Pre-Construction Minor Works Approval Form

Minor Works are defined as any low impact activities that are undertaken prior to the commencement of 'construction' as defined in the project's applicable planning approval. However if Minor Works affect or potentially affect heritage items, threatened species, populations or endangered ecological communities, these works are defined as 'construction' unless otherwise determined by the applicable planning authority.

Minor Works approvals do not remove any obligation to comply with the project's applicable planning approval conditions (including requirements prior to 'any works' commencing) or obtain any other applicable permits, licenses or approvals as necessary.

This application and all supporting information must be submitted to TfNSW/the Environmental Representative as one (1) PDF file at least 10 business days prior to the commencement of the proposed Minor Works.

Part 1: Application	
Contractor:	John Holland & Laing O'Rourke joint venture (JHLOR)
Project:	Sydenham Station and Junction – Tranche 1B/1C
Application Title: (e.g. Smith St trenching works)	General Non-invasive Works within Archaeological Management Zones
Application Number:	SSJT1B-PCMW-013 Doc Number: SMCSWSSJ-JHL-WEC-EM-REC-000010
Application Date:	Rev00 – 9 May 2019 Rev01 – 24 May 2019 Rev02 – 11 May 2019
Planning Approval:	Sydney Metro City and Southwest – Sydenham to Bankstown – Environmental Impact Statement (EIS) Sydney Metro City and Southwest – Sydenham to Bankstown – Submissions and Preferred Infrastructure Report (SPIR) Sydney Metro City and Southwest Infrastructure Approval SSI-8256
Minor Works Categories: • Highlight as applicable. • If Items 4, 8 or 11 are applicable, this form must be endorsed by an Environmental Representative.	1. Survey, survey facilitation and investigations works (including road and building dilapidation survey works, drilling and excavation). 2. Treatment of contaminated sites. 3. Establishment of ancillary facilities (excluding demolition), including construction of ancillary facility access roads and providing facility utilities. 4. Operation of ancillary facilities that have minimal impact on the environment and community. 5. Minor clearing and relocation of vegetation (including native). 6. Installation of mitigation measures, including erosion and sediment controls, temporary exclusion fencing for sensitive areas and acoustic treatments. 7. Property acquisition adjustment works, including installation of property fencing and utility relocation and adjustments to properties. 8. Utility relocation and connections. 9. Maintenance of existing buildings and structures. 10. Archaeological testing under the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010) or archaeological monitoring undertaken in association with other Minor Works to ensure there is no impact on heritage items. 11. Any other activities that have minimal environmental impact, including construction of minor access roads, temporary relocation of pedestrian and cycle paths and the provision of property access.
Planning Authority Determination: Will the proposed works affect or	*If 'Yes', this completed form must be endorsed by an Environmental Representative, approved by TfNSW and submitted to the applicable planning authority to determine that the works are not defined as 'construction'.*

have the potential to affect heritage items, threatened species, populations or endangered ecological communities?	No – it is anticipated that there will be no impacts associated with the works that will affect State Heritage listed items, areas of known or expected archaeological potential, threatened species, populations or endangered ecological communities. In addition, JHLOR will implement the *Sydney Metro Unexpected Finds Procedure* V1.4 throughout the investigation works.

Part 2: Details

Describe the proposed Minor Works:

Including work methodologies, site location(s) and site description(s) (e.g. landscape type, waterways, etc.).

Site Description Overview

This overview is based on information from the Environmental Impact Statement (EIS) and Submissions and Preferred Infrastructure Report (SPIR).

The Project area is within the rail corridor of the T3 Bankstown Line and is comprised of stations, overbridges, overhead wiring structures, track, services and ballast, extending from Sydenham Station to Bankstown Station. Within the Project area, non-invasive works are proposed within the rail corridor between Sydenham and Bankstown Stations (including archaeological investigation/archaeological monitoring areas at Marrickville, Canterbury, Belmore and Lakemba Stations as shown within the Sydenham to Bankstown Submissions and Preferred Infrastructure Report – Appendix I – Archaeological Assessment and Research Design Report) – (the AARD).

T3 Bankstown Line Sydenham Station to Bankstown Station

The T3 line runs adjacent to a number of land zoning types between Sydenham Station and Bankstown Station including industrial, business and community, infrastructure, residential and recreational. These works are located within four Archaeological Management Zones (AMZs), centred around four stations on the T3 Bankstown line;

- Marrickville
- Canterbury
- Belmore
- Lakemba

Roads cross the T3 line in a number of places, both by overbridges and underpasses. A number of footbridges also cross the T3 line along the length of its alignment. The T3 Line crosses the Cooks River in one location between Sydenham and Bankstown. Other local waterways such as channels, culverts and stormwater systems are present along the alignment.

The majority of vegetation in the survey area comprises exotic or planted native species on highly modified landforms. A number of Threatened Plant Communities, threatened plant species and habitat trees are within the rail corridor and project area. These areas are included in Appendix 1 where they relate to the works described in this PCMW.

Marrickville

Marrickville station is located east of the Illawarra Road Overbridge. The station area is bound to the north by a multi-storey residential apartment building, located on the corner of Illawarra Road and Byrnes Street, to the south of Station Street and residential dwellings fronting Leofrene Avenue, and to the west by Illawarra Road.

Marrickville Railway Station Group is listed on the State Heritage Register (SHR) (01342), Marrickville Local Environment Plan (LEP) (I89) and RailCorp s.170 NSW State agency heritage register (4801100).

Marrickville Station is located on the edge of Marrickville town centre which includes a wide variety of commercial and retail premises. Marrickville town centre is surrounded by a variety of housing, including detached and attached dwellings, and apartment buildings.

Canterbury

Canterbury Station is located to the north-west of the Canterbury Road overbridge. The station area is bounded by Broughton Street to the north, a large mixed used development fronting Charles Street to the south, and Canterbury Road to the east. The station entrance is on Canterbury Road.

Canterbury Railway Station Group is listed on the State Heritage Register (SHR) (01109), Canterbury LEP (I67) and RailCorp s.170 NSW State agency heritage register (4801100)

Traditional commercial land uses are located to the north-east of the station, along Canterbury Road and Jeffrey Street. Residential land uses are located to the north, east and south of the station. A number of multi-storey residential and mixed use apartment buildings are being constructed in the area.

Belmore Station:

Belmore Station is located to the east of the Burwood Road overbridge. To the north and south, the station area is bounded by commuter car parks fronting Redman Parade and

Tobruk Avenue respectively.

Properties surrounding Lakemba Station (i.e. within 200m) include residential, commercial and recreational.

Belmore Railway Station Group is listed on the State Heritage Register (SHR) (01081), Canterbury Local Environment Plan (LEP) 2012 (I11) and RailCorp s.170 Heritage and Conservation Register (4801084).

Vegetation on the site is highly modified and comprises exotic or planted native species.

Lakemba Station:

Lakemba Station is located about 60 metres to the west of the Haldon Street overbridge. The station area is bounded by Railway Parade to the north and The Boulevarde to the south. Access to the station is provided off Railway Parade and The Boulevarde.

Properties surrounding Lakemba Station (i.e. within 200m) include residential, commercial, recreational and educational.

Lakemba Railway Station Group is listed on Canterbury LEP 2012 (I143) and RailCorp S.170 Heritage and Conservation Register (4801916).

Vegetation on the site is highly modified and comprises exotic or planted native species.

Description of Works

This PCMW relates to non-invasive works within the Marrickville, Canterbury, Belmore and Lakemba Archaeological Management Zones as described within the AARD. Refer to Appendix 1 for the extent of the AMZs.

JHLOR's Heritage Consultant has assessed the below activities and has deemed that they are appropriate to carry out under Pre-Construction Minor Works where the appropriate mitigation measures are applied. Refer to Appendix 4 for the Heritage Consultant advice.

