

## 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	
<b>Contractor:</b>	A W Edwards
<b>Project:</b>	Sydney City and Southwest Metro – Crows Nest Station
<b>Application Title:</b> (e.g. Smith St trenching works)	Installation of Waterproofing
<b>Application Number:</b>	CN-PCMW-003
<b>Application Date:</b>	29/01/2021
<b>Planning Approval:</b>	Sydney Metro City & Southwest – Chatswood to Sydenham - Environmental Impact Statement Sydney Metro City & Southwest - Environmental Impact Statement – Sydenham Station and Sydney Metro Trains Facility South Modification Report (MOD 4) Sydney Metro City & Southwest - Environmental Impact Statement – Sydenham Station and Sydney Metro Trains Facility South Modification Submissions Report Sydney Metro City & Southwest Infrastructure Approval SSI 7400 and subsequent modifications
<b>Minor Works Categories:</b> <ul style="list-style-type: none"> <li>Highlight as applicable.</li> <li>If Items 4, 8 or 11 are applicable, this form must be endorsed by an Environmental Representative.</li> </ul>	<ol style="list-style-type: none"> <li>Survey, survey facilitation and investigations works (including road and building dilapidation survey works, drilling and excavation).</li> <li>Treatment of contaminated sites.</li> <li>Establishment of ancillary facilities (excluding demolition), including construction of ancillary facility access roads and providing facility utilities.</li> <li>Operation of ancillary facilities that have minimal impact on the environment and community.</li> <li>Minor clearing and relocation of vegetation (including native).</li> <li>Installation of mitigation measures, including erosion and sediment controls, temporary exclusion fencing for sensitive areas and acoustic treatments.</li> <li>Property acquisition adjustment works, including installation of property fencing and utility relocation and adjustments to properties.</li> <li>Utility relocation and connections.</li> <li>Maintenance of existing buildings and structures.</li> <li>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.</li> <li>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.</li> </ol>
<b>Planning Authority Determination:</b> Will the proposed works affect or have the potential to affect heritage items, threatened species,	<p><i>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'.</i></p> <p>No</p>

populations or endangered ecological communities?

**Part 2: Details**

**Site Description Overview**

Crows Nest Station is located on the western fringe of the Crows Nest village, between the Pacific Highway and Clarke Lane (on the eastern side of the Pacific Highway), and Oxley Street.

The Crows Nest construction package consists of two separate station entrances and the enabling works to support future OSD sites:

- (a) the western station entry located on the Pacific Highway between Hume and Oxley Streets
- (b) the eastern station entry located on Clarke Street at the corner of Hume Street, opposite Hume Street Park

Crows Nest Station is a cut and cover station and the main box is approximately 220m long and 25m below street level.

The area is surrounded by a mixture of industrial/commercial properties and residential properties as outlined by the figure below.

