪ With the potential to exceed relevant performance criteria for vibration. The assessments will clarify predicted impacts at relevant receivers in the vicinity of the activities to assist with the selection of appropriate management measures, consistent with the requirements of ICNG and CNVG that will be implemented during the works.
NV05	An out-of-hours works protocol will be developed for the construction of the project. The protocol will include: ▪ Details of works required outside standard construction hours, including justification of why the activities are required outside standard construction hours ▪ Measures that will be implemented to manage potential impacts associated with works outside standard construction hours ▪ Location and activity specific noise and vibration impact assessment process(es) that will be followed to identify potentially affected receivers, clarify potential impacts and select appropriate management measures ▪ Details of the approval process (internal and external) for works proposed outside standard construction hours. The protocol will be included in the CNVMP, prepared in consultation with NSW Department of Planning and Environment and the NSW EPA, endorsed by the Acoustics Advisor for the project and implemented during construction of the project.

REMM Ref	Description
NV06	Monitoring will be carried out at the commencement of activities for which a location and activity specific noise and vibration impact assessment has been prepared to confirm that actual noise and vibration levels are consistent with noise and vibration impact predictions and that the management measures that have been implemented are appropriate.
PL02	Access to all properties will be maintained during construction, where feasible and reasonable, unless otherwise agreed by the relevant property owner or occupier. Any access physically affected by the project will be reinstated to at least an equivalent standard, unless agreed with by the property owner.
PL12	Interface agreements will be entered into with the owners of infrastructure and utility services likely to be impacted by construction of the project. The agreements will likely identify: ▪ Minimum separation distances and appropriate settlement criteria for utility infrastructure ▪ Settlement monitoring requirements during construction ▪ Contingency actions in the event that settlement limits are exceeded
PL14	The Utilities Management Strategy (Appendix F of the EIS) will be implemented.
SE02	A Community Communication Strategy will be prepared that details: ▪ Procedures and mechanisms that will be implemented in response to the key social impacts identified for the project ▪ Property acquisition support services that will be provided ▪ Procedures and mechanisms to communicate to project stakeholders (including affected communities), the access and connectivity enhancements and new community and social facilities that will be delivered as part of the project through the Social Infrastructure Plan and to update stakeholders on delivery progress ▪ Procedures and mechanisms that will be used to engage with affected business owners to identify potential access, parking, business visibility and other impacts to develop measures to address potential impacts on a case by case basis.
SW03	Erosion and Sediment Control Plans (ESCPs) will be prepared for all work sites in accordance with the Blue Book. ESCPs will be implemented in advance of site disturbance and will be updated as required as the work progresses and the sites change.
SW05	The extent of ground disturbance and exposed soil will be minimised to the greatest extent practicable to minimise the potential for erosion.
SW06	Disturbed ground and exposed soils will be temporarily stabilised prior to extended periods of site inactivity to minimise the potential for erosion.
CM02	Asbestos handling and management will be undertaken in accordance with an Asbestos Management Plan (or similar) prepared in accordance with relevant legislation, regulations and codes of practice) as described in Chapter 23 (Resource use and waste minimisation) of the EIS.
CM05	Stockpile management procedures will be implemented to control dust, odour and cross contamination.
CM06	The discovery of previously unidentified contaminated material will be managed in accordance with an unexpected contaminated lands discovery procedure, as outlined in the Guideline for the Management of Contamination (Roads and Maritime 2013)
B06	As many trees as possible will be retained during construction. In the event that tree removal cannot be avoided, a tree replacement strategy will be prepared. Replacement trees will be included in the relevant UDLP. Opportunities for the provision of replacement trees outside the project boundary will be investigated in consultation with local councils.

REMM Ref	Description
B08	Tree removal, pruning and maintenance work will be carried out by an arborist with a minimum AQF Level 3 qualification in accordance with AS 4373-2007 Pruning of Amenity Trees and the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998) and advice provided by an arborist with a minimum AQF Level 5 qualification in arboriculture (or equivalent).
NAH04	A Historical Archaeological Research Design (HARD) will be prepared before the start of proposed works within each of the following Historical Archaeological Management Units (HAMUs): HAMU 3, HAMU 6, HAMU 7, HAMU 10, and HAMU 11. The HARD will be prepared by a qualified archaeologist in consultation with the NSW Heritage Council and will include: ▪ Descriptions of clear significance thresholds for possible archaeological items that may be uncovered during works ▪ A methodology and scope for a program of archaeological excavation, investigation, and recording of any historical archaeological remains that will be impacted by the project ▪ Requirement for post-excavation reporting, including artefact analysis and additional historical research, where necessary, and long term management of records ▪ Details of what will happen with any artefacts uncovered and associated reports.
NAH05	Before excavation of archaeological management sites, a suitably qualified Excavation Director who complies with Criteria for Assessment of Excavation Directors (Heritage Council of NSW 2011) will be engaged to advise on matters associated with historic archaeology. Where archaeological excavation is required, the Excavation Director will oversee excavation and advise on archaeological matters.
NAH08	Any items of potential heritage conservation significance or human remains discovered during construction will be managed in accordance with an Unexpected Heritage Finds and Humans Remains Procedure developed for the project in accordance with relevant guidance provided by the Heritage Council of NSW, the NSW Heritage Division of OEH and the Standard Management Procedure Unexpected Archaeological Finds (Roads and Maritime 2015a). The procedure will detail requirements regarding notification of relevant agencies and the NSW Police and will be implemented for the duration of construction.
AH01	Any items of potential Aboriginal archaeological or cultural heritage conservation significance or human remains discovered during construction will be managed in accordance with the Unexpected Heritage Finds and Humans Remains Procedure developed for the project.
RW02	Wastes will be managed and disposed of in accordance with relevant NSW legislation and government policies.
RW04	Wastes will be managed using the waste hierarchy principles of: ▪ Avoidance of unnecessary resource consumption to reduce the quantity of waste being generated ▪ Recovery of resources for reuse on-site or off-site for the same or similar use, without reprocessing ▪ Recovery of resources through recycling and reprocessing so that waste can be processed into a similar non-waste product and reused ▪ Disposal of residual waste.
RW10	The discovery of previously unidentified contaminated material will be managed in accordance with an unexpected contaminated lands discovery procedure, as outlined in the Guideline for the Management of Contamination (Roads and Maritime 2013)
RW11	Spoil stockpiles will be provided with appropriate environmental controls and managed to reduce potential impacts associated with dust generation, erosion and sedimentation.
HR02	Secure, bunded areas will be provided around storage areas for oils, fuels and other hazardous liquids. Impervious bunds will be of sufficient capacity to contain at least 110 per cent of the volume of the largest stored container.

REMM Ref	Description
HR04	Safety Data Sheets for dangerous goods and hazardous substances will be stored on site prior to their arrival.

Annexure D Roads and Maritime Unexpected Heritage Finds Procedure

Transport Roads & Maritime Services

STANDARD MANAGEMENT PROCEDURE

Unexpected Heritage Items

March 2015

About this release

RMS/ISBN numbers	RMS 12.003 **|** ISBN 9781922040305
Title	Unexpected Heritage Items Procedure

Approval and authorisation		Name
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Approved by	Manager Environmental Policy	Michael Crowley

File location	File name
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Document status	Date
Final	16 March 2015

Version	Date	Revision Description
Final	1 November 2011	First Draft
Revised	23 July 2012	Amended to reflect that (a) unexpected finds do not include items covered by a relevant approval; (b) Aboriginal people must be consulted where an unexpected find is likely to be an Aboriginal object; (c) the Department of Planning and Environment must be notified in accordance with Step 5 of this procedure for Part 3A and Part 5.1 projects.
Revised	09 October 2013	Amended to clarify that the procedure applies to all types of unexpected heritage items, not just archaeological items. The procedure introduces the term ‘Historic Items’ to cover both ‘archaeological relics’ and ‘other historic items’ such as works, structures, buildings and movable objects. The title of the document has been amended to better reflect this clarification.
Revised	16 March 2015	The procedure was streamlined to address all project types including maintenance works. The separate maintenance procedure (formerly Appendix B) was removed. Names and titles updated throughout.

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Please note

This procedure applies to all development and activities concerning roads, road infrastructure and road related assets undertaken by Roads and Maritime.

For advice on how to manage unexpected heritage items as a result of activities related to maritime infrastructure projects, please contact the Senior Environmental Specialist (Heritage).

Contents

Unexpected heritage items procedure

1. Purpose

This procedure has been developed to provide a consistent method for managing unexpected heritage items (both Aboriginal and non-Aboriginal) that are discovered during Roads and Maritime activities. This procedure includes Roads and Maritime's heritage notification obligations under the *Heritage Act 1977* (NSW), *National Parks and Wildlife Act 1974* (NSW), *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth) and the *Coroner's Act 2009* (NSW).

This document provides relevant background information in Section 3, followed by the technical procedure in Sections 6 and 7. Associated guidance referred to in the procedure can be found in Appendices A-H.

2. Scope

This procedure assumes that an appropriate level of Aboriginal and non-Aboriginal heritage assessment has been undertaken prior to on site project work commencing. In some case, such as exempt development, detailed heritage assessment may not be required.

Despite appropriate and adequate investigation, unexpected heritage items may still be discovered during maintenance and construction works. When this happens, this procedure must be followed. This procedure provides direction on when to stop work, where to seek technical advice and how to notify the regulator, if required.

This procedure applies to <u>all</u> Road and Maritime construction and maintenance activities

This procedure **applies to**:

- The discovery of any unexpected heritage item (usually during construction), where Roads and Maritime does not have approval to disturb the item or where safeguards for managing the disturbance (apart from this procedure) are not contained in the environmental impact assessment.
- All Roads and Maritime projects that are approved or determined under Part 3A (including Transitional Part 3A Projects), Part 4, Part 5 or Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), or any development that is exempt under the Act.

This procedure must be followed by Roads and Maritime staff, alliance partners (including local council staff working under Road Maintenance Council Contracts, [RMCC]), developers under works authorisation deeds or any person undertaking Part 5 assessment for Roads and Maritime.