These works are required to prepare the Project site for Construction works. A number of activities will be undertaken as part of these works. These activities are described below.

Laydown

To support the above activities a number of laydown areas within the AMZs will be utilised. The laydowns will be used to store materials such as temporary galvanised steel trough, ground level trough, pits, pipes, fence components, Vortok fencing, erosion and sediment control materials, etc.

Laydown will not occur within the State Heritage Curtilage Registers of Marrickville Railway Station Group, Canterbury Railway Station Group or Belmore Railway Station Group.

Plant and equipment may also be parked within laydown areas as required.

Storage of material will be ongoing in these areas however access to the area will only occur during standard construction hours unless otherwise approved within an OOHW Approval.

It is noted that selected laydown locations are pre-approved as compound/work-sites within the SPIR. As such, they have been assessed to be suitable locations for laydown.

Laydown locations are included within Appendix 1.

Stockpiling

Stockpiling of waste and quarry material will occur within the AMZs in accordance with the mitigation measures outlined within the Risk Assessment in Appendix 1 and the Heritage Consultant Advice in Appendix 4.

Stockpiling will not occur within the State Heritage Curtilage Registers of Marrickville Railway Station Group, Canterbury Railway Station Group or Belmore Railway Station Group.

Stockpiles will be covered to mitigate the risk of erosion. Excavators and front end loaders may be used to move and work stockpiles. Trucks and tippers will be used for transporting spoil to and from the stockpiling areas.

Stockpiling will occur within laydown areas as shown within Appendix 1.

Temporary Fencing and Vortok Fencing

Temporary fencing, water filled barriers and jersey kerb will be installed within the AMZs to delineate work-sites. These materials will be removed at the end of the project.

Vortok fencing will be installed within the rail corridor to separate the rail from any working areas within the cess. A small truck will be used to transport fencing panels and related components. These materials will be removed at the end of the project.

A small truck will be used to deliver fencing panels and barriers. A Telehandler or multi-crane may be used to lift the different components into position.

Non-invasive clearing

Whipper snippers and saws will be used to remove grasses, weeds and shrubs in preparation for investigative works. Disturbance to the ground surface by using the whipper snipper will be strictly avoided.

A JHLOR Vegetation Removal and Clearing Permit will be completed prior to any clearing.

It is noted that a qualified ecologist will undertake pre-clearing inspections in accordance with REMM B2. An ecologist would also be present during the clearing of native vegetation or removal of potential fauna habitat in accordance with REMM B6.

This activity does not include the removal of any threatened species, population or endangered ecological community including but not limited to;

- Turpentine - Grey Ironbark open forest on shale
- Broad-leaved Ironbark - Grey Box
- Degraded Turpentine - Grey Ironbark open forest on shale

Areas of clearing are shown in Appendix 1.

High Voltage Power Pole Refurbishment

Refurbishment works will occur to a power pole within the Canterbury AMZ. The refurbishment works include adjustments to the components on the cross bar of the power pole. The works are being undertaken to allow the HV feed to be isolated and for the wire to be removed between Canterbury and Campsie in preparation for retaining wall works.

An Elevated Work Platform will be used within the Canterbury AMZ laydown area. Hand tools will be used to adjust the crossbar components. Plant use within laydown areas is address within the Heritage Consultant Advice within Appendix 4.

The location of the power pole is included within Appendix 1.

Plant List

Plant and equipment anticipated to be used during the investigative works include:

- Excavators (5t-13t)
- Front end loader
- Site utes
- 2t tipper
- Portable lighting towers
- 13t Bogie Trucks or dump trucks
- Hand tools
- Elevated Work Platform
- Hi-rail Elevated Work Platform
- Multi-crane
- Telehandler
- Hiab
- Water cart/trailer
- Whipper snipper/brush cutter
- Saws

Working Hours

The majority of these works would occur during standard construction hours as identified within the planning approval. Any works to occur outside of standard construction hours would occur under an Out of Hours Work Approval in accordance with the Sydney Metro City & Southwest Out of Hours Work Protocol.

General Notes

All plant would access site via existing Sydney Trains access gates.

The above list does not include activities approved under any other Pre-construction Minor Works Approval form. Any works undertaken outside of standard construction hours will be accounted for within a single OOHW assessment for all OOHW to occur within the same period, as such, noise modelling will be undertaken holistically. There are no other known cumulative impacts with works under other current or planned PCMW.

JHLOR is responsible for the actions of its employees, workers and subcontractors. JHLOR is not responsible for the actions of other parties including but not limited to

	Sydney Trains and utility owners.
Planned Commencement Date:	Works will commence on the 30th of May 2019. Some components of the works, such as fencing may remain for the duration of the Project (i.e. until March 2020) or beyond as agreed with Sydney Metro.
Local Sensitivities: Describe the presence (if any) of local sensitive environmental areas and community receptors	<u>T3 Line between Sydenham Station and Bankstown Station</u> • There are a number of residential properties located within close proximity to the work locations as can be seen within Appendix 1. Due to the proximity of these receivers to the works, these properties may be sensitive to excessive noise, particularly during OOHW. Any potential impacts to these properties will be managed in accordance with the Construction Noise and Vibration Strategy, including relevant notifications. There are no vibratory activities associated with the works. Noise and vibration will also be managed in accordance with the following criteria; o Construction 'Noise affected' noise management levels established using the Interim Construction Noise Guideline (DECC, 2009); o Vibration criteria established using the Assessing vibration: a technical guideline (DEC, 2006) (for human exposure); o (BS 7385 Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2" as they are "applicable to Australian conditions"; and o The vibration limits set out in the German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures (for structural damage). • Preliminary environmental site assessment identified the potential risk of contamination within the investigation area, with potential contamination sources being historical rail activities, and commercial and residential land use in surrounding areas. Potential contaminants identified in low to medium risk areas included: o Asbestos o Hydrocarbons o Heavy metals o Herbicides. Works are non-invasive and therefore risks associated with the disturbance of contamination are negligible. Workers will report any finds in accordance with the JHLOR unexpected finds procedure for contamination. • One medium to high risk area of contamination was identified between Sydenham and Marrickville Stations, originating from a property adjacent to the rail corridor at 361 Victoria Road, Marrickville. Potential contaminants include; o Asbestos o Petroleum aromatic hydrocarbons in groundwater Works are non-invasive and therefore risks associated with the disturbance of contamination are negligible. Workers will report any finds in accordance with the JHLOR unexpected finds procedure for contamination. • One medium to high risk area of contamination was identified between Campsie and Belmore stations (triangular area within the rail corridor). This contamination is associated with historical railway activities and historical commercial and residential land use. Potential contaminants include; o Arsenic in ballast o Asbestos o Hydrocarbons (including chlorinated hydrocarbons in fill) o Heavy metals (including in groundwater) o Herbicides Works are non-invasive and therefore risks associated with the disturbance of contamination are negligible. Workers will report any finds in accordance with the JHLOR unexpected finds procedure for contamination. • Works will occur within archaeological investigation zones as defined in the AARD and within SHR curtilages. These works are considered negligible as per the advice provided by the Heritage Consultant in Appendix 4. All measures as stated within Appendix 4 and the Risk Assessment in Appendix 1 will be put in place for the duration of the works. The works will operate under the Sydney Metro Unexpected Finds Procedure. • Two areas that potentially contain aboriginal archaeology, known as PADs (Potential Archaeological Deposit) are located within the EIS study area. PAD01 is located outside the Project boundary at Belmore. PAD02 is located within the Project boundary at Punchbowl. No works will occur in these areas. • A number of areas of Endangered Ecological Community (EEC) under the TSC Act

