

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:	Laing O'Rourke
Project:	Sydney Metro City and Southwest - Northern Corridor Works Project
Application Title: (e.g. Smith St trenching works)	Mid-Week 36 to Mid-Week 44 Portion 7a Works – 5th March to 4th May 2018 Installation of steel at footings locations Site wide survey Site wide service searching Vegetation Removal Delivery of construction materials Removal of materials and waste
Application Number:	NCW-011
Application Date:	Revision 1 - 16/02/18 Revision 2 – 28/02/18
Planning Approval:	SSI 15_7400
Minor Works Categories: <ul style="list-style-type: none"> Highlight as applicable. If Items 4, 8 or 11 are applicable, this form must be endorsed by an Environmental Representative. 	<ol style="list-style-type: none"> Survey, survey facilitation and investigations works (including road and building dilapidation survey works, drilling and excavation). Treatment of contaminated sites. Establishment of ancillary facilities (excluding demolition), including construction of ancillary facility access roads and providing facility utilities. Operation of ancillary facilities that have minimal impact on the environment and community. Minor clearing and relocation of vegetation (including native). Installation of mitigation measures, including erosion and sediment controls, temporary exclusion fencing for sensitive areas and acoustic treatments. Property acquisition adjustment works, including installation of property fencing and utility relocation and adjustments to properties. Utility relocation and connections. Maintenance of existing buildings and structures. 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. 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:	No. The proposed works do not have potential to impact on heritage items, threatened species, populations or endangered ecological communities.



Will the proposed works affect or have the potential to affect heritage items, threatened species, populations or endangered ecological communities?

Part 2: Details

Describe the proposed Minor Works:
Including work methodologies, site location(s) and site description(s) (e.g. landscape type, waterways, etc.).

Standard Construction Hour Works - Midweek 36 to Midweek 44 (05/03/2018 – 04/05/2018): 0700–1800 Monday to Friday & 0800-1300 Saturdays

A number of low minor work activities will be undertaken during standard work hours in preparation for the commencement of the construction phase.

The work activities include;

Activity 1 – Footings installation

These activities are minor in nature and comply with Minor Works Category 11 as defined in Section 1. The site would be accessed via Drake Street, Artarmon and Hopetoun Avenue, Chatswood.

5 Overhead wiring structures will be completed in the following order; **11+218US, 11+224US, 11+281US, 11+335US** and **11+374US** between Nelson St and Hopetoun Ave, Chatswood (refer to **Appendix 1**).

- The 6T Hi-Rail excavator will excavate down and box out each footing location.
- 16T Hi-Rail excavators will auger 1200 & 900 diameter piles 8 meters from the surface or until bedrock is encountered.
- Formwork to be constructed around footing location
- 16T excavator will lift prefabricated pile reinforcement and pile cap shutters into place.
- Concrete to be poured at footing location cured and finished
- Footing location to be back filled and reinstated
- Crane truck will lift steel into place above footing location
- Steel to be guided to location
- Hand tools to be used to fix steel to location
- Steel mast and footing to be surveyed following installation

Note: Concrete to be placed at each location via line pump situated in UP cess access track. It is not feasible for the concrete wash to be transported back to the concrete depot due to the possibility of it drying out and damaging the vehicles.

Plant and equipment:

- 16 Hi Rail excavator
- 6t Hi Rail excavator
- Bobcat
- Dump Truck
- Concrete boom pump
- Concrete truck
- General hand tools (survey equipment) – post completion
- Blowtorch and welding equipment to fix steel
- 1 x Multi Crane
- 1 x Impact wrench

Note that the above listed plant would not be operating in the same location at the same time.



Activity 2 – Vegetation Removal

These activities are minor in nature and comply with Minor Works Category 5 as defined in Section 1.

- Laing O'Rourke will undertake minor vegetation removal of approximately 10 trees and shrubs between Mowbray Rd and Nelson Street on the upside within the rail corridor in preparation for the commencement of the construction phase. Refer to ECM for location.
- Vegetation would be removed from an embankment between 11+061 and 11+125 US. The vegetation has subject to an ecological assessment to assess the potential impacts of the proposed works on flora and fauna. Refer to Appendix.
- Vegetation within the subject site was found to consist of Urban Native/ Exotic Vegetation. The area contains only planted species and does not comprise remnant native vegetation due to the species composition and their location within an artificial embankment constructed along the railway corridor.
- The vegetation removal contractor will install anchor points along the embankment to access the site
- Vegetation removed and then lowered down using the anchor points to the track below the embankment.
- A wood chipper, excavator and truck positioned in the rail corridor below the embankment will be used to mulch the vegetation
- The waste will be taken offsite and disposed of at a licensed waste facility

Plant and equipment:

- Chainsaws
- Tipper truck
- Wood chipper
- Bobcat
- 5t Excavator

Activity 3 – Site wide survey

These activities are minor in nature and comply with Minor Works Category 1 as defined in Section 1

- Laing O'Rourke will continue to undertake survey works across the site to inform the Project Team in preparation for the construction phase.
- Survey works, including road and building dilapidation surveys (as and where required), will occur across the entire site and within the immediate surrounds of the site.
- Workers will involve surveyors walking to the subject location and using hand tools (survey equipment) to take measurements.