This procedure **does not apply** to:

- The legal discovery and disturbance of heritage items as a result of investigations being undertaken in accordance with OEH's *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (2010); an Aboriginal Heritage Impact Permit (AHIP) issued under the *National Parks and Wildlife Act*

1974; or an approval issued under the *Heritage Act 1977*[1].

- The legal discovery and disturbance of heritage items as a result of investigations (or other activities) that are required to be carried out for the purpose of complying with any environmental assessment requirements under Part 3A (including Transitional Part 3A Projects) or Part 5.1 of the EP&A Act.
- The legal discovery and disturbance of heritage items as a result of construction related activities, where the disturbance is permissible in accordance with an AHIP[2]; an approval issued under the *Heritage Act 1977*; the Minister for Planning's conditions of project approval; or safeguards (apart from this procedure) that are contained in the relevant environmental impact assessment.

All construction environment management plans (CEMPs) must make reference to and/or include this procedure (often included as a heritage sub-plan). Where approved CEMPs exist they must be followed in the first instance. Where there is a difference between approved CEMPs and this procedure, the approved CEMP must be followed. Where an approved CEMP does not provide sufficient detail on particular issues, this procedure should be used as additional guidance. When in doubt always seek environment and legal advice on varying approved CEMPs.

3. Types of unexpected heritage items and their legal protection

The roles of project, field and environmental staff are critical to the early identification and protection of unexpected heritage items. **Appendix A** illustrates the wide range of heritage discoveries found on Roads and Maritime projects and provides a useful photographic guide. Subsequent confirmation of heritage discoveries must then be identified and assessed by technical specialists (usually an archaeologist).

An 'unexpected heritage item' means any unanticipated discovery of an actual or potential heritage item, for which Roads and Maritime does not have approval to disturb[3] or does not have a safeguard in place (apart from this procedure) to manage the disturbance.

These discoveries are categorised as either:

(a) Aboriginal objects

(b) Historic (non-Aboriginal) heritage items

(c) Human skeletal remains.

The relevant legislation that applies to each of these categories is described below.

3.1 Aboriginal objects

The *National Park and Wildlife Act 1974* protects *Aboriginal objects* which are defined as:

[1] RMS' heritage obligations are incorporated into the conditions of heritage approvals.
[2] RMS *Procedure for Aboriginal cultural heritage consultation and investigation* (2011) recommends that Part 4 and Part 5 projects that are likely to impact Aboriginal objects during construction seek a whole-of-project AHIP. This type of AHIP generally allows a project to impact known and potential Aboriginal objects within the entire project area, without the need to stop works. It should be noted that an AHIP may exclude impact to certain objects and areas, such as burials or ceremonial sites. In such cases, the project must follow this procedure.
[3] Disturbance is considered to be any physical interference with the item that results in it being destroyed, defaced, damaged, harmed, impacted or altered in any way (this includes archaeological investigation activities).

> "*any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non Aboriginal extraction, and includes Aboriginal remains*"[4].

Examples of Aboriginal objects include stone tool artefacts, shell middens, axe grinding grooves, pigment or engraved rock art, burials and scarred trees.

IMPORTANT!

<u>All</u> Aboriginal objects, regardless of significance, are protected under law.

If any impact is expected to an Aboriginal object, an Aboriginal Heritage Impact Permit (AHIP) is usually required from the Office of Environment and Heritage (OEH)[5]. Also, when a person becomes aware of an Aboriginal object they must notify the Director-General of OEH about its location[6]. Assistance on how to do this is provided in Section 7 (Step 5).

3.2 Historic heritage items

Historic (non-Aboriginal) heritage items may include:

- Archaeological 'relics'
- Other historic items (i.e. works, structures, buildings or movable objects).

3.2.1 Archaeological relics

The *Heritage Act 1977* protects *relics* which are defined as:

> "*any deposit, artefact, object or material evidence that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement; and is of State or local heritage significance*"[7].

Relics are archaeological items of local or state significance which may relate to past domestic, industrial or agricultural activities in NSW, and can include bottles, remnants of clothing, pottery, building materials and general refuse.

[4] Section 5(1) *National Park and Wildlife Act 1974*.
[5] Except when Part 3A, Division 4.1 of Part 4 or Part 5.1 of the *EP&A Act* applies.
[6] This is required under s89(A) of the *National Park and Wildlife Act 1974* and applies to **all projects** assessed under Part 3A, Part 4, Part 5 and Part 5.1 of the *EP&A Act*, including exempt development.
[7] Section 4(1) *Heritage Act 1977*.

IMPORTANT!

<u>All</u> relics are subject to statutory controls and protections.

If a relic is likely to be disturbed, a heritage approval is usually required from the NSW Heritage Council[8]. Also, when a person discovers a relic they must notify the NSW Heritage Council of its location[9]. Advice on how to do this is provided in Section 7 (Step 5).

3.2.2 Other historic items

Some historic heritage items are not considered to be 'relics'; but are instead referred to as works, buildings, structures or movable objects. Examples of these items that Roads and Maritime may encounter include culverts, historic road formations, historic pavements, buried roads, retaining walls, tramlines, cisterns, fences, sheds, buildings and conduits. Although an approval under the *Heritage Act 1977* may not be required to disturb these items, their discovery must be managed in accordance with this procedure.

As a general rule, an archaeological relic requires discovery or examination through the act of excavation. An archaeological excavation permit under Section 140 of the *Heritage Act 1977* is required to do this. In contrast, 'other historic items' either exist above the ground's surface (e.g. a shed), or they are designed to operate and exist beneath the ground's surface (e.g. a culvert).

Despite this difference, it should be remembered that relics can often be associated with 'other heritage items', such as archaeological deposits within cisterns and underfloor deposits under buildings.

3.3 Human skeletal remains

Human skeletal remains can be identified as either an Aboriginal object or non-Aboriginal relic depending on ancestry of the individual (Aboriginal or non-Aboriginal) and burial context (archaeological or non-archaeological). Remains are considered to be archaeological when the time elapsed since death is suspected of being 100 years or more. Depending on ancestry and context, different legislation applies.

As a simple example, a pre-contact archaeological Aboriginal burial would be protected under the *National Park and Wildlife Act 1974*, while a historic (non-Aboriginal) archaeological burial within a cemetery would be protected under the *Heritage Act 1977*. For these cases, the relevant heritage approval and notification requirements described in the above sections 3.1 and 3.2 would apply. In addition to the *National Park and Wildlife Act 1974*, finding Aboriginal human remains also triggers notification requirements to the Commonwealth Minister for the Environment under s20(1) of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth).

[8] Except when Part 3A, Division 4.1 of Part 4 or Part 5.1 of the *EP&A Act* applies.
[9] This is required under s146 of the *Heritage Act 1977* and applies to **all projects** assessed under Part 3A, Part 4, Part 5 and Part 5.1 of the *EP&A Act*, including exempt development.

IMPORTANT!

<u>All</u> human skeletal remains are subject to statutory controls and protections.

All bones must be treated as potential human skeletal remains and work around them must stop while they are protected and investigated urgently.

However, where it is suspected that less than 100 years has elapsed since death, the human skeletal remains come under the jurisdiction of the State Coroner and the *Coroners Act 2009* (NSW). Such a case would be considered a 'reportable death' and under legal notification obligations set out in s35(2); a person must report the death to a police officer, a coroner or an assistant coroner as soon as possible. This applies to all human remains less than 100 years old[10] regardless of ancestry (ie both Aboriginal and non-Aboriginal remains). Public health controls may also apply.

Guidance on what to do when suspected human remains are found is provided in **Appendix E**.

[10] Under s19 of the *Coroners Act 2009*, the coroner has no jurisdiction to conduct an inquest into reportable death unless it appears to the coroner that (or that there is reasonable cause to suspect that) the death or suspected death occurred within the last 100 years.

4. Responsibilities

The following roles and responsibilities are relevant to this procedure.

Role	Definition/responsibility
Aboriginal Cultural Heritage Advisor (ACHA)	Provides Aboriginal cultural heritage advice to project teams. Acts as Aboriginal community liaison for projects on cultural heritage matters. Engages and consults with the Aboriginal community as per the Roads and Maritime *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*.
Aboriginal Sites Officer (ASO)	Is an appropriately trained and skilled Aboriginal person whose role is to identify and assess Aboriginal objects and cultural values. For details on engaging Aboriginal Sites Officers, refer to Roads and Maritime *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*.
Archaeologist (A)	Professional consultant, contracted on a case-by-case basis to provide heritage and archaeological advice and technical services (such as reports, heritage approval documentation etc). Major projects with complex heritage issues often have an on call Project archaeologist.
Project Manager (PM)	Ensures all aspects of this procedure are implemented. The PM can delegate specific tasks to a construction environment manager, Roads and Maritime site representatives or regional environment staff, where appropriate.
Regional Environment Staff (RES)	Provides advice on this procedure to project teams. Ensuring this procedure is implemented consistently by supporting the PM. Supporting project teams during the uncovering of unexpected finds. Reviewing archaeological management plans and liaising with heritage staff and archaeological consultants as needed.
Registered Aboriginal Parties (RAPs)	RAPs are Aboriginal people who have registered with Roads and Maritime to be consulted about a proposed Roads and Maritime project or activity in accordance with OEH's Aboriginal cultural heritage consultation requirements for proponents (2010).
Senior Environmental Specialist (Heritage) (SES(H))	Provides technical assistance on this procedure and archaeological technical matters, as required. Reviewing the archaeological management plans and facilitating heritage approval applications, where required. Assists with regulator engagement, where required.
Team Leader - Regional Maintenance Delivery (TL-RMD)	Ensures Regional Maintenance Delivery staff stop work in the vicinity of an unexpected heritage item. Completes Unexpected Heritage Item Recording Form 418 and notifies WS-RMD.
Technical Specialist	Professional consultant contracted to provide specific technical advice that relates to the specific type of

	unexpected heritage find (eg a forensic or physical anthropologist who can identify and analyse human skeletal remains).
Works Supervisor - Regional Maintenance Delivery (WS-RMD)	Ensures Regional Maintenance Delivery staff are aware of this procedure. Supports the Team Leader - Regional Maintenance Delivery during the implementation of this procedure and ensures reporting of unexpected heritage items through environment management systems.