	have been identified within the vicinity of the work zone. These areas are shown in Appendix 1, only as they relate to the scope of this PCMW. No works will occur within the EEC areas. Appropriate delineation and signage will be in place. • A number of patches of the threatened plant species Acacia Pubescens are located within the rail corridor on the country side of Punchbowl Station. These areas have been excluded from the project footprint and are shown in Appendix 1. Downy Wattle (Acacia pubescens) is listed as vulnerable under the EPBC Act and TSC Act. The EIS states "*The patches of stems recorded are located mainly in the vicinity of Punchbowl Station, with around two stems recorded in the rail corridor, and one stem in a Council reserve around 100 metres east of the Yagoona substation. The project has been designed to avoid impacting on the recorded locations of this species*." Works, including trimming or removal of vegetation, will not occur within these areas. • A number of habitat features are present within the work area including; o Hollow bearing trees o Habitat for Grey-headed flying-fox o Habitat for Australian Ibis roosting Works, including trimming or removal of vegetation, will not occur within these areas. • Localised erosion and sediment controls will be in place at all locations where materials associated with the works may leave the corridor, including via stormwater drainage. Any sediment controls put in place within archaeological management zones will be installed under PCMW-007. • A visual assessment of any vegetation to be cleared will be undertaken as part of the JHLOR Vegetation Removal and Trimming Approval • Lighting towers will be pointed away from receivers to minimise light spill impacts. • No roadways or footpaths will be blocked as part of the works.

Part 3: Environmental Risk Assessment and Management

Prepare an Environmental Risk Assessment (in accordance with the *Sydney Metro Risk Management Standard*) and an Environmental Control Map for the proposed Minor Works and attach as Appendix 1.

If an Environmental Risk Assessment and/or an Environmental Control Map for the proposed Minor Works is/are already contained in existing documentation, attach the relevant section(s) as Appendix 1.

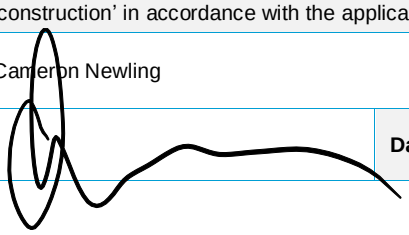
Documentation: List any existing documents (including those referenced above) that the proposed Minor Works will be undertaken in accordance with and attach as Appendix 2 (e.g. plans, procedures, procedures, etc.).	An Environmental Risk Assessment and an ECM for the proposed works are included in Appendix 1. JHLOR's unexpected finds procedure for contamination and acid sulphate soil is included in Appendix 2. Heritage Consultant advice for the works to occur within the AMZs in included in Appendix 4.

Part 4: Workforce Notification

How will the environmental and community risks and associated mitigation measures of the proposed Minor Works be communicated to the contractor's workforce?	A site induction will be provided to all personnel working on the project site. The induction will include relevant environmental aspects and risks associated with works on the project site. Works will be undertaken in accordance with a SWMS or JSEA (depending on whether work meets the definition of High Risk Construction Works in accordance with Clause 291 WHS Regulation). SWMS will be reviewed by the JHLOR Environmental Manager.

Part 5: Community Consultation	
What community consultation has been undertaken already?	General works described within this application are included in the June 2019 Monthly Community Notifications. Consultation will be carried out in conjunction with Sydney Metro's Community Communication Strategy, prior to any works being undertaken.
What community consultation is planned to be undertaken?	The works will be included within subsequent monthly notifications and additional targeted notification as required. Any works to occur outside of standard construction hours will be notified in accordance with the Additional Mitigation Measure requirements specified in the Sydney Metro Construction Noise and Vibration Strategy. The community and stakeholders will be advised of new activities or impacts no later than 7 days prior to commencement as per the project Community Communications Strategy.
If drafted already, attach applicable Community Notification as Appendix 3.	

Part 6: Contact Details					
Nominate contractor's project manager, environmental and communications contact(s).					
Name:	Neil Ivison	**Position:**	Project Director	**Phone:**	0458 288 625
	Cameron Newling		Environmental Manager		0419 727 445
	Loretta Mihaljek		Communication and Stakeholder Manager		0412 129 064

Part 7: Signature			
This signature acknowledges that the proposed Minor Works will be undertaken in accordance with this application, have minimal environmental impact and are not defined as 'construction' in accordance with the applicable planning approval.			
Name:	Cameron Newling		
Signature:		**Date:**	11/06/2019

Determination Page

(TfNSW/Environmental Representative Use Only)

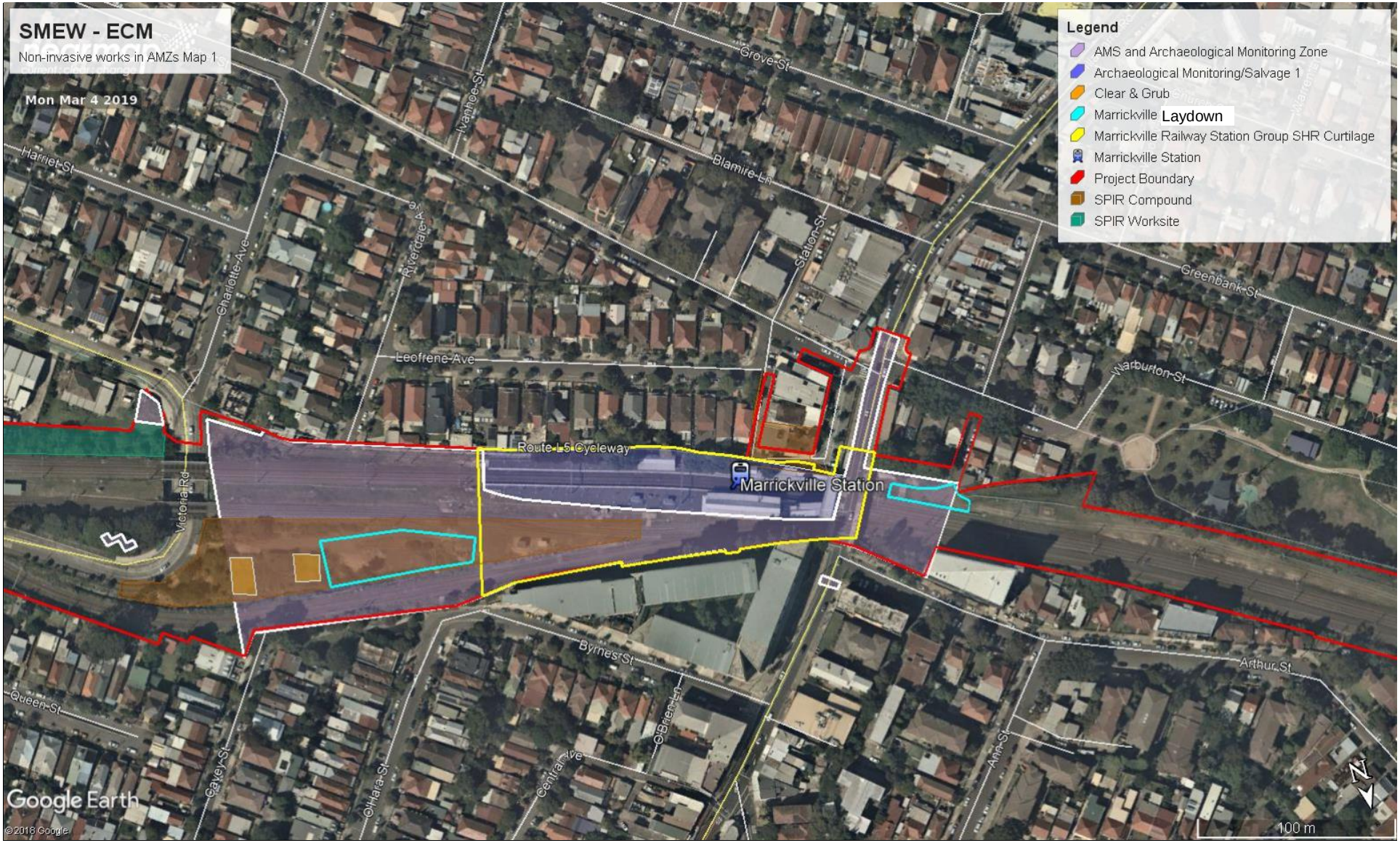
12. Endorsement/Approval

These signatures represent formal endorsement/approval for the proposed Minor Works to commence in accordance with this application and the applicable planning approval requirements (subject to any determination from the applicable planning authority as may be required by the planning approval conditions).