**Describe the proposed Minor Works:**

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

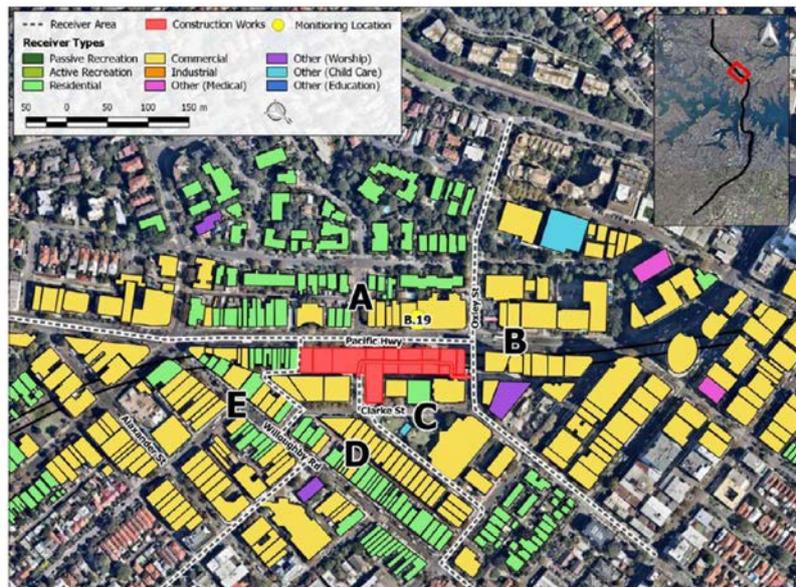


Figure 1 – Crows Nest Station Construction Site and Receiver Areas

**Description of Works**

A brief description of the activities to be undertaken is outlined below and represented by the drawings in Appendix I:

- Between 1-5 Ad hoc deliveries will occur each day on semi-trailers.
- Plant and equipment will be mobilised to site using the Tower Crane.
- Perimeter Wall Works to Station Box:
  - Substrate preparation – The substrate consists of the existing shotcrete walls and the existing rock face. This will be treated with a cushioned geotextile using a nail gun or with a SIKA Grout using a Putzmeister Spray Machine. There will be no hammering carried out as part of these works. The rock face will be treated with a double layer of 1000gsm. The shotcrete surface will be treated with a single layer of 500gsm.
  - Strip Drainage Install - Installation directly to substrate face after treatment. The strip drainage will be fixed using nail gun installation.

	<ul style="list-style-type: none"> <li>○ Geotextile Install - After strip drains have been installed, geotextile will be Installed directly to the substrate face after treatment. A geotextile cushion will be fixed using a nail gun installation.</li> <li>○ W/P Sheet Membrane Install – Following installation of the geotextile cushion layer, installation of the SIKA WP1100 Membrane will take place using Rondelle fixings with 800mm centres.</li> </ul> <ul style="list-style-type: none"> <li>■ Base Slab membrane Installation to Site A and B – Similar to the wall installation, a cushion layer will be installed to the existing base slab followed by the WP1100 membrane and a protective geotextile layer over the top.</li> <li>■ Sheet Membrane Installation to Site A and B Main Sub-Structure Footing and Column Pad - Similar to the wall installation, a cushion layer will be installed to the existing base slab followed by the WP1100 membrane and a protective geotextile layer over the top.</li> </ul> <p><u>Timing:</u> The total duration of the works is expected to be nine weeks including contingency time to account for delays caused by unexpected weather events.</p> <p>Plant and equipment to be utilised to undertake these activities, not all plant or equipment will be in use at the same time:</p> <ul style="list-style-type: none"> <li>- EWPs x3</li> <li>- Knuckle Boom Lifts x3</li> <li>- Nail Guns x12</li> <li>- Tower Crane</li> <li>- Semi-trailers (Ad hoc deliveries between 1- 5 per day)</li> <li>- Powered Hand Tools</li> <li>- Sheet Membrane</li> <li>- Geotextiles (PP 1000GSM and PP 500GSM)</li> <li>- Strip Filter Drains</li> </ul> <p><u>General Notes:</u> All work to occur outside of normal construction hours would be subject to the approval of an OOHW Application.</p>
<p><b>Planned Commencement Date:</b></p>	<p>February 2021</p>
<p><b>Local Sensitivities:</b> Describe the presence (if any) of local sensitive environmental areas and community receptors</p>	<ul style="list-style-type: none"> <li>• There are several residential and commercial properties located adjacent to the project site. These properties may be sensitive to excessive noise. Consultation with potentially impacted properties will be undertaken in accordance with the CCS and project requirements.</li> <li>• Traffic – The Pacific Highway is located adjacent to the site and represents a major arterial road.</li> <li>• Pedestrians – The Pacific Highway, Clarke Street, Clarke Lane, Oxley Street and Hume Street surround the site and are in frequent use by pedestrians. Changed access routes and perceived access challenges could disrupt pedestrian access.</li> <li>• Business Impacts - Businesses could be disrupted by planned or temporary closures of Clarke Lane and the closure of Hume Street. The potential impacts would relate to servicing and delivery constraints for business located along the Pacific Highway and in surrounding streets such as Clarke Street, Hume Street and Oxley Street. Changed access routes and perceived access challenges could affect the visibility of businesses.</li> <li>• Figure 1 above outlines the location of adjacent sensitive receivers which include a childcare facility, recording studios and doctor's theatres amongst other land uses. Noisier works would be scheduled to be carried out during the day. Any OOHWs and related impacts will be managed through OOHWs applications in accordance with the OOHW Protocol. These activities will be subject to the requirements of the Sydney Metro CEMF.</li> </ul>
<p><b>Part 3: Environmental Risk Assessment and Management</b></p>	
<p>Prepare an Environmental Risk Assessment (in accordance with the <i>Sydney Metro Risk Management Standard</i>) and an Environmental Control Map for the proposed Minor Works and attach as Appendix 1.</p>	