5. Acronyms

The following acronyms are relevant to this procedure.

Acronym	Meaning
A	Archaeologist
ACHA	Aboriginal Cultural Heritage Advisor
AHIP	Aboriginal Heritage Impact Permit
ASO	Aboriginal Site Officer
CEMP	Construction Environment Management Plan
OEH	Office of Environment and Heritage.
PACHCI	Procedure for Aboriginal Cultural Heritage Consultation and Investigation
PM	Project Manager
RAP	Registered Aboriginal Parties
RES	Regional Environmental Staff
SES(H)	Senior Environmental Specialist (Heritage)
TL-RMD	Team Leader – Regional Maintenance Division
RMD	Regional Maintenance Delivery
RMS	Roads and Maritime
WS-RMD	Works Supervisor - Regional Maintenance Division

6. Overview of the procedure

On discovering something that could be an unexpected heritage item ('the item'), the following procedure must be followed. There are eight steps in the procedure. These steps are summarised in **Figure 1** below and explained in detail in Section 7.

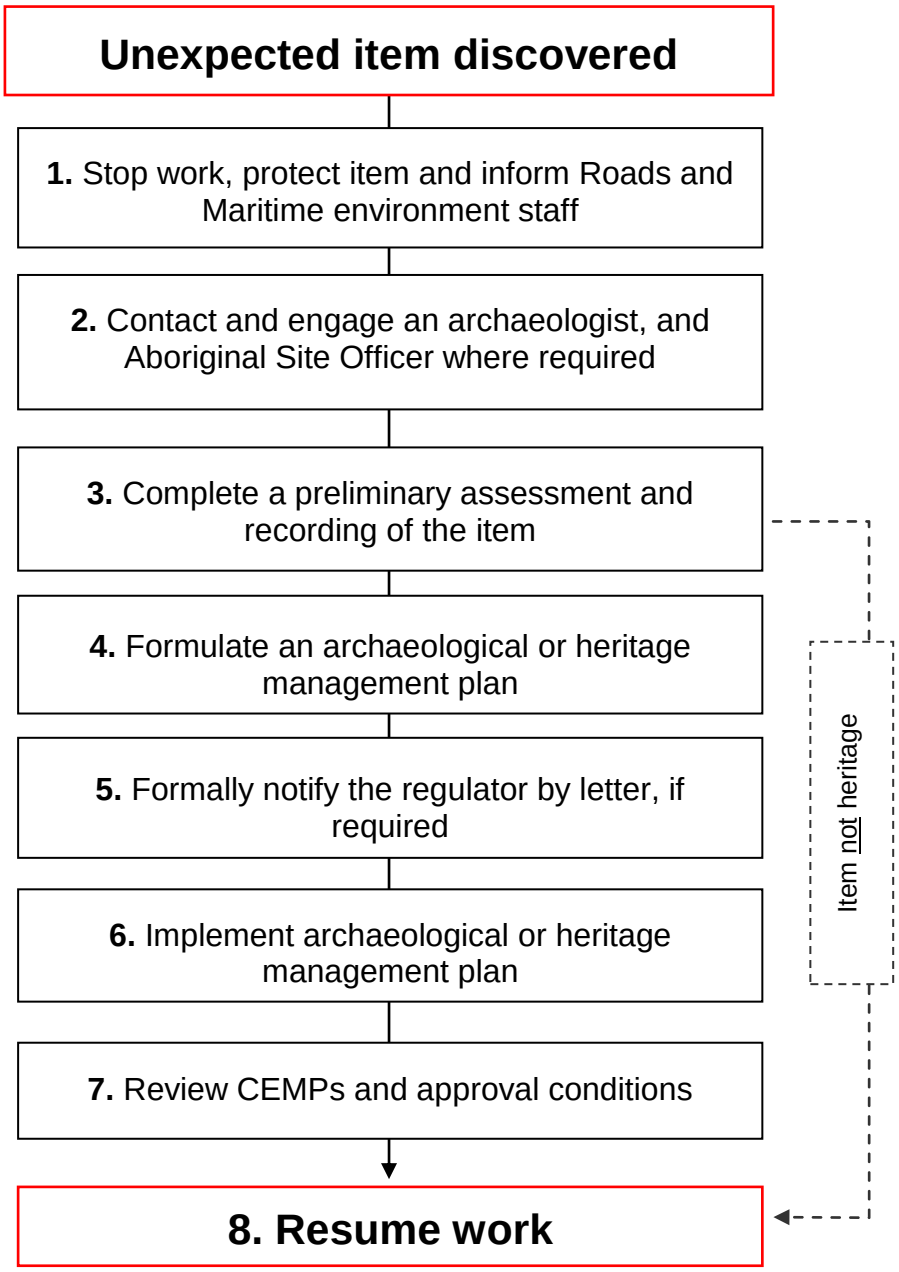


Figure 1: Overview of steps to be undertaken on the discovery of an unexpected heritage item.

IMPORTANT!

RMS may have approval or specific safeguards in place (apart from this procedure) to impact on certain heritage items during construction. If you discover a heritage item and you are unsure whether an approval or safeguard is in place, STOP works and follow this procedure.

7. Unexpected heritage items procedure

Table 1: Specific tasks to be implemented following the discovery of an unexpected heritage item.

Aboriginal Cultural Heritage Advisor (ACHA); Aboriginal Sites Officer (ASO); Archaeologist (A); Project Manager (PM); Regional Environment Staff (RES); Registered Aboriginal Parties (RAPs); Senior Environmental Specialist (Heritage) (SES(H)); Team leader – Roads and Maintenance Division (TL - RMD); Works supervisor – Roads and Maintenance Division (WS - RMD).

Step	Task	Responsibility	Guidance & Tools
1	**Stop work, protect item and inform Roads and Maritime environment staff**		
1.1	Stop all work in the immediate area of the item and notify the Project Manager or Team Leader-RMD. (For maintenance activities, the Team Leader is to also notify the Works Supervisor-RMD)	All	**Appendix A** (Identifying Unexpected Heritage items)
1.2	Establish a 'no-go zone' around the item. Use high visibility fencing, where practical.	PM or TL-RMD	
1.3	Inform all site personnel about the no-go zone. No further interference, including works, ground disturbance, touching or moving the item must occur within the no-go zone.	PM or TL-RMD	
1.4	Inspect, document and photograph the item using 'Unexpected Heritage Item Recording Form 418'.	PM or TL-RMD	**Appendix B** (Unexpected Heritage Item Recording Form 418) **Appendix C** (Photographing Unexpected Heritage items)

Step	Task	Responsibility	Guidance & Tools
1.5	Is the item likely to be bone? If **yes**, follow the steps in Appendix E – 'Uncovering bones'. Where it is obvious that the bones are human remains, you must notify the local police by telephone immediately. They may take command of all or part of the site. If **no**, proceed to next step.	PM or WS-RMD	**Appendix E** (Uncovering Bones)
1.6	Is the item likely to be: a) A relic? (A relic is evidence of past human activity which has local or state heritage significance. It may include items such as bottles, utensils, remnants of clothing, crockery, personal effects, tools, machinery and domestic or industrial refuse) and/or b) An Aboriginal object? (An Aboriginal object may include a shell midden, stone tools, bones, rock art or a scarred tree). If **yes**, proceed directly to Step 1.8 If **no**, proceed to next step.	PM or WS-RMD	**Appendix A** (Identifying heritage items)
1.7	Is the item likely to be a "work", building or standing structure? (This may include tram tracks, kerbing, historic road pavement, fences, sheds or building foundations). If **yes**, can works avoid further disturbance to the item? (E.g. if historic road base/tram tracks have been exposed, can they be left in place?) If **yes**, works may proceed without further disturbance to the item. Complete Step 1.8 within 24 hours. If works cannot avoid further disturbance to the item, works must not recommence at this time. Complete the remaining steps in this procedure.	PM or WS-RMD	**Appendix A** (Identifying heritage items)

Step	Task	Responsibility	Guidance & Tools
1.8	Inform relevant Roads and Maritime Regional Environmental Staff of item by providing them with the completed 'Form 418'.	PM or WS-RMD (RES)	**Appendix D** (Key Environmental Contacts)
1.9	Regional Environmental Staff to advise Project Manager or Works Supervisor whether RMS has an approval or safeguard in place (apart from this procedure) to impact on the 'item'. (An approval may include an approval under the *Heritage Act*, the *National Parks and Wildlife Act* or the *Planning and Assessment Act*). Does RMS have an approval, permit or appropriate safeguard in place to impact on the item? If **yes**, work may recommence in accordance with the approval, permit or safeguard. There is no further requirement to follow this procedure. If **no**, continue to next step.		
1.10	Liaise with Traffic Management Centre where the delay is likely to affect traffic flow.	PM or WS-RMD	
1.11	Report the item as a 'Reportable Event' in accordance with the Roads and Maritime *Environmental Incident Classification and Reporting Procedure*. Implement any additional reporting requirements related to the project's approval and CEMP, where relevant.	PM or WS-RMD	RMS Environmental Incident Classification and Reporting Procedure
2	**Contact and engage an archaeologist and, where required, an Aboriginal site officer**		
2.1	Contact the Project (on-call) Archaeologist to discuss the location and extent of the item and to arrange a site inspection, if required. The project CEMP may contain contact details of the Project Archaeologist. OR	PM or WS-RMD (A; RES; SES(H))	Also see **Appendix D** (Key Environmental Contacts)