	TfNSW Principal Manager, Communication & Engagement – Endorsement (required for all applications)	TfNSW Principal Manager, Sustainability, Environment & Planning – Approval (required for all applications)	Environmental Representative – Endorsement (required as necessary in accordance with the applicable planning approval, optional for all other circumstances)
Signature:			
Name:	May Li Foong	FIL CERONE	Jo Robertson
Date:	11/6/19	13/6/19.	12/6/19
Comments:			*Supporting letter attached as Appendix 5 if necessary.*
Conditions:			*Supporting letter attached as Appendix 5 if necessary.*

☑	Approved (by TfNSW)
☐	Endorsed (by Environmental Representative)
☐	Rejected

Appendix 1: Work area, Environmental Risk Assessment and Environmental Control Map


SMEW - ECM
Non-invasive works in AMZs Map 1
Mon Mar 4 2019
Legend
AMS and Archaeological Monitoring Zone
Archaeological Monitoring/Salvage 1
Clear & Grub
Marrickville Laydown
Marrickville Railway Station Group SHR Curtilage
Marrickville Station
Project Boundary
SPIR Compound
SPIR Worksite
Grove St
Ivanhoe St
Harriet St
Blamire Ln
Riverdale Ave
Charlotte Ave
Station St
Greenbank St
Leofrene Ave
Warburton St
Route L5 Cycleway
Marrickville Station
Victoria Rd
Byrnes St
Arthur St
Queen St
Cavey St
O'Hara St
Central Ave
O'Brien Ln
Ann St
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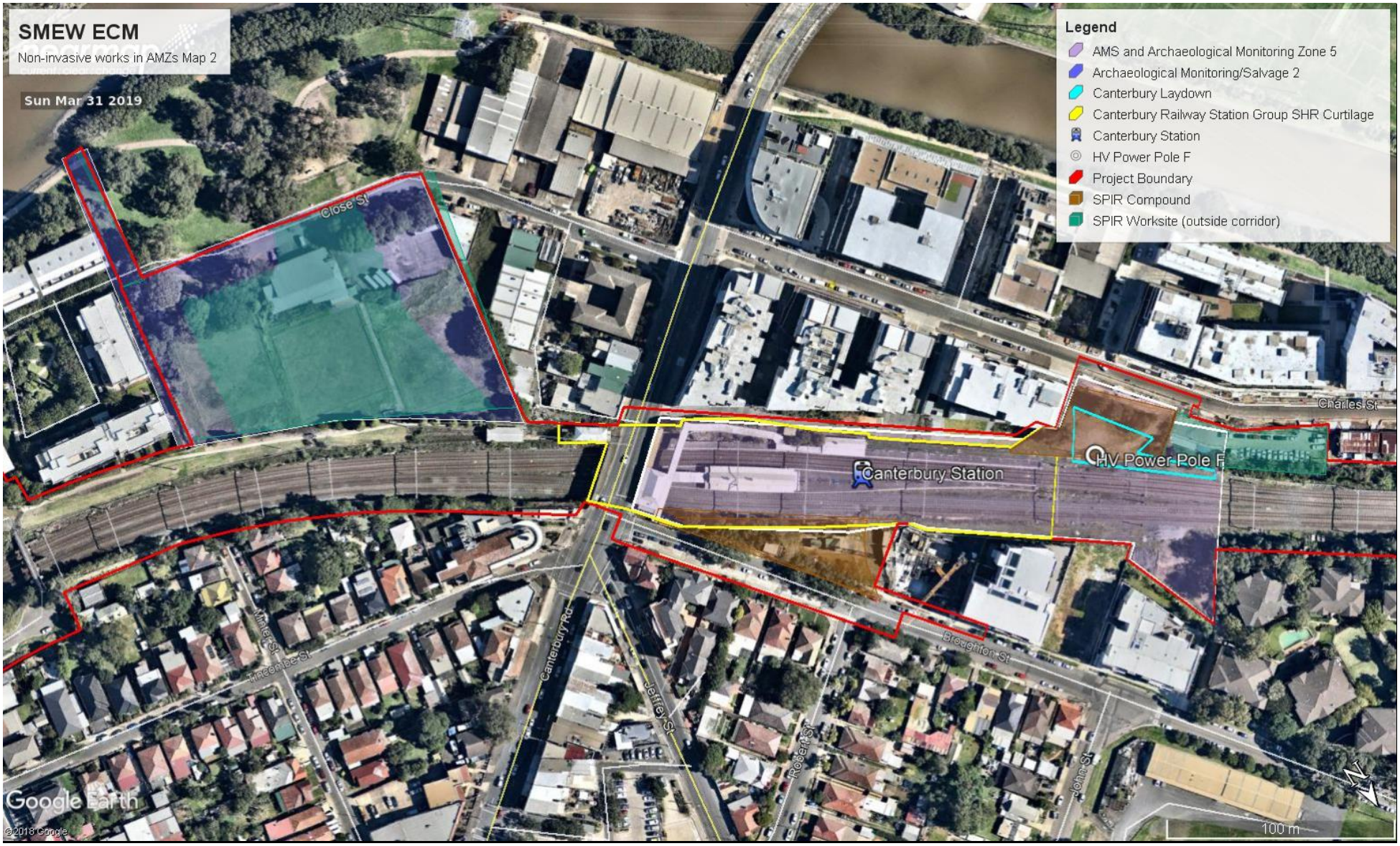
SMEW ECM
Non-invasive works in AMZs Map 2
Sun Mar 31 2019
Legend
AMS and Archaeological Monitoring Zone 5
Archaeological Monitoring/Salvage 2
Canterbury Laydown
Canterbury Railway Station Group SHR Curtilage
Canterbury Station
HV Power Pole F
Project Boundary
SPIR Compound
SPIR Worksite (outside corridor)
Close St
Charles St
Canterbury Station
HV Power Pole F
Miller St
Trecombe St
Canterbury Rd
Jeffrey St
Robert St
Broughton St
John St
Google Earth
©2018 Google
100 m


SMEW - ECM
Non-invasive works in AMZs Map 3
Sun Mar 31 2019
Legend
AMS and Archaeological Monitoring Zone
Belmore Laydown
Belmore Railway Station Group SHR Curtilage
Belmore Station
PAD01 - Belmore
Project Boundary
SPIR Compound
Belmore Station
Bridge Rd
Railway Parade
Redman Parade
Burwood Rd
Wortley Ave
Paragon Ln
Gladstone St
Acacia St
Isabel St
Salisbury St
Cecilia St
Etela St
Redman Ln
St Clair Street
Station Rd
Cleary Ln
Cleary Ave
Dean Ave
Rachel Ln
Belmore Ave
Oxford St
Google Earth
©2018 Google
100 m
N


SMEW - ECM
Non-invasive works in AMZs Map 4
Sun Mar 31 2019
Legend
AMS and Archaeological Monitoring Zone 7
Lakemba Laydown
Lakemba Station
Project Boundary
SPIR Compound
SPIR Worksite
Oneata Ln
Croydon St
Browning Ave
Haldon St
The Blvd
Lakemba Station
Railway Parade
Haldon St N
Croydon Ln
Google Earth
©2018 Google
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Environmental Risk Assessment

The Risk Assessment has been undertaken in accordance with the requirements of the *Sydney Metro Risk Management Standard*.