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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.

<p><b>Documentation:</b></p> <p>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.).</p>	<p>An Environmental Risk Assessment is included within Appendix 1.</p> <p>All works associated with this minor works approval will be subject to the requirements of the following documents:</p> <ul style="list-style-type: none"> <li>- Sydney Metro OCCS;</li> <li>- Sydney Metro Unexpected Heritage Finds Procedure;</li> <li>- Sydney Metro Unexpected Finds Procedures for contamination;</li> <li>- Construction Traffic Management Plan (CTMP) which will be subject to approval by RMS/SCO;</li> <li>- Sydney Metro Construction Environmental Management Framework;</li> <li>- Sydney Metro City &amp; Southwest Out of Hours Work Strategy Protocol (SM ES-PW-317);</li> </ul>
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**Part 4: Workforce Notification**

<p><b>How will the environmental and community risks and associated mitigation measures of the proposed Minor Works be communicated to the contractor's workforce?</b></p>	<p>A W Edwards has been awarded the contract to undertake these works, they will be required to implement the delivery of a site induction to all personnel working on the project site. The induction will include relevant environmental aspects and risks associated with works on the project site.</p> <p>Works will be undertaken in accordance with a SWMS. SWMS will be reviewed by the Contractor Environmental Manager.</p>
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**Part 5: Community Consultation**

<p><b>What community consultation has been undertaken already?</b></p>	<p>No consultation has occurred for these works.</p>
<p><b>What community consultation is planned to be undertaken?</b></p>	<p>Notifications will be distributed in accordance with the contract, OCCS requirements prior to any works. The Council and other stakeholders will be consulted in accordance with the requirements of the project planning approval.</p>
<p>If drafted already, attach applicable Community Notification as Appendix 3.</p>	

**Part 6: Contact Details**

<p>Nominate project manager, environmental and communications contact(s).</p>					
<b>Name:</b>	Colin Danby	<b>Position:</b>	Project Director	<b>Phone:</b>	0448 810 628
	Darren Green		Environmental Manager		0418 969 624
	Elle Mursell		Stakeholder, Engagement and Public Affairs Manager		0419 525 484

**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.

<b>Name:</b>	Darren Green		
<b>Signature:</b>		<b>Date:</b>	29/01/2021

## 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)
<b>Signature:</b>			
<b>Name:</b>	Harsatnam Hundal	Fil Cerone	George Kollias
<b>Date:</b>	29/01/21	29 Jan 2021	29/01/21
<b>Comments:</b>			<i>Supporting letter attached as Appendix 4 if necessary.</i>
<b>Conditions:</b>			<i>Supporting letter attached as Appendix 4 if necessary.</i>
<input checked="" type="checkbox"/>	Approved (by TfNSW)		
<input type="checkbox"/>	Endorsed (by Environmental Representative)		
<input type="checkbox"/>	Rejected		