Step	Task	Responsibility	Guidance & Tools
	Where there is no project archaeologist engaged for the works, engage a suitably qualified and experienced archaeological consultant to assess the find. A list of heritage consultants is available on the RMS contractor panels on the Buyways homepage. Regional environment staff and Roads and Maritime heritage staff can also advise on appropriate consultants.		Buyways
2.2	Where the item is likely to be an Aboriginal object, speak with your Aboriginal Cultural Heritage Advisor to arrange for an Aboriginal Sites Officer to assess the find. Generally, an Aboriginal Sites Officer would be from the relevant local Aboriginal land council. If an alternative contact person (ie a RAP) has been nominated as a result of previous consultation, then that person is to be contacted.	PM or WS-RMD (ACHA; ASO)	
2.3	If requested, provide photographs of the item taken at Step 1.4 to the archaeologist, and Aboriginal Sites Officer if relevant.	PM or WS-RMD (RES)	**Appendix C** (Photographing Unexpected Heritage items)
3	**Preliminary assessment and recording of the find**		
3.1	In a minority of cases, the archaeologist (and Aboriginal Sites Officer, if relevant) may determine from the photographs that no site inspection is required because no archaeological constraint exists for the project (*eg the item is not a 'relic', a 'heritage item' or an 'Aboriginal object'*). Any such advice should be provided in writing (eg via email) and confirmed by the Project Manager or Works Supervisor - RMD.	A/PM/ASO/ WS-RMD	Proceed to Step 8
3.2	Arrange site access for the archaeologist (and Aboriginal Sites Officer, if relevant) to inspect the item as soon as practicable. In the majority of cases a site inspection is required to conduct a preliminary assessment.	PM or WS-RMD	
3.3	Subject to the archaeologist's assessment (and the Aboriginal Sites Officer's assessment, if relevant), work may recommence at a set distance from the item. This is to protect any other archaeological material that may exist in the vicinity, which has not yet been uncovered. Existing protective fencing established in Step 1.2 may need to be adjusted to	A/PM/ASO/ WS-RMD	

Step	Task	Responsibility	Guidance & Tools
	reflect the extent of the newly assessed protective area. No works are to take place within this area once established.		
3.4	The archaeologist (and Aboriginal Sites Officer, if relevant) may provide advice after the site inspection and preliminary assessment that no archaeological constraint exists for the project (*eg the item is not a 'relic', a 'heritage item' or an 'Aboriginal object'*). Any such advice should be provided in writing (eg via email) and confirmed by the Project Manager or Works Supervisor - RMD.	A/PM/ASO/ WS-RMD	Proceed to Step 8
3.5	Where required, seek additional specialist technical advice (such as a forensic or physical anthropologist to identify skeletal remains). Regional environment staff and/or Roads and Maritime heritage staff can provide contacts for such specialist consultants.	RES/SES(H)	**Appendix D** (Key Environmental Contacts)
3.6	Where the item has been identified as a 'relic', 'heritage item' or an 'Aboriginal object' the archaeologist should formally record the item.	A	
3.7	The regulator can be notified informally by telephone at this stage by the archaeologist, Project Manager (or delegate) or Works Supervisor - RMD. Any verbal conversations with regulators must be noted on the project file for future reference.	PM/A/WS-RMD	
4	**Prepare an archaeological or heritage management plan**		
4.1	The archaeologist must prepare an archaeological or heritage management plan (with input from the Aboriginal Sites Officer, where relevant) shortly after the site inspection. This plan is a brief overview of the following: (a) description of the feature, (b) historic context, if data is easily accessible, (c) likely significance, (d) heritage approval and regulatory notification requirements, (e) heritage reporting requirements, (f) stakeholder consultation requirements, (g) relevance to other project approvals and management plans etc.	A/ASO	**Appendix F** (Archaeological/ Heritage Advice Checklist)
4.2	In preparing the plan, the archaeologist with the assistance of regional environment staff must review the CEMP, any heritage sub-plans, any conditions of heritage approvals, conditions of project approval (and or Minister's Conditions of Approval) and heritage assessment documentation (eg Aboriginal Cultural Heritage Assessment Report). This will outline if the unexpected item is consistent with previous heritage/project approval(s)	A/RES/PM	**Appendix F** (Archaeological/ Heritage Advice Checklist)

Step	Task	Responsibility	Guidance & Tools
	and/or previously agreed management strategies. The Project Manager and regional environment staff must provide all relevant documents to the archaeologist to assist with this. Discussions should occur with design engineers to consider if re-design options exist and are appropriate.		
4.3	The archaeologist must submit this plan as a letter, brief report or email to the Project Manager outlining all relevant archaeological or heritage issues. This plan should be submitted to the Project Manager as soon as practicable. Given that the archaeological management plan is an overview of all the necessary requirements (and the urgency of the situation), it should take no longer than two working days to submit to the Project Manager.	A	
4.4	The Project Manager or Works Supervisor must review the archaeological or heritage management plan to ensure all requirements can reasonably be implemented. Seek additional advice from regional environment staff and Roads and Maritime heritage staff, if required.	PM/RES/SES(H)/ WS-RMD	
5	**Notify the regulator, if required.**		
5.1	Review the archaeological or heritage management plan to confirm if regulator notification is required. Is notification required? If **no**, proceed directly to Step 6 If **yes**, proceed to next step.	PM/RES/SES(H)/ WS-RMD	
5.2	If notification is required, complete the template notification letter.	PM or WS-RMD	**Appendix G** (Template Notification Letter)
5.3	Forward the draft notification letter, archaeological or heritage management plan and the site recording form to regional environment staff and Senior Environmental Specialist (Heritage) for review, and consider any suggested amendments.	PM/RES/SES(H)/ WS-RMD	

Step	Task	Responsibility	Guidance & Tools
5.4	Forward the signed notification letter to the relevant regulator (ie notification of relics must be given to the Heritage Division, Office of Environment and Heritage (OEH), while notification for Aboriginal objects must be given to the relevant Aboriginal section of OEH). Informal notification (via a phone call or email) to the regulator prior to sending the letter is appropriate. The archaeological management plan and the completed site recording form must be submitted with the notification letter. For Part 3A and Part 5.1 projects, the Department of Planning and Environment must also be notified.	PM or WS-RMD	**Appendix D** (Key Environmental Contacts)
5.5	A copy of the final signed notification letter, archaeological or heritage management plan and the site recording form should be kept on file by the Project Manager or Works Supervisor- RMD and a copy sent to the Senior Environmental Specialist (Heritage).	PM or WS-RMD	
6	**Implement archaeological or heritage management plan**		
6.1	Modify the archaeological or heritage management plan to take into account any additional advice resulting from notification and discussions with the regulator.	A/PM or WS-RMD (RES)	
6.2	Implement the archaeological or heritage management plan. Where impact is expected, this would include such things as a formal assessment of significance and heritage impact assessment, preparation of excavation or recording methodologies, consultation with registered Aboriginal parties, obtaining heritage approvals etc, if required.	PM or WS-RMD (RAPs and RES)	PACHCI Stage 3
6.3	Where heritage approval is required contact regional environment staff for further advice and support material. Please note time constraints associated with heritage approval preparation and processing. Project scheduling may need to be revised where extensive delays are expected.	PM/RES/WS-RMD	
6.4	For Part 3A/Part 5.1 projects, assess whether heritage impact is consistent with the project approval or if project approval modification is required from the Department of Planning and Environment. Seek advice from regional environment staff and Environment Branch specialist staff if unsure.	PM/RES	

Step	Task	Responsibility	Guidance & Tools
6.5	Where statutory approvals (or project approval modification) are required, impact upon relics and/or Aboriginal objects must not occur until heritage approvals are issued by the appropriate regulator.	PM or WS-RMD	
6.6	Where statutory approval (or Part 3A/Part 5.1 project modification) is not required and where recording is recommended by the archaeologist, sufficient time must be allowed for this to occur.	PM or WS-RMD	
6.7	Ensure short term and permanent storage locations are identified for archaeological material or other heritage material is removed from site, where required. Interested third parties (eg museums or local councils) should be consulted on this issue. Contact regional environment staff and Senior Environmental Specialist (Heritage) for advice on this matter, if required.	PM or WS-RMD	
7	**Review CEMPs and approval conditions**		
7.1	Check whether written notification is required to be sent to the regulator before re-commencing work. Where this is not explicit in heritage approval conditions, expectations should be clarified directly with the regulator.	PM	
7.2	Update the CEMP, site mapping and project delivery program as appropriate with any project changes resulting from final heritage management (eg retention of heritage item, salvage of item). Updated CEMPs must incorporate additional conditions arising from any heritage approvals, and Aboriginal community consultation if relevant. Include any changes to CEMP in site induction material and update site workers during toolbox talks.	PM	
8	**Resume work**		
8.1	Seek written clearance to resume project work from regional environment staff and the archaeologist (and regulator, if required). Clearance would only be given once all archaeological excavation and/or heritage recommendations (where required) are complete. Resumption of project work must be in accordance with the all relevant project/heritage approvals/determinations.	RES/A/PM/WS-RMD	
8.2	If required, ensure archaeological excavation/heritage reporting and other heritage	PM/A/WS-RMD	

Step	Task	Responsibility	Guidance & Tools
	approval conditions are completed in the required timeframes. This includes artefact retention repositories, conservation and/or disposal strategies.		
8.3	Forward all heritage/archaeological assessments, heritage location data and its ownership status to the Senior Environmental Specialist (Heritage). They will ensure all heritage items in Roads and Maritime ownership and/or control are considered for the Roads and Maritime S170 Heritage and Conservation Register.	PM/SES(H)/ WS-RMD	
8.4	If additional unexpected items are discovered this procedure must begin again from Step 1.	PM/TL-RMD	

8. Seeking advice

Advice on this procedure should be sought from Roads and Maritime regional environment staff in the first instance. Contractors and alliance partners should ensure their own project environment managers are aware of and understand this procedure. Regional environment staff can assist non-Roads and Maritime project environment managers with enquires concerning this procedure.

IMPORTANT!

Roads and Maritime Services staff and contractors are not to seek advice on this procedure directly from the Office of Environment and Heritage without first seeking advice from regional environment staff and heritage policy staff.

Technical archaeological or heritage advice regarding an unexpected heritage item should be sought from the contracted archaeologist. Technical specialist advice can also be sought from heritage policy staff within Environment Branch to assist with the preliminary archaeological identification and technical reviews of heritage/archaeological reports.

9. Related information

Contact details: Senior Environmental Specialist (Heritage), Environment Branch, 02 8588 5754

Effective date: 01 February 2015

Review date: 01 February 2016

This procedure should be read in conjunction with:

- Roads and Maritimes' *Heritage Guidelines 2015.*
- Roads and Maritime Services *Environmental Incident Classification and Reporting Procedure*
- Roads and Maritime's *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*
- RTA *Environmental Impact Assessment Guidelines.*

This procedure replaces:

- Procedure 5.5 ("*unexpected discovery of an archaeological relic or Aboriginal object*") outlined in the RTA's *Heritage Guidelines* 2004.