Note; **C** = Consequence & **L** = Likelihood as per *Sydney Metro Risk Management System – Appendix A Sydney Metro Risk Matrix*

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		C x	L =	Risk		C x	L =	Risk
General Non-Invasive Works within Archaeological Management Zones								

Items of heritage significance uncovered during works	Damage to heritage items or archaeological deposits.	**C3**	**L5**	**Med**	• Induction to include heritage management requirements.
					• No works to occur within the curtilage of State Heritage Register listed items under this PCMW.
					• No invasive works to occur within the Archaeological Investigation Zones as specified within the AARD under this PCMW.
					• All measures within the Heritage Consultants advice in Appendix 4 are to be followed
					• No works to occur in PADs.
					• Implement Sydney Metro Unexpected Finds Procedure V1.4 during works.
					• If suspected materials are found, workers are to;
					  ○ Stop works in vicinity immediately
					  ○ Inform the Superintendent and Environmental Manager
					  ○ Delineate the area to prevent further access, where possible
						C3	**L6**	**Low**

Noise from plant and people	Noise from plant impacting on sensitive receivers. Noise impacts outside standard construction hours.	**C5**	**L3**	**Med**	• Induction to include noise mitigation and “good neighbour” approach. • Distance between noisy plant items and nearby noise sensitive receivers would be maximised and equipment orientated where possible to reduce noise. • Where possible, night works should be programmed to undertake noisy activities prior to 10pm. • All power driven work equipment used would have efficient muffler design and be well maintained. • Mitigation measures to be implemented in accordance with the TfNSW Construction Noise Strategy, including appropriate notification.	**C5**	**L5**	**Low**

Chemical handling and storage	Poor storage and handling of chemicals causes spills	**C5**	**L4**	**Low**	• Any chemicals and fuels are to be stored within a bunded area with 110% of the capacity of the largest stored container. • Refuelling to occur more than 20m away from drainage lines or Cooks River. • Spill kits to be located at work fronts. • Site induction includes spill response awareness.	**C5**	**L5**	**Low**
Erosion and sediment controls	Sediment laden runoff from access tracks, cleared vegetation or stockpiled material	**C4**	**L4**	**Med**	• Induction to include ERSED protection measures. • Produce an ESCP for relevant sites as activities progress.	**C4**	**L5**	**Low**
Water Management	Discharge of water that does not meet water quality parameters	**C4**	**L4**	**Med**	• Introduction to include water discharge requirements • A discharge permit is to be signed-off by the Environmental Manager (or delegate) prior to any discharge in accordance with the Sydney Metro *Water Discharge and Reuse Procedure SM ES-PW-309*	**C4**	**L5**	**Low**
Waste	Incorrect disposal of spoil waste Acid sulphate soils Contamination	**C3**	**L5**	**Med**	• Induction to include waste management practices. • Waste to be tested in accordance with the Waste Classification Guidelines (NSW EPA, 2014) prior to disposal. • The waste must be lawfully transported and disposed of to a licenced facility. • Unexpected Contamination Finds procedure to be enacted where contamination is found during investigation works. • An occupational hygienist is to be on call to provide advice on management of any contaminated material (advice based on contamination type).	**C3**	**L6**	**Low**
Air quality	Dust generation during excavation and stockpiling Dust from access track use, maintenance or establishment	**C4**	**L4**	**Med**	• Induction to include air quality management practices. • Water cart or water trailer to be present to wet down material. • Monitor conditions and modify works where dusty conditions are observed.	**C4**	**L5**	**Low**
Vegetation	Removal or pruning of vegetation without approval Damage to vegetation within EEC area	**C4**	**L4**	**Med**	• Induction to include biodiversity requirements – no removal or pruning of any plants will occur under this PCMW. • Tree protection zones would be established in areas where works will occur adjacent to trees.	**C4**	**L5**	**Low**

Traffic and Pedestrians	Disruption to road users and pedestrians	**C4**	**L4**	**Med**	• Induction to include traffic control requirements • Traffic Control Plans and Road Occupancy Licences to be in place as required to redirect traffic and pedestrians. • Appropriate community notifications to be in place for road occupancy • Parking within rail corridor where possible • Observe time restrictions for parking areas • Prioritise community parking where possible • Maintain pedestrian access	**C4**	**L5**	**Low**
Visual Amenity	Lighting from works impacting occupants of nearby properties Clearing of vegetation impacting on visual amenity of nearby properties	**C4**	**L3**	**Med**	• Lighting towers are to be positioned to minimise any light impacts to nearby properties • A JHLOR vegetation removal and trimming permit will be authorised by the Environmental Manager (or delegate)	**C4**	**L5**	**Low**

Sydney Metro Risk Matrix

A1 Consequence Table

Consequence Table						
Rating	C6	C5	C4	C3	C2	C1
Descriptor/ Impact Area	Insignificant	Minor	Moderate	Major	Severe	Catastrophic
Health and Safety (Injury and Disease)	Illness, first aid or injury not requiring medical treatment.	Illness or minor injuries requiring medical treatment.	Single recoverable lost time injury or illness, alternate/restricted duties injury, or short-term occupational illness.	1-10 major injuries requiring hospitalisation and numerous days lost, or medium-term occupational illness.	Single fatality and/or 10-20 major injuries/permanent disabilities/chronic diseases.	Multiple fatalities and/or >20 major injuries/permanent disabilities/chronic diseases.
Environment	No appreciable changes to environment and/or highly localised event.	Change from normal conditions within environmental regulatory limits and environmental effects are within site boundaries.	Short-term and/or well-contained environmental effects. Minor remedial actions probably required.	Impacts external ecosystem and considerable remediation is required.	Long-term environmental impairment in neighbouring or valued eco . Extensive remediation required.	Irreversible large-scale environmental impact with loss of valued eco .
Customer Experience/ Operational Reliability	Short duration disruptions affecting part of one transport mode.	Minor disruptions affecting several parts of one transport mode.	Serious disruptions affecting operation of one complete transport mode.	Major disruptions affecting operations of one transport mode with network-wide effects on one or more other modes of transport.	Short duration shutdowns or substantial disruptions affecting multiple transport modes with sector-wide cascading effects.	Extensive shutdowns or extended disruptions with economy-wide effects.
Government/ Stakeholder / Public Trust/ Confidence	Negative article in local media. No discernible reaction/apprehension. Goodwill, confidence and trust retained.	Unease – Series of negative articles in local/state media. Confidence remains with some minor loss of goodwill or trust. Recoverable with little effort or cost. Some continuing scrutiny/attention.	Disappointment – Extended negative local/state media coverage. Confidence and trust dented but are quickly recoverable at modest cost within existing budget and resources.	Concern – Short-term negative state/national media coverage. Confidence and trust are diminished but are recoverable with time, staff effort and additional funding.	Displeasure – Extended negative state/national media coverage. Confidence and trust are damaged but recoverable at considerable cost, time and staff effort.	Outrage – Material change in the public perception of the organisation. Confidence and trust are severely damaged, possibly irreparably, and full recovery both questionable and costly.
Regulatory or Legal Breach	Low-level non-compliance with legal and/or regulatory requirement or duty by individuals or TfNSW.	Minor non-compliance with legal and/or regulatory requirement or duty. Investigation and/or report to authority.	Moderate non-compliance. Subject to comment and monitoring from applicable regulator. Small fine and no disruption to services.	Major breach resulting in enforcement action and/or prohibition notices. Substantial fine and no disruption to services.	Substantial breach resulting in prosecution, fines and/or litigation. Licence or accreditation restricted or conditional affecting ability to operate.	Prosecution leading to imprisonment of TfNSW executive. Loss of operating licence.
Management Effort/ Organisational Fatigue	An event, the impact of which can be absorbed as part of normal activity.	An event, the impact of which can be absorbed but some additional management effort is required.	An event, the impact of which can be absorbed but much broader management effort is required.	Major event which can be absorbed, but substantial management effort is required.	Severe event which requires extensive management effort but can be survived.	Catastrophic event with the clear potential to lead to the collapse of the organisation.
Benefit Realisation of Initiative, Program or Project	No time delay with initiative or project but it will incur a slight decrease in the benefits realised.	Minor delay with the initiative and/or a minor decrease in the benefits realised; or minor delay on the project or another project, with no public implications.	Several delays with the initiative and/or moderate decrease in benefits realised; or completion date missed for non-critical path project.	Major delays with the initiative and/or major decrease in benefits realised; or publicly announced portion/milestone missed or final completion date missed with demonstrable mitigating external circumstances.	Severe delays with initiative, which impacts across divisions and/or significant decrease in benefits realised; or publicly announced portion/milestone missed or final completion date missed on critical path project.	Failure to realise benefits of the initiative which adversely affects the enterprise-wide operations of TfNSW; or publicly announced portion/ milestone significantly missed or final completion date significantly missed on critical path project.
Budget, Costs or Revenue	< $100k	$100k – $1m	$1m – $10m	$10m – $50m	$50m – $100m	> $100m