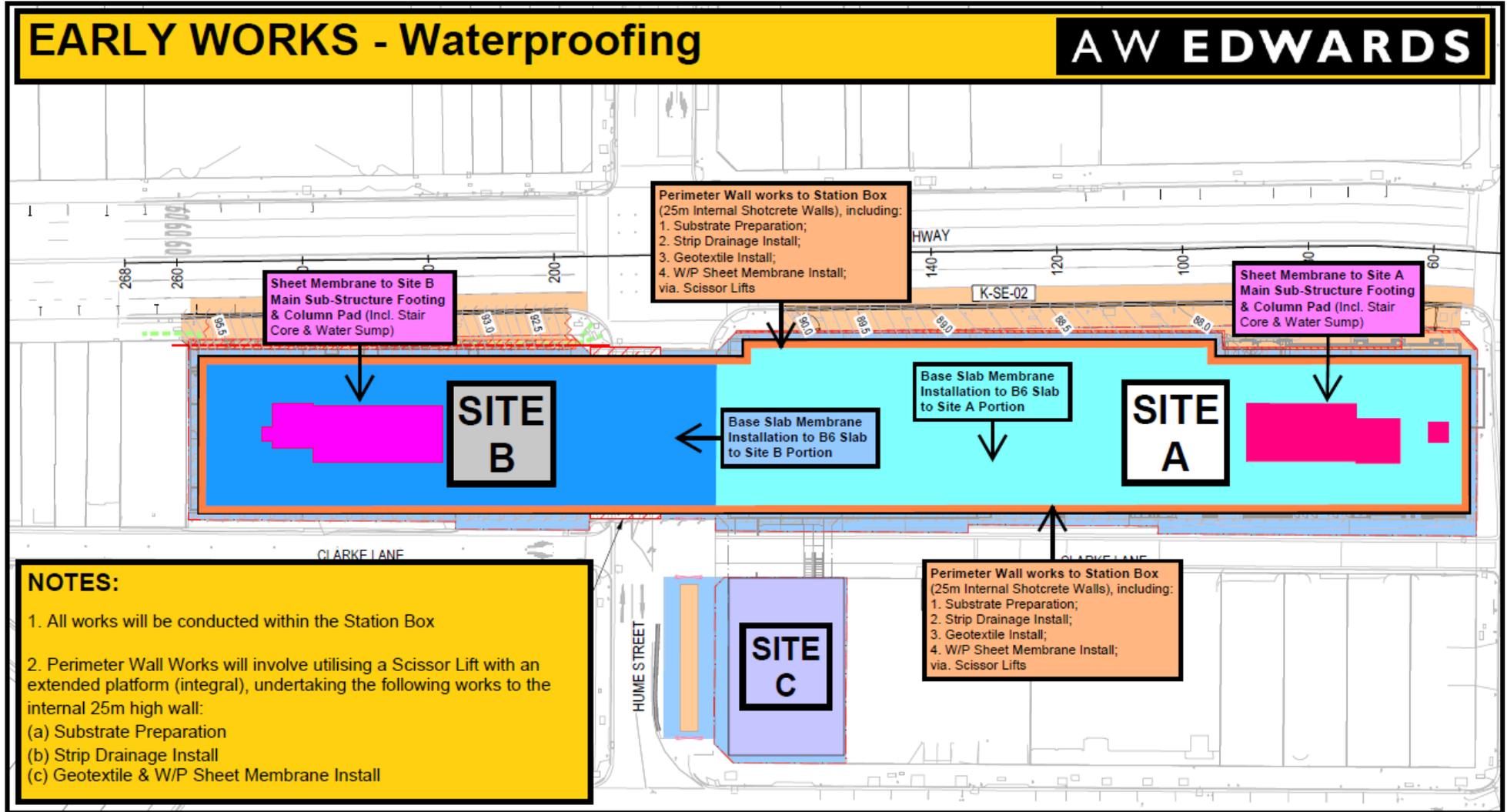
## Appendix 1: Cover Page

Work area, Noise Impact Assessment and Environmental Risk Assessment

### Environmental Control Map



### Work Area Methodology



## Noise Impact Assessment for Waterproofing Works

\*The Out of Hours Protocol Noise Assessment Calculations Have Been Used to Determine the Noise Levels Associated with the Waterproofing Works.