Other relevant reading material:

- NSW Heritage Office (1998), *Skeletal remains: guidelines for the management of human skeletal remains*.
- Department of Environment and Conservation NSW (2006), *Manual for the identification of Aboriginal remains.*
- Department of Health (April 2008), *Policy Directive: Burials - exhumation of human remains*[11].

[11] http://www.health.nsw.gov.au/policies/pd/2008/pdf/PD2008_022.pdf

10. List of appendices

The following appendices are included to support this procedure.

Appendix A	Identifying Unexpected Heritage items
Appendix B	Unexpected Heritage Item Recording Form 418
Appendix C	Photographing Unexpected Heritage Items
Appendix D	Key Environment Contacts
Appendix E	Uncovering Bones
Appendix F	Archaeological Advice Checklist
Appendix G	Template Notification Letter

Appendix A

Identifying unexpected heritage items

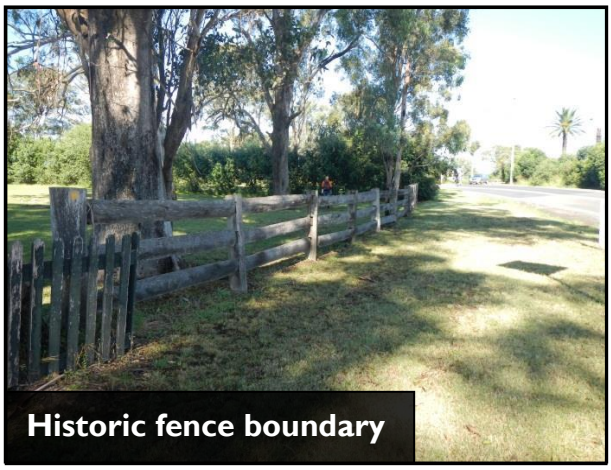
The following images can be used to assist in the preliminary identification of potential unexpected items (both Aboriginal and non-Aboriginal) during construction and maintenance works. Please note this is not a comprehensive typology.

Top left hand picture continuing clockwise: Stock camp remnants (Hume Highway Bypass at Tarcutta); Linear archaeological feature with post holes (Hume Highway Duplication), Animal bones (Hume Highway Bypass at Woomargama); Cut wooden stake; Glass jars, bottles, spoon and fork recovered from refuse pit associated with a Newcastle Hotel (Pacific Highway, Adamstown Heights, Newcastle area).

Top left hand picture continuing clockwise: Woodstave water pipe with tar and wire sealing (Horsley Drive); Tram tracks (Sydney); Brick lined cistern (Clyde); Retaining wall (Great Western Highway, Leura).

Top left hand picture continuing clockwise: Road pavement (Great Western Highway, Lawson); Sandstone kerbing and guttering (Parramatta Road, Mays Hill); Telford road (sandstone road base, Great Western Highway, Leura); Ceramic conduit and sandstone culvert headwall (Blue Mountains, NSW); Corduroy road (timber road base, Entrance Road, Wamberai).

Top left hand corner continuing clockwise: Alignment Pin (Great Western Highway, Wentworth Falls); Survey tree (MR7, Albury); Survey tree (Kidman Way, Darlington Point, Murrumbidgee); Survey tree (Cobb Highway, Deniliquin); Milestone (Great Western Highway, Kingswood, Penrith); Alignment Stone (near Guntawong Road, Riverstone). Please note survey marks may have additional statutory protection under the *Surveying and Spatial Information Act 2002*.



Top left hand corner continuing clockwise: Remnant bridge piers (Putty Road, Bulga); Wooden boundary fence (Campbelltown Road, Denham Court); Dairy shed (Ballina); Golden Arrow Mine Shaft.

Top left hand corner: Culturally modified stone discovered on Main Road 92, about two kilometres west of Sassafras. The remaining images show a selection of stone artefacts retrieved from test and salvage archaeological excavations during the Hume Highway Duplication and Bypass projects from 2006-2010.

Appendix B

Unexpected heritage item recording form 418

Transport Roads & Maritime Services	**Unexpected heritage item recording form**	**418**

This form is to be filled in by a project manager (or their delegate) or a team leader – Road and Maintenance Division, on the discovery of an unexpected heritage item during construction or maintenance works.			
Date:		**Recorded by:** (Include name and position)	
Project name:			
Description of works being undertaken (eg Removal of failed pavement by excavation and pouring concrete slabs in 1m x 1m replacement sections).			
Description of exact location of item (eg Within the road formation on Parramatta Road, east bound lane, at the corner of Johnston Street, Annandale, Sydney).			

Description of item found (What type of item is it likely to be? Tick the relevant boxes).

A. A relic	☐	A 'relic' is evidence of a past human activity relating to the settlement of NSW with local or state heritage significance. A relic might include bottles, utensils, plates, cups, household items, tools, implements, and similar items.
B. A 'work, building or structure'	☐	A 'work' can generally be defined as a form infrastructure such as tram tracks, a culvert, road base, a bridge pier, kerbing, and similar items.
C. An Aboriginal object	☐	An 'Aboriginal object' may include stone tools, stone flakes, shell middens, rock art, scarred trees and human bones.
D. Bone	☐	Bones can either be human or animal remains. **Remember that you must contact the local police immediately by telephone if you are <u>certain</u> that the bone(s) are <u>human remains</u>.**
E. Other	☐	

Provide short description of item (eg Metal tram tracks running parallel to road alignment. Good condition. Tracks set in concrete, approximately 10cms (100 mm) below the current ground surface).	

Sketch
(Provide a sketch of the item's general location in relation to other road features so its approximate location can be mapped without having to re-excavate it. In addition, please include details of the location and direction of any photographs of the item taken).

Action taken (Tick either A *or* B)

A. Unexpected item **would not** be further impacted on by works ☐

Describe how works would avoid impact on the item. (eg The tram tracks will be left *in situ*, and recovered with road paving).

B. Unexpected item **would be** further impacted on by works ☐

Describe how works would impact on the item. (eg Milling is required to be continued to 200 mm depth to ensure road pavement requirements are met. Tram tracks will need to be removed).

Important:

It is a statutory offence to disturb Aboriginal objects and historic relics (including human remains) without an approval. All works affecting objects and relics must cease until an approval is sought.

Approvals may also be required to impact on certain works. Contact your regional environment staff for guidance.

Project manager / works supervisor signature	

Appendix C

Photographing unexpected heritage items

✋ Removal of the item from its context (e.g. excavating from the ground) for photographic purposes is not permitted.

Photographs of unexpected items in their current context (*in situ*) may assist heritage staff and archaeologists to better identify the heritage values of the item. Emailing good quality photographs to specialists can allow for better quality and faster heritage advice. The key elements that must be captured in photographs of the item include its position, the item itself and any distinguishing features. All photographs must have a scale (ruler, scale bar, mobile phone, coin) and a note describing the direction of the photograph.

Context and detailed photographs

It is important to take a general photograph (Figure 1) to convey the location and setting of the item. This will add much value to the subsequent detailed photographs also required (Figure 2).

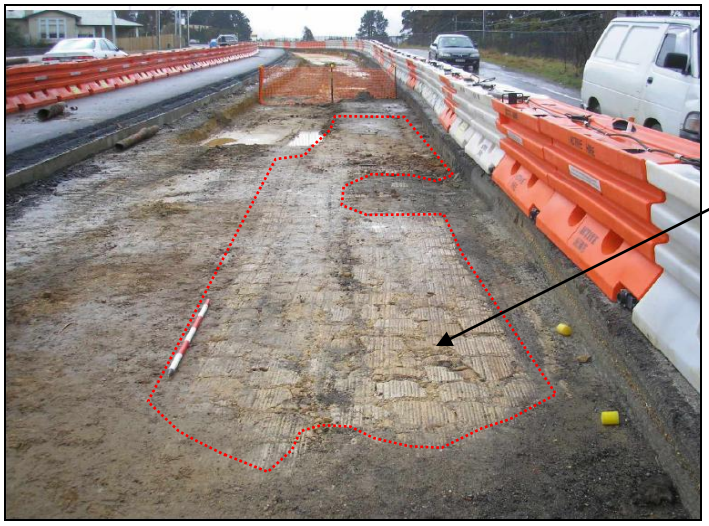


Figure 2: Close up detail of the sandstone surface showing material type, formation and construction detail. This is essential for establishing date of the feature.

Figure 1: Telford road uncovered on the Great Western Highway (Leura) in 2008.

Photographing distinguishing features

Where unexpected items have a distinguishing feature, close up detailed photographs must be taken of this, where practicable. In the case of a building or bridge, this may include diagnostic details architectural or technical features. See Figures 3 and 4 for examples.

Figure 3: Ceramic bottle artefact with stamp.

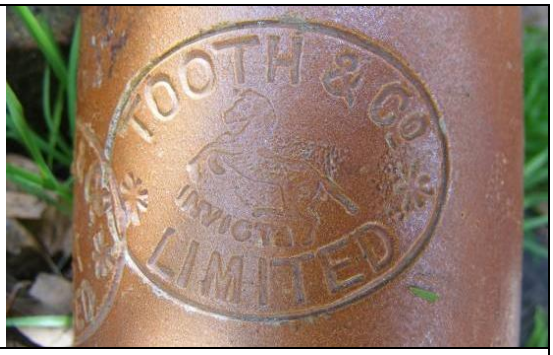


Figure 4: Detail of the stamp allows '*Tooth & Co Limited*' to be made out. This is helpful to a specialist in gauging the artefact's origin, manufacturing date and likely significance.