A2 Likelihood Criteria

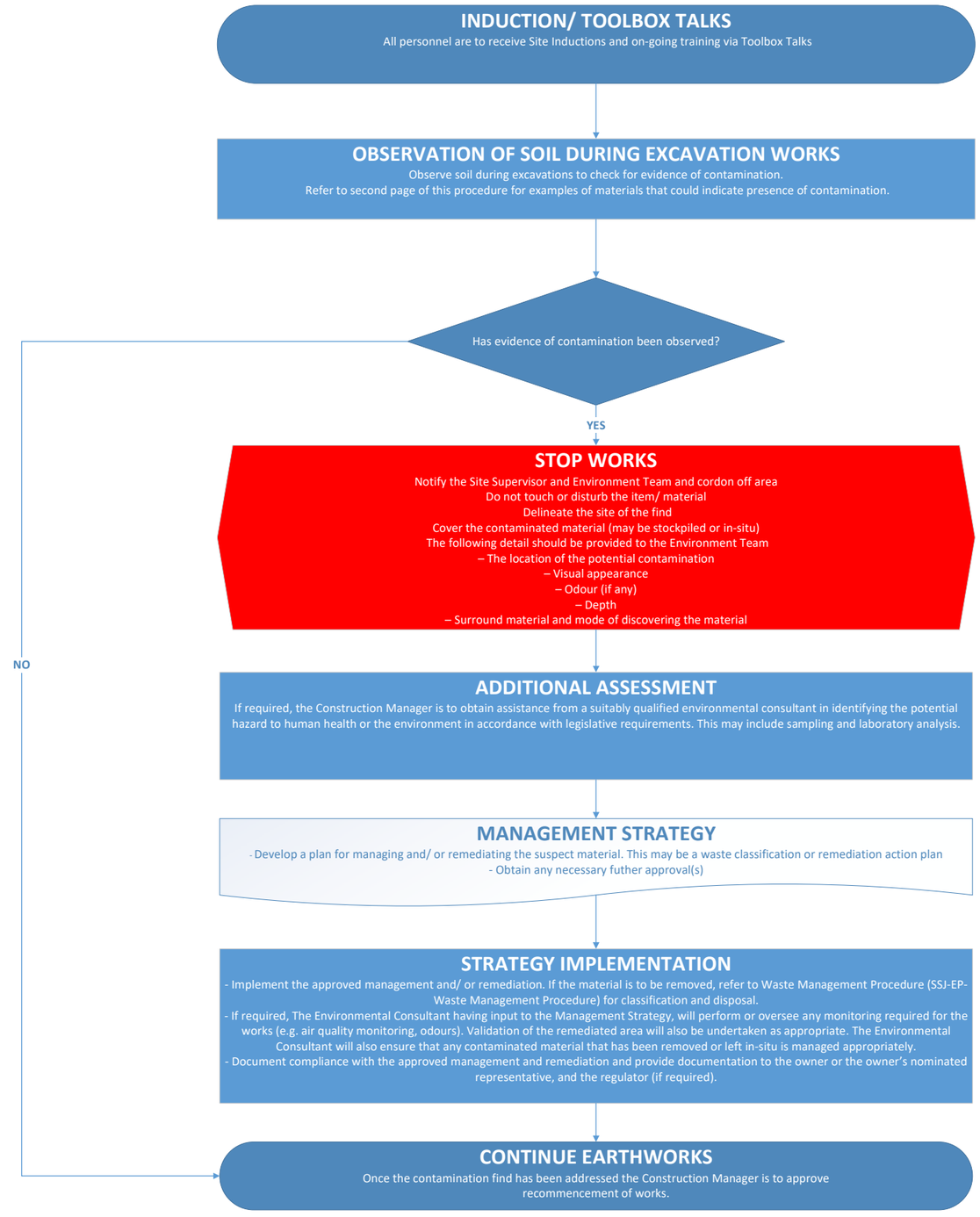
Likelihood						
Rating	**L6**	**L5**	**L4**	**L3**	**L2**	**L1**
Descriptor/ Definition	**Almost Unprecedented**	**Very Unlikely**	**Unlikely**	**Likely**	**Very Likely**	**Almost Certain**
Qualitative Expectation	Not expected to ever occur during time of activity or project	Not expected to occur during the time of activity or project	More likely not to occur than occur during time of activity or project	More likely to occur than not occur during time of activity or project	Expected to occur occasionally during time of activity or project	Expected to occur frequently during time of activity or project
Sydney Metro Probability Analysis	<10%	10-25%	25-50%	50-75%	75-90%	>90%
Quantitative Frequency	Less than once every 100 years	Once every 10 to 100 years	Once every 1 to 10 years	Once each year	1-10 times every year	10 times or more every year

A3 Risk Matrix

Risk Rating: Very High – A – 31-36 High – B – 22-30 Medium – C – 11-21 Low – D – 1-10			CONSEQUENCE					
			Insignificant	Minor	Moderate	Major	Severe	Catastrophic
			C6	C5	C4	C3	C2	C1
LIKELIHOOD	Almost certain	L1	20	22	29	32	34	36
	Very Likely	L2	14	18	23	28	31	35
	Likely	L3	9	12	16	24	27	33
	Unlikely	L4	6	7	11	17	25	30
	Very Unlikely	L5	3	4	8	13	19	26
	Almost Unprecedented	L6	1	2	5	10	15	21

Appendix 2: Environmental Management Documentation

CONTAMINATION AND ACID SULPHATE SOIL UNEXPECTED FINDS PROCEDURE



RESPONSIBILITY

- ENVIRONMENT TEAM
  CONSTRUCTION TEAM
- CONSTRUCTION TEAM
- CONSTRUCTION TEAM
  ENVIRONMENT TEAM
  SITE SUPERVISOR
- CONSTRUCTION MANAGER
  ENVIRONMENTAL
  CONSULTANT
- ENVIRONMENT TEAM
  ENVIRONMENTAL
  CONSULTANT
- ENVIRONMENT TEAM
  CONSTRUCTION TEAM
  ENVIRONMENTAL
  CONSULTANT
- CONSTRUCTION
  MANAGER

CONTAMINATION AND ACID SULPHATE SOIL UNEXPECTED FINDS PROCEDURE

EVIDENCE OF CONTAMINATION

Example of materials that could indicate the presence of contamination include (but are not necessarily limited to):

- Asbestos cement fragments or other potentially asbestos containing materials
- Odorous or stained soil;
- Buried chemical drums or containers
- High proportion of waste materials or building debris
- Tarry or ashy material
- Brightly or unusually coloured material
- A yellow and/or red mottling in the soil profile indicates there may be Acid Sulfate Soils (ASS)

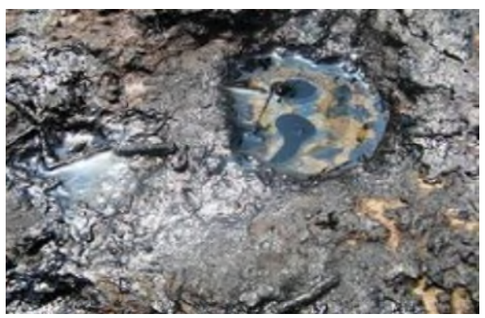
Asbestos
Asbestos finds are to be managed in accordance with the Project WHS Management Plan

Acid Sulfate Soils (ASS)
ASS are naturally occurring soils, sediments or organic substrates that are formed under waterlogged conditions in coastal areas. When exposed to air after being disturbed, soils containing iron sulfides produce sulfuric acid and often release toxic quantities of iron, aluminium and heavy metals.
If ASS is encountered, possible management strategies include:

- Modifying the works to avoid the area of ASS
- Delineation and removal to a suitably licenced facility
- Onsite treatment to neutralise the ASS, which could include the application of lime.