**Table 1: Noise RBLs and NMLs**

Sensitive Receiver Category	Estimated RBLs (dBA)		
	Daytime	Evening	Night Time
<b>Residential</b>			
Urban (e.g. city hubs, near busy roads, near industrial activity)	55	50	45
Suburban	45	40	35
Quiet, rural or isolated	40	35	30
<b>Non-Residential</b>	ICNG NMLs (dBA)		
Industrial facilities	75 (only applicable when in use)		
Offices or retail	70 (only applicable when in use)		
Health and educational facilities	55 (only applicable when in use)		

**Table 2: Predicted Noise Level Aspects**

Noise Aspect	Select the most applicable value for each noise aspect below and enter into Table 3.	dBA
<b>1. Plant/Equipment Noise Level at 10m</b> Including non-continuous use reduction (-5dBA) and annoying activity penalty (+5dBA) for as per ICNG (refer to ICNG Appendix B for predicted noise level data) <u>Underline indicates vibratory generating plant/equipment</u>	<u>Impact sheet piling rig</u>	100
	<u>Hand-held tamper, excavator with hammer, rock-breaker, driven/vibratory piling</u> , concrete saw, diamond saw, air track drill, large dozer, hand-held rail grinder	95
	<u>Jackhammer</u> , rock crusher, angle grinder, pneumatic hammer, medium dozer, tracked loader, impact wrench	90
	<u>Mainline tamper, ballast regulator, dynamic track stabiliser, vibratory roller</u> , mainline rail grinder, ballast train (pour/fill ballast), chainsaw, tub grinder/large mulcher, scraper, grader, super-sucker/vacuum truck, large backhoe/wheeled front-end loader, bored piling, pavement profiler, fixed crane, tracked excavator	85
	Small bulldozer, small excavator, tower crane, truck-mounted crane, forklift, bobcat, skid-steer front-end loader, road truck/truck and dog, dump truck, concrete truck/pump/mixer, compressor, non-vibratory/large pad foot roller, whacker packer/compactor, water cart, pavement laying machine, asphalt truck and sprayer, line marking truck, standard penetration testing, welder, pin puller	80

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	Concrete vibrator, cherry-picker scissor lift/elevated work platform/Franna crane, small backhoe, front end loader, fence post driver, electric drill rig, hand held rattle gun, generator (diesel/petrol), spreader	75
	Lighting tower, medium-rigid truck/semi-trailer, welding equipment, small front end loader	70
	Light vehicle, hand-tools (no impact), small cement mixer, attenuated generator (inside housing)	65
<b>2. Multiple Plant</b>	More than one of the noisiest plant being used simultaneously at roughly the same location	+5
<b>3. Local Screening</b>	Existing screening between site and receiver (buildings, cuttings, canopies, etc.)	- 5
	Temporary screening to be implemented near work site	- 10
	Acoustic shed or enclosure	- 25
<b>4. Distance Attenuation</b>	< 10 metres	0
	10 to 20 metres	- 5
	20 to 35 metres	- 10
	35 to 60 metres	- 15
	60 to 100 metres	- 20
	100 to 180 metres	- 25
	180 to 350 metres	- 30
	350 to 1,000 metres	- 40