Photographing bones

The majority of bones found on site will those of be recently deceased animal bones often requiring no further assessment (unless they are in archaeological context). However, if bones are human, Roads and Maritime must contact the police immediately (see Appendix F for detailed guidance). Taking quality photographs of the bones can often resolve this issue quickly. Heritage staff in Environment Branch can confirm if bones are human or non-human if provided with appropriate photographs. Ensure that photographs of bones are not concealed by foliage (Figure 5) as this makes it difficult to identify. Minor hand removal of foliage can be undertaken as long as disturbance of the bone does not occur. Excavation of the ground to remove bone(s) should not occur, nor should they be pulled out of the ground if partially exposed. Where sediment (adhering to a bone found on the ground surface) conceals portions of a bone (Figure 6) ensure the photograph is taken of the bone (if any) that is not concealed by sediment.

Figure 5: Bone concealed by foliage.

Figure 6: Bone covered in sediment

Ensure that all close up photographs include the whole bone and then specific details of the bone (especially the ends of long bones, the *epiphysis*, which is critical for species identification). Figures 7 and 8 are examples of good photographs of bones that can easily be identified from the photograph alone. They show sufficient detail of the complete bone and the epiphysis.

Figure 7: Photograph showing complete bone.

Figure 8: Close up of a long bone's epiphysis.

Appendix D

Key environmental contacts

Hunter region	Environmental Manager (Hunter)	4924 0440
	Aboriginal Cultural Heritage Advisor	4924 0383
Northern region	Environment Manager (North)	6640 1072
	Aboriginal Cultural Heritage Advisor	6604 9305
Southern region	Environmental Manager (South)	6492 9515
	Aboriginal Cultural Heritage Advisor	4221 2767
South West region	Environment Manager (South West)	6937 1634
	Aboriginal Cultural Heritage Advisor	6937 1647
Sydney region	Environment Manager (Sydney)	8849 2516
	Aboriginal Cultural Heritage Advisor	8849 2583
Western region	Environment Manager (West)	6861 1628
	Aboriginal Cultural Heritage Advisor	6861 1658
Pacific Highway Office	Environment Manager	6640 1375
Regional Maintenance Delivery	Environment Manager	9598 7721
Environment Branch	Senior Environmental Specialist (Heritage)	8588 5754

Heritage Regulators

Heritage Division Office of Environment and Heritage Locked Bag 5020 Parramatta NSW 2124 Phone: (02) 9873 8500	Department of the Environment (Clth) GPO Box 787 Canberra ACT 2601 Phone: (02) 6274 1111
Office of Environment and Heritage (Sydney Metropolitan) Planning and Aboriginal Heritage Section PO Box 668 Parramatta NSW 2124 Phone: (02) 9995 5000	Office of Environment and Heritage (North Eastern NSW) Planning and Aboriginal Heritage Section Locked Bag 914 Coffs Harbour NSW 2450 Phone: (02) 6651 5946
Office of Environment and Heritage (North Western NSW) Environment and Conservation Programs PO Box 2111 Dubbo NSW 2830 Phone: (02) 6883 5330	Office of Environment and Heritage (Southern NSW) Landscape and Aboriginal Heritage Protection Section PO Box 733 Queanbeyan NSW 2620 Phone: (02) 6229 7188

Project-Specific Contacts

Position	**Name**	**Phone Number**
Project Manager		
Site/Alliance Environment Manager		
Regional Environmental Officer		
Aboriginal Cultural Heritage Advisor		
Consultant Archaeologist		
Local Police Station		
OEH: Environment Line		131 555

Appendix E

Uncovering bones

All matters relating to uncovering bones and RMS' human remains notification obligations should involve RMS regional environment and heritage staff. They will guide Project Managers through occurrences of uncovering bones.

This appendix provides Project Managers with advice (1) on what to do on first uncovering bones (2) the range of human skeletal notification pathways and (3) additional considerations and requirements when managing the discovery of human remains.

1. First uncovering bones

Stop all work in the vicinity of the find. All bones uncovered during project works should be **treated with care and urgency** as they have the potential to be human remains. Therefore they must be identified as either human or non-human as soon as possible by a qualified forensic or physical anthropologist. These specialist consultants can be sought by contacting regional environment staff and/or heritage staff at Environment Branch.

On the very rare occasion where it is *instantly obvious* from the remains that they are human, the Project Manager (or a delegate) should **inform the police by telephone** prior to seeking specialist advice. It will be obvious that it is human skeletal remains where there is no doubt, as demonstrated by the example in Figure 1. Often skeletal elements in isolation (such as a skull) can also clearly be identified as human. Note it may also be obvious that human remains have been uncovered when soft tissue and clothing are present.

Figure 1: Schematic of a complete skeleton that is 'obviously' human[12].

Figure 2: Disarticulated bones that require assessment to determine species.

[12] After Department of Environment and Conservation NSW (2006), *Manual for the identification of Aboriginal Remains*: 17.

This preliminary phone call is to let the police know that Roads and Maritime is undertaking a specialist skeletal assessment to determine the approximate date of death which will inform legal jurisdiction. The police may wish to take control of the site at this stage. If not, a forensic or physical anthropologist must be requested to make an on-site assessment of the skeletal remains.

Where it is not 'obvious' that the bones are human (in the majority of cases, illustrated by Figure 2), specialist assessment is required to establish the species of the bones. Photographs of the bones can assist this assessment if they are clear and taken in accordance with guidance provided in Appendix C. Good photographs often result in the bones being identified by a specialist without requiring a site visit; noting they are nearly always non-human. In these cases, non-human skeletal remains must be treated like any other unexpected archaeological find.

If the bones are identified as human (either by photographs or an on-site inspection) a technical specialist must determine the likely ancestry (Aboriginal or non-Aboriginal) and burial context (archaeological or forensic). This assessment is required to identify the legal regulator of the human remains so **urgent notification** (as below) can occur. Preliminary telephone or verbal notification by the Project Manager or regional environment staff is considered appropriate. This must be followed up later by Roads and Maritime's formal letter notification as per Appendix G when a management plan has been developed and agreed to by the relevant parties.

2. Range of human skeletal notification pathways

The following is a summary of the different notification pathways required for human skeletal remains depending on the preliminary skeletal assessment of ancestry and burial context.

A. Human bones are from a recently deceased person (*less than* 100 years old).

> **☑ Action**
> A police officer must be notified immediately as per the obligations to report a death or suspected death under s35 of the *Coroners Act 2009* (NSW). It should be assumed the police will then take command of the site until otherwise directed.

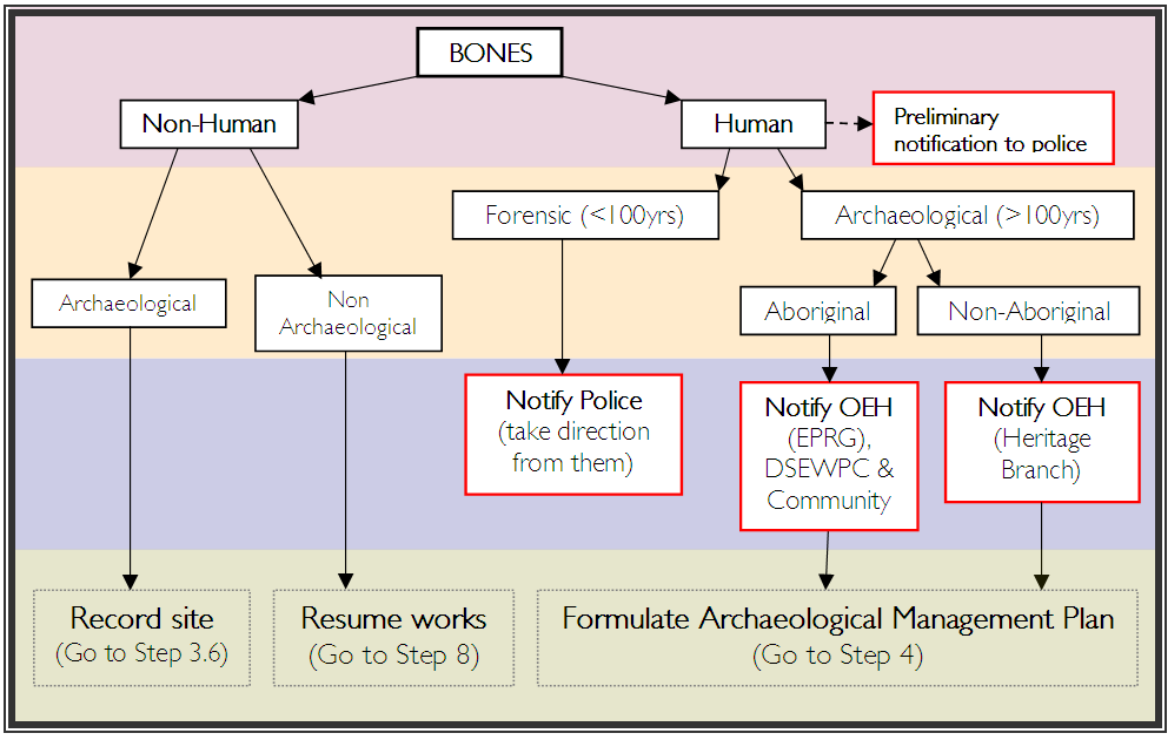
B. Human bones are archaeological in nature (*more than* 100 years old) and are likely to be *Aboriginal* remains.

> **☑ Action**
> The OEH and the RMS Aboriginal Cultural Heritage Advisor (ACHA) must be notified immediately. The ACHA must contact and inform the relevant Aboriginal community stakeholders who may request to be present on site. Relevant stakeholders are determined by the RTA's *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*.

C. Human bones are archaeological in nature (*more than* 100 years old) and likely to be *non-Aboriginal* remains.

> **☑ Action**
> The OEH (Heritage Branch, Conservation Team) must be notified immediately.

The simple diagram below summarises the notification pathways on finding bones.



After the appropriate verbal notifications (as described in B and C), the Project Manager must proceed through the *Unexpected Heritage Items Procedure* to formulate an archaeological management plan (Step 4). Note no archaeological management plan is required for forensic cases (A), as all future management is a police matter. Non-human skeletal remains must be treated like any other unexpected archaeological find and so must proceed to recording the find as per Step 3.6.