Note: The management of any ASS needs to include appropriate erosion and sedimentation controls to minimise the potential for pollution to waters. Refer to the Consturction Spil and Wster Management Plan.

Management and Disposal of Contaminated Material
Specific approval may be required to implement management strategies and a Safe Work Methods Statement (SWMS) must be prepared prior to undertaking any remediation work, except in emergency situations.
Contaminated material will be disposed of in accordance with the Waste Management Procedure.



Appendix 3: Community Notification

Sydney Metro is Australia's biggest public transport project.

Services start in 2019 in the city's North West with a train every four minutes in the peak. Metro rail will be extended into the CBD and beyond to Bankstown in 2024. There will be new CBD metro railway stations underground at Martin Place, Pitt Street and Barangaroo and new metro platforms under Central.

In 2024, Sydney will have 31 metro railway stations and a 66 km standalone metro railway system – the biggest urban rail project in Australian history. There will be ultimate capacity for a metro train every two minutes in each direction under the Sydney city centre.

Bankstown Line metro upgrade

Over the next month early work investigations will be carried out along the Bankstown Line between Belmore and Bankstown (weather and site conditions permitting).

Day work

Project standard working hours are Monday to Friday 7am - 6pm and Saturday 8am - 6pm (or 8am to 1pm for work inside the corridor)

Location	Activities

Whole corridor (Belmore – Bankstown)	• Site establishment work within the rail corridor, including site preparation, installation of haul roads and temporary fencing
	• Locating and confirming underground services using hand held equipment, cameras and non-destructive digging throughout the rail corridor
	• Survey work in stations (Belmore to Punchbowl), in the rail corridor and nearby public areas
	• Geotechnical investigations in stations (Belmore to Punchbowl) and throughout the rail corridor including minor excavation or drilling, sampling and testing
	• Survey and inspections of rail bridges from the rail corridor and nearby public areas
	• Minor clearing and grubbing throughout the rail corridor
	• Equipment used for the above work will include vacuum suction trucks, dump trucks, excavators, drill rigs, crane trucks and lifting machinery, power and hand tools
	• Delivery and removal of material and equipment using rail access gates
	  ○ Belmore: Tobruk Avenue, Hall Street, Loftus Street, Redman Parade, Acacia Lane and Railway Parade
	  ○ Lakemba: Railway Parade and The Boulevarde
	  ○ Wiley Park: Shadforth Street, Cornelia Street, Urunga Parade and The Boulevarde
	  ○ Punchbowl: Urunga Parade, The Boulevarde, South Terrace and Wattle Street

Punchbowl	• Installation of a temporary site compound inside the rail corridor at Urunga Street near Punchbowl station (**subject to approval** - a detailed notification will be distributed to the local area before commencing this work)

Sydneymetro.info
1800 171 386
sydneymetro@transport.nsw.gov.au

Out-of-hours work

Due to the nature of some activities and for the safety of workers, some work will occur outside standard construction hours when trains are not running. Out-of-hours work activities include:

Date/Time	Location/s	Activities
Commencing **Monday 27 May 2019** for approximately 5 weeks during the following periods: • From **6pm** to **6am** each night (excluding Sunday nights) • From **1pm** to **6pm** on Saturdays	Inside rail corridor between **Belmore** and **Bankstown** (see map below)	• Surveys and inspections of stations and rail track • Hand held equipment and torches will be used. Lights will be directed away from residential properties when in use • Access to the rail corridor will be via the existing rail corridor and pedestrian gates located between Belmore and Bankstown stations • This work is not expected to be noisy

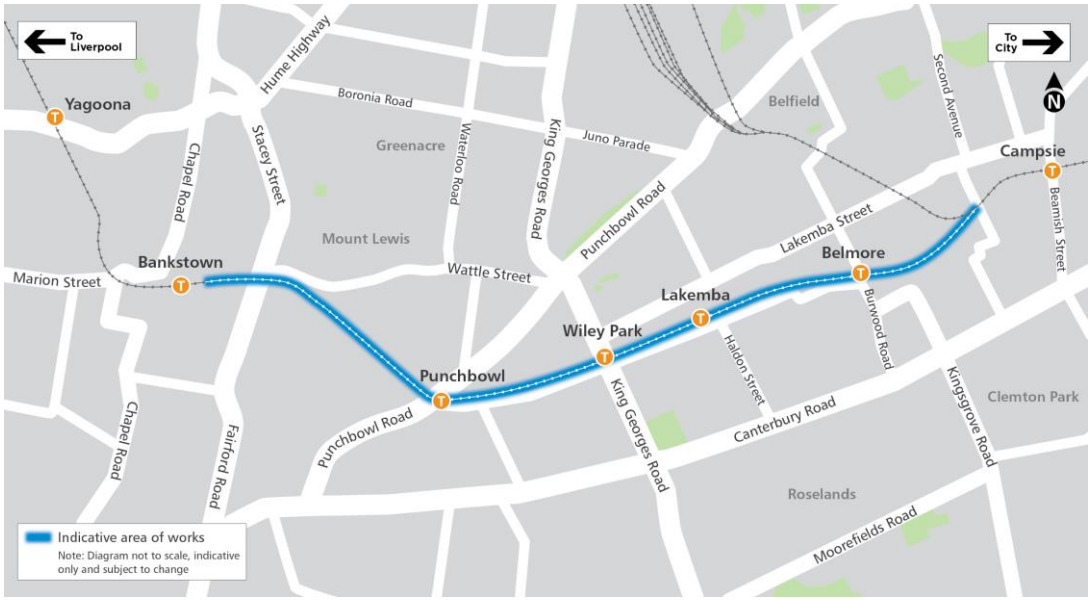
Access to buildings and driveways will be maintained at all times. Some of this work may be noisy, however we will take every possible step to minimise noise such as switching off equipment when not in use and installing non-tonal reversing beepers on vehicles.

Keeping you informed

Properties close to the rail corridor will receive notifications when work is scheduled to occur. Sydney Trains will deliver notifications for work done during scheduled rail maintenance periods and Sydney Metro will keep you informed of all other work. If you'd prefer to receive updates by email, please contact us using the details below.

Thank you for your cooperation while we complete this essential work.

If you have any questions please contact **Melanie** on **1800 171 386** (24 hour community information line) or Southwestmetro@transport.nsw.gov.au



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If you require the services of an interpreter, please contact the **Translating and Interpreting Service on 131 450** and ask them to call **Sydney Metro on 1800 171 386**. The interpreter will then assist you with translation.

Sydney Metro is Australia's biggest public transport project.

Services start in 2019 in the city's North West with a train every four minutes in the peak. Metro rail will be extended into the CBD and beyond to Bankstown in 2024. There will be new CBD metro railway stations underground at Martin Place, Pitt Street and Barangaroo and new metro platforms under Central.