**Table 3: Predicted Noise Levels and Exceedances of RBLs and/or NMLs (dBA)**

Skip this section if Section 3 has been completed in full.									
Period (only complete as applicable for each period)	Noisiest Plant/Equipment (state the noisiest plant/equipment to be used)	Receiver Type (state 'Res' or 'Non-Res' as applicable for closest receiver to noisiest plant/equipment)	Enter the most applicable values from Table 2, then add to determine the Predicted Noise Level				Predicted Noise Level	Noise Management Level for Standard Hours (Refer to Appendix B of the CNVIS)	Exceedance (Predicted Noise Level minus RBL for Residential)
			1. Plant/Equipment Noise Level	2. Multiple Plant/Equipment	3. Local Screening	4. Distance Attenuation			
Daytime	12x Nail Guns (equivalent to	Residential	75	5	-5	-10	65	70	No Exceedance

	noise level of hand-held rattle gun), 3x Knuckle Boom Lifts and 3x EWPs.								
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**Table 4: List of Additional Mitigation Measures (AMM)**

AMM Abbrev.	AMM	AMM Descriptions and Guidance
LB	Letterbox-drop (generic to the project)	<p>A newsletter is generally produced and distributed to the local community via letterbox-drop and the project mailing list. These newsletters provide an overview of current and upcoming works across the project and other topics of interest. The objective is to engage, inform and provide project-specific messages. The geographic extent of letterbox-drops is generally centred on the immediate surrounding community within 200 metres from the works site.</p> <p>For works that are subject to the Sydenham to Bankstown planning approval, these will include an indicative schedule of likely OOH work for at least the upcoming two month period.</p>
M	Monitoring	<p>Where it has been identified that specific construction activities are likely to exceed the relevant Rating Background Levels (RBL) and/or Noise Management Levels (NMLs), monitoring may be conducted at the affected receiver(s) or a nominated representative location (typically the nearest receiver where more than one receiver have been identified). Monitoring can be in the form of either unattended logging or operator attended surveys. The purpose of monitoring is to inform the relevant personnel when the RBL/NML has been exceeded so that additional management measures may be implemented.</p>
IB	Individual Briefings	<p>Individual briefings are used to inform stakeholders about the impacts of high noise activities and mitigation measures that will be implemented. Communications representatives would visit identified stakeholders at least 48 hours ahead of potentially disturbing construction activities. Individual briefings provide affected stakeholders with personalised contact and tailored advice, with the opportunity to comment on the project.</p>
PC	Phone calls (and/or emails)	<p>Phone calls and/or emails (with specific notifications attached) detailing relevant information would be made to identified/affected stakeholders within seven days of proposed work. The objective of the phone calls and/or emails is to support letterbox-drop and specific notifications. Phone calls and/or emails provide affected stakeholders with personalised contact and tailored advice, with the opportunity to provide comments on the proposed work and specific needs.</p>
SN	Specific Notifications (specific to the OOH work)	<p>Specific notifications are letterbox-dropped to identified stakeholders no later than 7 days prior to out of hour construction activities commencing that are likely to exceed the RBLs/NMLs. Specific notifications may be produced by Sydney Trains or by Sydney Metro (or on behalf of Sydney Metro by a contractor as approved by Sydney Metro):</p> <ul style="list-style-type: none"> <li>- Sydney Trains specific notifications cover all works being undertaken by various parties (including Sydney Metro) during designated rail possession periods. These specific notifications are delivered 14 days prior to works commencing and are delivered to all properties located within 250m of the proposed works.</li> <li>- Sydney Metro specific notifications focus on proposed Sydney Metro works being undertaken outside of designated rail possession periods and are only produced in the absence of any Sydney Trains notifications covering the proposed works. These notifications are delivered 7 days prior to works commencing and are delivered to all properties located within 100m of day works and within 200m of night works.</li> </ul> <p>All notifications are emailed to all registered stakeholders on site-specific email distribution lists.</p>

		For works that are subject to the Sydenham to Bankstown planning approval, these will include indicative information on the type of OOH work, location, duration, expected noise characteristics, expected noise level and likely mitigation and management measures.
<b>RO</b>	Respite Offer	The purpose of a project specific respite offer is to provide residents subjected to lengthy periods of noise and/or vibration impacts respite during OOH periods. Respite offers are offers made to affected receivers to provide a period of either no or limited noise impacts. This can be in the form of stopping or limiting works onsite or offering affected receivers dinner/movie vouchers. The first priority is to implement a period of no or limited noise impacts. If this cannot be achieved, dinner/movie vouchers may be offered on a case-by-case basis.
<b>AA</b>	Alternative Accommodation <i>(residential only)</i>	Alternative accommodation options may be provided for residents living in close proximity to construction works that are likely to incur unreasonably high impacts during night time OOH periods. Alternative accommodation will be considered on a case-by-case basis.