3. Additional considerations and requirements

Uncovering archaeological human remains must be managed intensively and needs to consider a number of additional specific issues. These issues might include facilitating culturally appropriate processes when dealing with Aboriginal remains (such as repatriation and cultural ceremonies). Roads and Maritime's ACHA can provide advice on this and how to engage with the relevant Aboriginal community. Project Managers, more generally, may also need to consider overnight site security of any exposed remains and may need to manage the onsite attendance of a number of different external stakeholders during assessment and/or investigation of remains. Project Managers may also be advised to liaise with local church/religious groups and the media to manage community issues arising from the find. Additional investigations may be required to identify living descendants, particularly if the remains are to be removed and relocated.

If exhumation of the remains (from a formal burial or a vault) is required, Project Managers should also be aware of additional approval requirements under the *Public Health Act 1991* (NSW). Specifically, Roads and Maritime is required to apply to the Director General of NSW Department of Health for approval to exhume human remains as per Clause 26 of the *Public Health (Disposal of Bodies) Regulation 2002* (NSW)[13]. Further, the exhumation of such remains needs to consider health risks such as infectious disease control, exhumation procedures and reburial approval and registration. Further guidance on this matter can be found at the NSW Department of Health website.

In addition, due to the potential significant statutory and common law controls and prohibitions associated with interfering with a public cemetery, project teams are

[13] This requirement is in addition to heritage approvals under the *Heritage Act 1977*.

advised, when works uncover human remains adjacent to cemeteries, to confirm the cemetery's exact boundaries.

Appendix F

Archaeological/heritage advice checklist

The archaeologist must advise the Project Manager of an appropriate archaeological or heritage management plan as soon as possible after site inspection (see Step 4). An archaeological or heritage management plan can include a range of activities and processes, which differ depending on the find and its significance. In discussions with the archaeologist the following checklist can be used by the Project Manager and the archaeologist as a prompt to ensure all relevant archaeological issues are considered when developing this plan. This will allow the project team to receive clear and full advice to move forward quickly and in the right direction. Archaeological and/or heritage advice on how to proceed can be received in a letter or email outlining all relevant archaeological and/or heritage issues.

	Required	**Outcome/notes**
Assessment and investigation		
• Assessment of significance	Yes/No	
• Assessment of heritage impact	Yes/No	
• Archaeological excavation	Yes/No	
• Archival photographic recording	Yes/No	
Heritage approvals and notifications		
• AHIPs, Section 140, S139 exceptions etc	Yes/No	
• Regulator relics/objects notification	Yes/No	
• Roads and Maritime's S170 Heritage and Conservation Register listing requirements	Yes/No	
• Compliance with CEMP or other project heritage approvals	Yes/No	
Stakeholder consultation		
• Aboriginal stakeholder consultation requirements and how it relates to RTA *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (PACHCI).	Yes/No	
• Advice from regional environmental staff, Aboriginal Cultural Heritage Advisor, Roads and Maritime heritage team.	Yes/No	
Artefact/ heritage item management		
• Retention or conservation strategy (eg items may be subject to long conservation and interpretation) • Disposal strategy (eg former road pavement) • Short term and permanent storage locations (interested third parties should be	Yes/No	

Level 00, Building Name 000, Street Name, City NSW 0000 **|** PO Box 000 City NSW 0000 DX00 City
T 02 0000 0000 **|** **F** 02 0000 0000 **|** **E** xxxx@rta.nsw.gov.au **www.rta.nsw.gov.au | 13 22 13**

consulted on this issue).		
• Control Agreement for Aboriginal objects.	Yes/No	
Program and budget		
• Time estimate associated with archaeological or heritage conservation work.		
• Total cost of archaeological/heritage work.		

Appendix G

Template notification letter

[Select and type date]

[Select and type reference number]

[Select and type file number]

[Insert recipient's name and address, see **Appendix D**]

[Select and type salutation and name],

Re: Unexpected heritage item discovered during Roads and Maritime Services project works.

I write to inform you of an unexpected [select: relic, heritage item or Aboriginal object] found during Roads and Maritime Services construction works at [insert location] on [insert date]. [Where the regulator has been informally notified at an earlier date by telephone, this should be referred to here].

This letter is in accordance with the notification requirement under [select: Section 146 of the *Heritage Act 1977* (NSW) or Section 89(A) of the *National Parks and Wildlife Act 1974* (NSW) **NB:** There may be not be statutory requirement to notify of the discovery of a 'heritage Item that is not a relic or Aboriginal object].

NB: On finding Aboriginal human skeletal remains this letter must also be sent to the Commonwealth Minister for Sustainability, Environment, Water, Populations and Communities (SEWPC) in accordance with notification requirements under Section 20(1) of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth).

[Provide a brief overview of the project background and project area. Provide a summary of the description and location of the item, including a map and image where possible. Also include how the project was assessed under the *Environmental Planning and Assessment Act 1979* (NSW) (eg Part 5). Also include any project approval number, if available].

Roads and Maritime Services [*or contractor*] has sought professional archaeological advice regarding the item. A preliminary assessment indicates [provide a summary description and likely significance of the item]. Please find additional information on the site recording form attached.

Resulting from these preliminary findings, Roads and Maritime Services *[or contractor]* is proposing [provide a summary of the proposed archaeological/heritage approach (eg develop archaeological research design (where relevant), seek heritage approvals, undertake archaeological investigation or conservation/interpretation strategy). Also include preliminary justification of such heritage impact with regard to project design constraints and delivery program].

The proposed approach will be further developed in consultation with a nominated Office of Environment and Heritage staff member.

Please contact me if you have any input on this approach or if you require any further information.

Yours sincerely

[Sender name and position]

[Attach the archaeological/heritage management plan and site recording form].

Annexure E Roads and Maritime Environmental Incident Form

Transport Roads & Maritime Services

Environmental Incident Report
Form 400 and 624

Remember!	**Complete this form for all environmental incidents that occur due to Roads and Maritime Services (RMS) activities. Complete and submit this form in accordance with the RMS Environmental Incident Classification and Reporting Procedure. Be succinct, stick to known facts and do not make assumptions.**

Project name:	*(for use by project if desired)*
Project delivered by: ☐ RMS ☐ Contractor (including RMCC)	Incident ID #:
Contractor name:	Report revision #:
Region: *(A map showing RMS regions is available online.)* Select from list	CM21 or Equip no.:

Incident details

Date and Time	Date: Time: : am ☐ | pm ☐
Description Provide a brief factual description of what happened during the incident, include relevant details such as: • the estimated distance to nearest waterway (include stormwater drains and dry watercourses) • the estimated distance to the nearest sensitive receiver • the activity being undertaken when the incident occurred Sketches/diagrams/photos may be referenced and appended to this report to aid in the description of the incident.	
EXACT location of the incident (include chainage, landmarks, features, nearest cross street, etc. Maps and plans can be attached to the incident report if appropriate.	
Quantity or volume of material escaped or causing incident (provide an estimate if quantity unknown)	
Who identified the incident?	☐ Contractor ☐ EPA officer ☐ Council ☐ RMS (during inspection) ☐ EPA complaints line ☐ Community ☐ RMS (Reg Mtce) ☐ RMS (other) ☐ Other _____

Incident classification:

☐ Category 1	Potential breaches of legislation or failures of process that result in actual off-site environmental harm, or residual on-site environmental harm or Works undertaken outside approved areas, without required approval, or without environmental assessment or Any Material Harm pollution incident as defined by Part 5.7 of the *Protection of the Environment Operations Act 1997*.
☐ Category 2	Failures of process or events that do not result in off-site environmental harm or residual on-site environmental harm. These incidents may result in temporary on-site environmental harm that can be rectified to pre-existing conditions.
☐ Reportable event	An event or unexpected find that occurs outside the scope of reasonable environmental controls and mitigation measures.
☐ Regulatory Action	Formal regulatory action by an environmental regulator (that has not already been reported in conjunction with another incident).

What immediate actions/control measures were taken to rectify or contain the incident?

UNCLASSIFIED
SENSITIVE: NSW GOVERNMENT

What initial corrective action will be taken to prevent similar incidents recurring in the near future?

External notification

Was this a pollution incident that caused or threatened material harm to the environment? ☐ Yes ☐ No

Is there an Environment Protection Licence for the project? ☐ Yes ☐ No

▶ If Yes – was the Pollution Incident Response Management Plan implemented ☐ Yes ☐ No

Were any of the following authorities notified?

	Date	Time	Method	Notified by (name and position)
NSW Environment Protection Authority		:	Email	
NSW Department of Planning and Environment		:	Email	
NSW Ministry of Health		:	Email	
Fire and Rescue NSW		:	Email	
NSW Office of Environment and Heritage		:	Email	
Department of the Environment and Energy		:	Email	
NSW Department of Primary Industries (Fisheries)		:	Email	
NSW Rural Fire Service		:	Email	
NSW National Parks and Wildlife Service		:	Email	
SafeWork NSW		:	Email	
Local Government		:	Email	
Other:		:	Email	

Approvals

Person making report

Name: ..... Signature: .....

Position: .....

Organisation: ..... Date: ..... Forward by Email

RMS Project Manager

Name: .....

Signature: ..... Date: ..... Forward by Email

Safety Environment and Quality Coordinator (RMS Regional Maintenance only)

Name: .....

Signature: ..... Date: ..... Forward by Email

RMS Environment Manager

Was the incident self-reported by the delivery team? ☐ Yes ☐ No

Name: ..... Signature: .....