In 2024, Sydney will have 31 metro railway stations and a 66 km standalone metro railway system – the biggest urban rail project in Australian history. There will be ultimate capacity for a metro train every two minutes in each direction under the Sydney city centre.

Bankstown Line metro upgrade

Over the next month early work activities will continue along the Bankstown line between **Sydenham and Campsie** (weather and site conditions permitting):

Day work Project standard working hours are Monday to Friday 7am - 6pm and Saturday 8am - 6pm (or 8am to 1pm for work inside the corridor)	
Location	**Activities**

Whole corridor (Sydenham – Campsie)	• Site establishment work within the rail corridor, including site preparation, installation of haul roads and temporary fencing
	• Survey work in stations, the rail corridor and nearby public areas
	• Locating and confirming underground services in the rail corridor using hand held equipment, cameras and non-destructive digging
	• Geotechnical investigations throughout the rail corridor including minor drilling sampling and testing the ground
	• Clearing and grubbing throughout the rail corridor
	• Installation of cable routes within the rail corridor
	• Equipment used for the above work will include vacuum suction trucks, dump trucks, excavators, crane trucks and lifting machinery, power and hand tools.
	• Rail access gates along the corridor from Fraser Park to Campsie will be used for delivery and removal of plant, equipment and materials:
	  ○ Marrickville: Fraser Park, Victoria Road, Wooley Lane and Randall Street
	  ○ Dulwich Hill: Kays Ave East, Corner of Ewart Street and Terrace Road, Ewart Street and Floss Street
	  ○ Hurlstone Park: Railway Street, Keir Avenue, Hurlstone Avenue and Hutton Street
	  ○ Canterbury: Sugar House Road, Charles Street, Cooks River Path and South Parade
	  ○ Campsie: Lillian Street

Sydneymetro.info
1800 171 386
sydneymetro@transport.nsw.gov.au

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Out-of-hours work
Due to the nature of some activities and for the safety of workers, some work will occur outside standard construction hours when trains are not running. Out-of-hours work activities include:

Date/Time	Location/s	Activities
Commencing **Saturday 1 June** for approximately 4 weeks during the following periods: • From **10pm** to **4am** each night (excluding Sunday nights) • From **1pm** to **6pm** on Saturdays	• Inside the rail corridor between Sydenham and Campsie	• Surveys and inspections of stations and rail track • Hand held equipment and torches will be used. Lights will be directed away from residential properties when in use • Access to the rail corridor will be via the existing rail corridor and pedestrian gates located between Sydenham and Campsie stations • This work is not expected to be noisy.
From **2am, Saturday 22 June** to **2am, Monday 24 June** (**Subject to approval** - additional notification will be distributed to the local area prior to works commencing)	• Victoria Road bridge, Marrickville	• Temporary lane closure on Victoria road to allow installation of cable routes onto the rail bridge • Traffic control and directional signage will be in place for the safety of workers and the community.

Access to buildings and driveways will be maintained at all times. Some of this work may be noisy, however we will take every possible step to minimise noise such as switching off equipment when not in use and installing non-tonal reversing beepers on vehicles.

Keeping you informed

Properties close to the rail corridor will receive notifications when work is scheduled to occur. Sydney Trains will deliver notifications for work done during scheduled rail maintenance periods and Sydney Metro will keep you informed of all other work. If you'd prefer to receive updates by email, please contact us using the details below.

Thank you for your cooperation while we complete this essential work.

If you have any questions please contact Melanie on 1800 171 386 (24 hour community information line) or SouthwestMetro@transport.nsw.gov.au

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Appendix 4: Heritage Consultant Advice

artefact

Southwest Metro Early Works: advice on low impact activities

Project: Southwest Metro Early Works	**Date:** 8 May 2019
Project site: Marrickville, Canterbury, Belmore, Lakemba	**Author:** Dr Sandra Wallace (Managing Director)
Contractor: JHLORJV	**Contact:** Dan Keegan

Introduction

The purpose of this memo is to assess potential heritage impacts as a result of use of laydown areas and stockpiling (on existing hardstand), installation of temporary fencing, minor vegetation clearing, and various forms of non-intrusive survey. These non-invasive activities would occur as part of the pre-construction works for the Southwest Metro Early Works (SMEW) project. The works that are the subject of this memo would be undertaken at Marrickville, Canterbury, and Belmore Railway Stations which are listed on the State Heritage Register (SHR) and Lakemba Station which is listed on the RailCorp s170 register.

The SMEW are part of the Sydney Metro Southwest project. The project was assessed as a Critical State Significance Infrastructure (CSSI) by the Minister for Planning and Environment under Part 5 Division 5.2 of the EP&A Act. The Minister's Conditions of Approval (CoA) were granted on 12 December 2018. The Construction Environmental Management Plan (CEMP), including the heritage sub-plan for the SMEW project is currently being developed in accordance with Conditions C3 of the CoA.

The Conditions of Approval stipulate that low impact work are able to be undertaken prior to the approval of the CEMP heritage sub-plan unless heritage items are affected or potentially affected.

Proposed Works

This memo relates to low impact activities within the Marrickville, Canterbury, Belmore and Lakemba Railways Stations and Archaeological Management Zones (AMZ). The curtilages of the listed railway stations and the extent of the archaeological management zones are shown in the Pre-Construction Minor Works Approval Form to which this memo is attached.

These works are required to prepare the Project site for construction works. A number of activities will be undertaken as part of these works. These activities are described below.

Laydown areas

A number of laydown areas within the AMZs will be utilised. The laydowns will be used to store materials such as temporary galvanised steel trough, ground level trough, pits, pipes, fence components, track side safety fencing (Vortek), erosion and sediment control materials. Plant and

equipment may also be parked within laydown areas as required. Subsurface impacts would not occur as the laydown areas would be on existing hardstand. No new material would need to be placed on the laydown surfaces as hardstand is already present.

Stockpiling

Stockpiling of waste and quarry material will occur within the AMZs. Stockpiles will be covered to mitigate the risk of erosion. Excavators and front end loaders may be used to move and work stockpiles. Trucks and tippers will be used for transporting spoil to and from the stockpiling areas. Subsurface impacts would not occur as the laydown areas would be on existing hardstand. No new material would need to be placed on the laydown surfaces as hardstand is already present.

Temporary fencing

Temporary fencing, water filled barriers and jersey kerb will be installed within all stations to delineate work-sites. These materials will be removed at the end of the project.

Track side safety fencing (Vortek) will be installed within the rail corridor to separate the rail from any working areas within the cess. A small truck will be used to transport fencing panels and related components. These materials will be removed at the end of the project. A small truck will be used to deliver fencing panels and barriers. A Telehandler or multi-crane may be used to lift the different components into position.

There would be no subsurface impacts as a result of the installation of temporary fencing.

Clearing

Whipper snippers and saws will be used to remove grasses, weeds and shrubs in preparation for investigative works at all stations. Disturbance to the ground surface by using the whipper snipper will be avoided.

Heritage Impacts

There would be no archaeological impacts as subsurface impacts are included in the scope of works.

At Marrickville Station a proposed laydown area extends into the SHR curtilage, but is limited to a small portion (around 20m x 20m) of the rail corridor. The laydown area would result in negligible temporary visual impacts but would not impact significant fabric.

At Lakemba Station a laydown area is proposed within the s170 register listed curtilage, but it is limited to a small portion of land to the north of the rail line (around 60m x 10m). The laydown area would result in negligible temporary visual impacts but would not impact on any significant fabric.

There would be no heritage impacts as a result of the proposed low impact works.

Management Measures

In order to avoid heritage impacts as a result of the proposed non-invasive works the following measures would be adhered to:

- No subsurface works would be undertaken.

- Where works are within listed curtilages significant fabric would be protected with barricades, clearly separated from the laydown area.
- The Sydney Metro Unexpected Finds Procedure would be implemented in the unlikely event of an unexpected find during these works.