**Table 5: Consideration of Additional Mitigation Measures (AMM)**

<b>Additional Mitigation Measures</b>	<b>Applicable for Consideration?</b> Y/N	<b>To be Implemented?</b> Y/N	<b>Justification/Details</b> For AMMs that are applicable for consideration but not being implemented, justify why the AMM is not being implemented. For AMMs that are being implemented, provide details on how the AMM is being implemented (e.g. which receivers being offered RO, AA, etc.).
<b>M</b>	N	Y	Attended noise monitoring will be undertaken at the nearest sensitive receiver to verify noise estimates are accurate.
<b>LB</b>	N	N	A letterbox drop will not be carried out prior to works as additional mitigation measures have not been triggered by the predicted noise level.
<b>IB</b>	N	N	Individual briefings are not required to be carried out due to the nature of the works being carried out.
<b>PC</b>	N	N	Phone calls are not required to be carried out due to the nature of the works being carried out.
<b>SN</b>	N	N	Specific notifications are not required to be carried out due to the nature of the works being carried out.



RO *	N	N	Respite Offers are not required to be carried out due to the nature of the works being carried out.
AA	N	N	Alternate accommodation are not required to be carried out due to the nature of the works being carried out.

## Risk Assessment

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

Note; **C** = Consequence & **L** = Likelihood as per *Sydney Metro Risk Management Standard – 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
<b>1. Waterproofing</b>								
Contamination uncovered during works	Mixing of contaminated materials with non-contaminated materials	<b>C4</b>	<b>L5</b>	<b>Low</b>	Induction to include contamination management requirements. Implement Sydney Metro Unexpected Finds Procedures for contamination.	<b>C4</b>	<b>L6</b>	<b>Low</b>
Uncontrolled runoff from works	Uncontrolled water entering local stormwater and impacting on water quality	<b>C4</b>	<b>L4</b>	<b>Med</b>	Erosion and sediment controls will be set up as per the ECM (e.g. sandbags, coir logs, etc).	<b>C4</b>	<b>L5</b>	<b>Low</b>
Items of heritage significance uncovered during Waterproofing works	Damage to uncovered heritage items or archaeological deposits	<b>C3</b>	<b>L5</b>	<b>Med</b>	Induction includes heritage management requirements. Previous intrusive investigations have not identified any items of heritage significance, as such the implementation of the Sydney Metro Unexpected Heritage Finds Procedure.	<b>C3</b>	<b>L6</b>	<b>Low</b>
Noise	Excessive noise resulting from the works causing disturbance to sensitive receivers	<b>C4</b>	<b>L3</b>	<b>Med</b>	Work will occur during standard construction hours, no exceedance to daytime noise management levels is anticipated. Hoarding will be established around the perimeter of the site which will provide acoustic screening. Non-tonal movement alarms will be fitted to all plant. Respite and other additional mitigation measures will be provided in accordance with the CNVIS. It should also be considered that earlier Sydney Metro project	<b>C4</b>	<b>L5</b>	<b>Low</b>



Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		C X	L =	Risk		C X	L =	Risk
					<p>works installed noise mitigation treatments at several sensitive receptors adjacent to the project site.</p> <p>Workers to be inducted and tool boxed prior to commencing works.</p> <p>A 24 hour complaint line is available for the public who experience excessive noise.</p> <p>Mitigation measures to be implemented in accordance with the Sydney Metro Construction Noise and Vibration Strategy.</p>			
Chemical handling and storage	Poor storage and handling of chemicals causes spills	<b>C4</b>	<b>L4</b>	<b>Med</b>	<p>Any chemicals and fuels are to be stored within a bunded area with 110% of the capacity of the largest stored container</p> <p>Refuelling to occur more than 20m away from stormwater sump</p> <p>Spill kits will be available in close proximity to chemical handling, mobile/stationary plant and storage areas</p> <p>Site induction includes spill response awareness.</p>	<b>C4</b>	<b>L5</b>	<b>Low</b>
Waste	Incorrect disposal of waste	<b>C4</b>	<b>L4</b>	<b>Med</b>	<p>Induction includes waste management practices</p> <p>Waste to be classified in accordance with the Waste Classification Guidelines (NSW EPA, 2014) prior to disposal</p> <p>The waste will be lawfully transported and disposed of to a licenced facility.</p>	<b>C4</b>	<b>L5</b>	<b>Low</b>



Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		C X	L =	Risk		C X	L =	Risk
Air Quality	Dust generation during works	<b>C4</b>	<b>L4</b>	<b>Med</b>	Excessive dust is not anticipated to be generated as part of the Waterproofing works. Induction includes air quality management practices Material will be wetted down to prevent dust generation Conditions will be monitored and work will cease where dusty conditions are observed	<b>C4</b>	<b>L5</b>	<b>Low</b>
Traffic	Traffic congesting the Pacific Highway	<b>C4</b>	<b>L4</b>	<b>Med</b>	A Construction Traffic Management Plan (CTMP) will be implemented during the works. Where possible traffic movements will be outside of peak traffic hours. There will be no more than 5 deliveries to site per day associated with these works.	<b>C4</b>	<b>L5</b>	<b>Low</b>

### A1 Consequence Table

Consequence Table						
Rating	C6	C5	C4	C3	C2	C1
Descriptor/ Impact Area	Insignificant	Minor	Moderate	Major	Severe	Catastrophic
<b>Health and Safety (Injury and Disease)</b>	Illness, first aid or injury not requiring medical treatment.	Illness or minor injuries requiring medical treatment.	Single recoverable lost time injury or illness, ailments/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.
<b>Environment</b>	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 ecosystems. Extensive remediation required.	Inevitable large-scale environmental impact with loss of valued ecosystems.
<b>Customer Experience/ Operational Reliability</b>	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.
<b>Government/ Stakeholder / Public Trust/ Confidence</b>	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/allegation.	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 are 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.
<b>Regulatory or Legal Breach</b>	Low-level non-compliance with legal and/or regulatory requirement or duty by individuals or TNSW.	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 TNSW executive. Loss of operating licence.
<b>Management Effort/ Organisational Fatigue</b>	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.
<b>Benefit Realisation of Initiative, Program or Project</b>	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 TNSW, or publicly announced portion/milestone significantly missed or final completion date significantly missed on critical path project.
<b>Budget, Costs or Revenue</b>	< \$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
<b>Qualitative Expectation</b>	Not expected to ever occur during time of activity or project	Not expected to occur during 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
<b>Sydney Metro Probability Analysis</b>	<10%	10-25%	25-50%	50-75%	75-90%	>90%
<b>Quantitative Frequency</b>	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		Consequence						
		Insignificant	Minor	Moderate	Major	Severe	Catastrophic	
			C6	C5	C4	C3	C2	C1
Likelihood	Almost certain	L1	C	B	B	A	A	A
	Likely	L2	C	C	B	B	A	A
	Possible	L3	D	C	C	B	B	A
	Unlikely	L4	D	D	C	C	B	B
	Rare	L5	D	D	D	C	C	B
	Almost unprecedented	L6	D	D	D	D	C	C

## Appendix 2: Cover Page

Environmental Representative Supporting Letter.