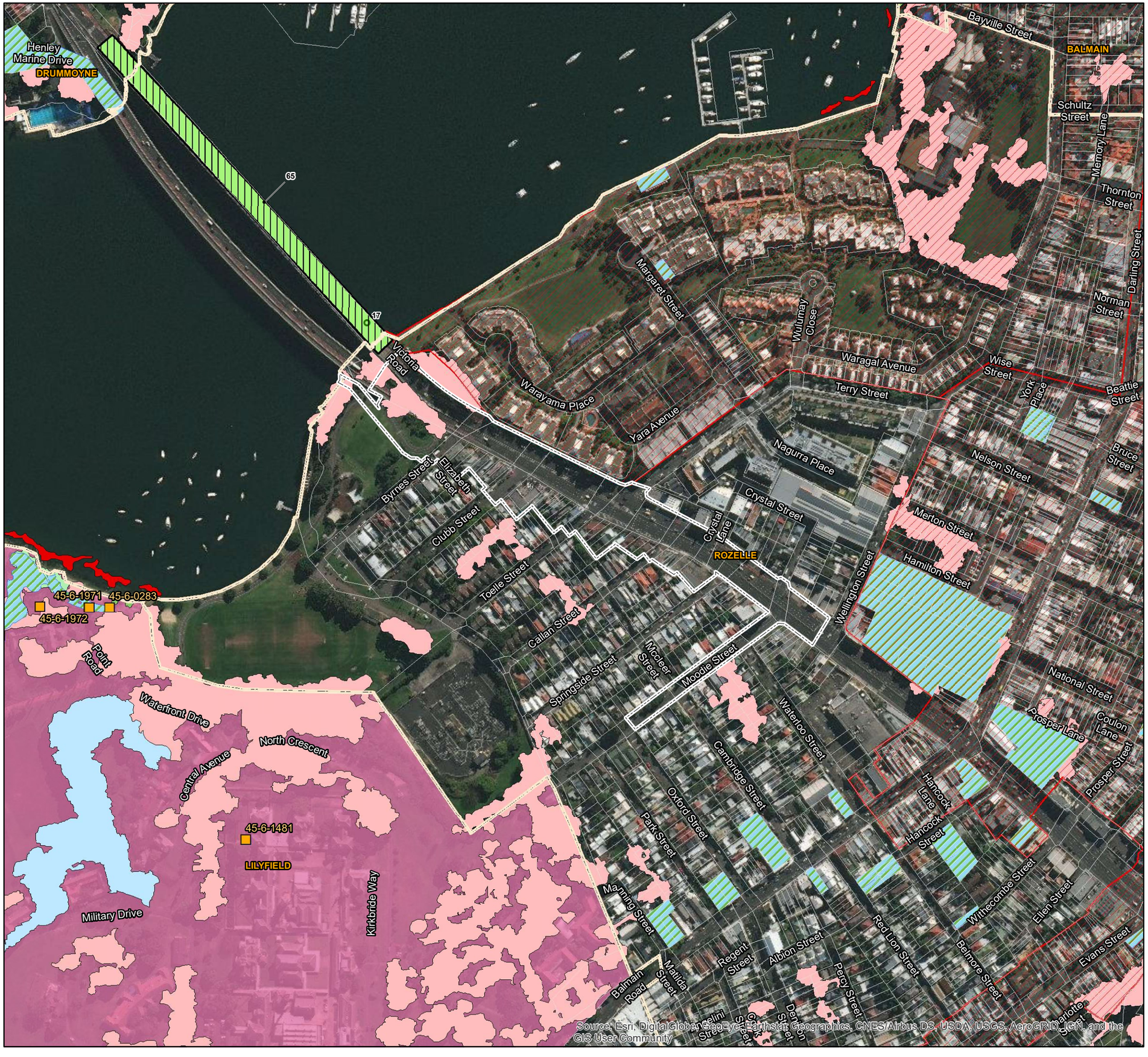
Comments: .....

..... Date: ..... Forward by Email

Customers of Transport Shared Services are reminded of their responsibility in terms of the compliance and audit requirements for digital signatures. Transport Shared Services does not accept responsibility for this obligation and customers are advised to check the status of digital signatures with their organisation prior to proceeding.

Annexure F Sensitive Area Maps

Rozelle Interchange
Iron Cove Sensitive Area Plan



Legend

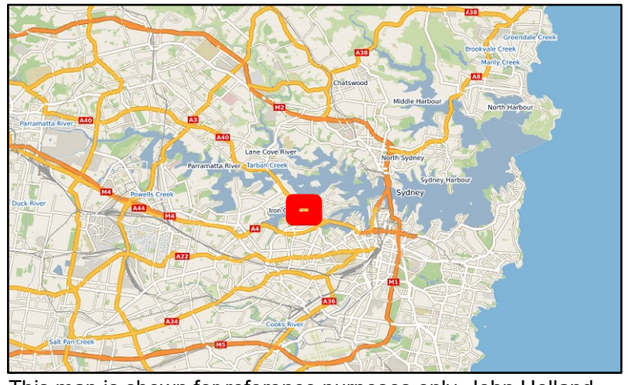
- Current Construction Footprint
- Railway
- Road Label
- Lot Labels
- Road Corridor
- Suburb
- Registered AHIMS site
- SREP 26 Heritage Register - Item (DPE, 1997/09/23)
- S170 RTA Item (RMS, 2016/01/27)
- S170 RTA Item (RMS, 2016/01/27)
- S170 RailCorp item (TfNSW, 2016/04/07)
- S170 Sydney Water (SW, 2016/06/30)
- Conservation Area - General
- Conservation Area - Aboriginal
- Conservation Area - Landscape
- Item - General
- Item - Aboriginal
- Item - Archaeological
- Item - Landscape

Sydney Metro Native Vegetation

- Artificial Wetland
- Castlereagh Ironbark Forest
- Castlereagh Shale-Gravel Transition Forest
- Cleared
- Coastal Enriched Sandstone Dry Forest
- Coastal Sandstone Foreshores Forest
- Coastal Headland Banksia Heath
- Coastal Sandstone Heath-Mallee
- Coastal Sandstone Gallery Rainforest
- Estuarine Mangrove Forest
- Estuarine Reedland
- Estuarine Saltmarsh
- Estuarine Swamp Oak Forest
- Plantation (native and/or exotic)
- Seagrass Meadows
- Sydney Foreshores Shale Forest
- Sydney Turpentine-Ironbark Forest
- Rock
- Undifferentiated Regenerating Shrubs
- Urban Exotic/Native
- Water
- Weeds and Exotics
- State Heritage Curtilage

Kilometers
0 0.05 0.1 0.2 0.3 0.4

1:4,500 @ A3



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Rozelle Interchange
Rozelle Rail Yards Sensitive Area Plan

BALMAIN
BALMAIN
45-6-1481
ROZELLE
11
3
2
6
ROZELLE BAY
SLR STOP
LILYFIELD
45-6-2278
LILYFIELD
SLR STOP
12
ANNANDALE
GLEBE
JUBILEE PARK
SLR STOP
FOREST LODGE
LEICHHARDT
LEICHHARDT

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Railway Station
- Current Construction Footprint
- Railway
- Conservation Area - General
- Conservation Area - Aboriginal
- Conservation Area - Landscape
- Item - General
- Item - Aboriginal
- Item - Archaeological
- Item - Landscape
- Lot Labels
- Suburb
- Registered AHIMS site
- SREP 26 Heritage Register - Item (DPE, 1997/09/23)
- S170 RTA Item (RMS, 2016/01/27)
- S170 RTA Item (RMS, 2016/01/27)
- S170 RailCorp item (TfNSW, 2016/04/07)
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- Sydney Turpentine-Ironbark Forest
- Rock
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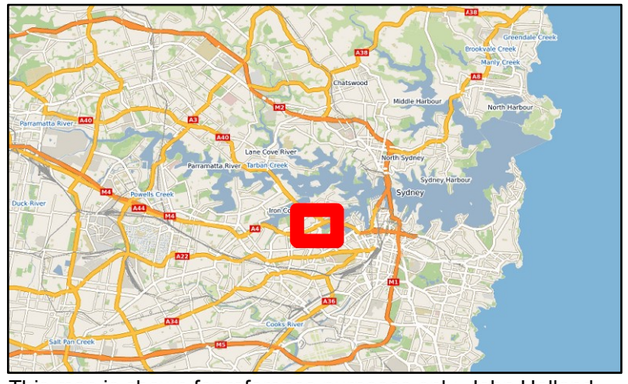
- Urban Exotic/Native
- Water
- Weeds and Exotics
- State Heritage Curtilage

Kilometers
0 0.075 0.15 0.3 0.45 0.6

1:8,000 @ A3



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Rozelle Interchange
Rozelle Rail Yards Sensitive Area Plan

Legend

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- Conservation Area - Aboriginal
- Conservation Area - Landscape
- Item - General
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- Item - Archaeological
- Item - Landscape
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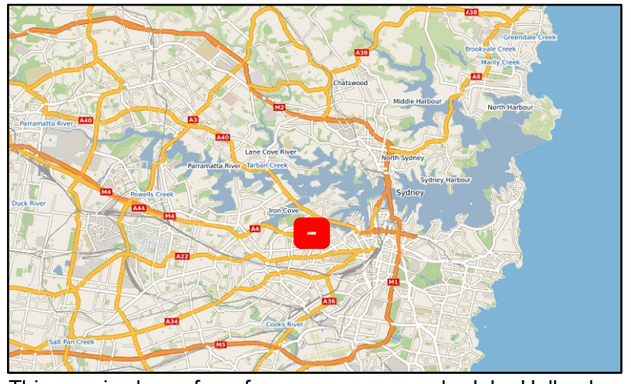
- Undifferentiated Regenerating Shrubs
- Urban Exotic/Native
- Water
- Weeds and Exotics
- State Heritage Curtilage
- BestImageryDates

Kilometers

0 0.05 0.1 0.2 0.3 0.4

1:4,500 @ A3



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Rozelle Interchange
Sensitive Area Plan

LEICHHARDT NORTH SLR STOP

LILYFIELD SLR STOP

Legend

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- Conservation Area - Aboriginal
- Conservation Area - Landscape
- Item - General
- Item - Aboriginal
- Item - Archaeological
- Item - Landscape
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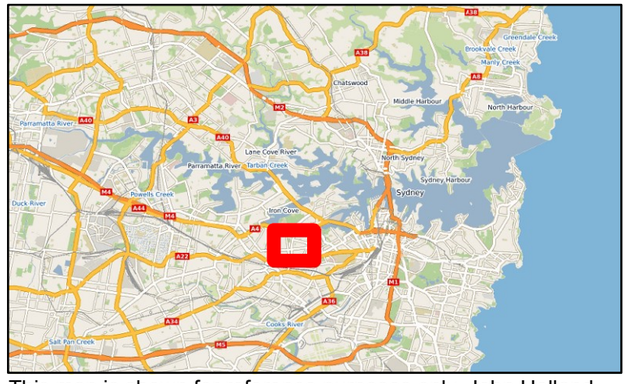

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