Plant and equipment:

- General hand tools

Activity 4 – Site wide service investigations

These activities are minor in nature and comply with Minor Works Category 1 as defined in Section 1

- Laing O'Rourke will continue to undertake service investigation works across the site to inform the Project Team in preparation for the construction phase.
- Service searching works will occur across the entire site and within the immediate surrounds of the site.
- In particular service searching will be undertaken within the rail corridor on the UP side of Brand Street bridge, adjacent to Valetta Lane and Hampden Road to inform the design of the stormwater management structures to be built during construction

Plant and equipment:

- Sucker truck
- General hand tools



(Uncontrolled when printed)

	<p>Activity 5 – Delivery and Removal of Materials and Waste</p> <p>These activities are minor in nature and comply with Minor Works Category 11 as defined in Section 1</p> <ul style="list-style-type: none"> - Deliveries of construction materials will occur throughout the period. It is critical to ensure these materials are delivered prior to the commencement of the construction phase. The equipment includes OHW materials and signalling materials. - Waste will also be removed from the site during the period. This includes spoil and garbage. - Deliveries will occur across the site, to work fronts and ancillary facilities as appropriate for the particular construction material <p><i>Plant and equipment:</i></p> <ul style="list-style-type: none"> - Vehicle (light commercial) - Delivery truck - Telehandler - 12t Bogie - 13t Excavator <p>General Notes; Works locations and traffic control plans has also been included in Appendix 1.</p>
<p>Planned Commencement Date:</p>	<p>5 March 2018</p>
<p>Local Sensitivities: Describe the presence (if any) of local sensitive environmental areas and community receptors.</p>	<p>Community – Residents off Nelson Street, Gordon Avenue and Hopetoun Ave have direct line of site to the works. Service searching on Valetta Lane and Hampden Road within the rail corridor will be visible to local residents.</p> <p>Site access would be via the site access gate to the rail corridor on Drake Street and Hopetoun Avenue as well as the access gate at the corner of Brand St and Valetta Lane.</p>
<p>Part 3: Environmental Risk Assessment and Management</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> <p>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>	
<p>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.).</p>	<ul style="list-style-type: none"> - Sydney Metro Construction Environmental Management Framework - Sydney Metro City and Southwest, Chatswood to Sydenham, Planning approval SSI 15_7400
<p>Part 4: Workforce Notification</p>	
<p>How will the environmental and community risks and associated mitigation measures of the proposed Minor Works be communicated to the contractor's workforce?</p>	<p>All workers will undertake NCW Project specific induction.</p> <p>In addition, there will be a pre-start briefing undertaken by the worksite manager at the start of shift for all work groups. This will detail the environmental and community risks and mitigation measures.</p>
<p>Part 5: Community Consultation</p>	
<p>What community consultation has been undertaken already?</p>	<p>None for these specific minor works activities.</p>
<p>What community consultation is planned to be undertaken?</p>	<p>A monthly notification will be distributed a minimum of 7 days prior to the commencement of all other works.</p>



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:	Tony Deacy	Position:	Project Manager	Phone:	0467 762 987
	Chris Standing		Environmental Manager		0431 338 578
	Helena Johansson		Communications and Stakeholders Manager (Sydney Metro)		0466 545 189

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:	Chris Standing		
Signature:		Date:	16/02/18



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:	HELENA JOHNSON	FIL CERONE	Erran Woodward
Date:	2/3/18	2/3/18	1/03/18
Comments:		6 -	Supporting letter attached as Appendix 4 if necessary. Please attach the ER Endorsed Drake Street ECM to the approved Minor Works Application 011, and ensure all works are undertaken in accordance with that document.
Conditions:		Compliance with ER endorsed ECM for Drake St, Chatswood is required	Supporting letter attached as Appendix 4 if necessary. No vegetation removal can be undertaken under this Minor Works Application prior to ER endorsement of the revision of the Tree Report which includes this information.
<input checked="" type="checkbox"/>	Approved (by TfNSW)		
<input type="checkbox"/>	Endorsed (by Environmental Representative)		
<input type="checkbox"/>	Rejected		



Appendix 1: Environmental Risk Assessment and Environmental Control Map.

Risk Assessment Rankings: >17 = Extreme 10 - 16 = High 5 - 9 = Medium 1 - 4 = Low

Issues or activities that represent an Extreme risk after the application of control measures are not to be undertaken

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P X	C =	Risk		P X	C =	Risk
Approvals and Licensing								
Not identifying appropriate approvals / licenses required or proceeding without them.	Works delayed, infringements, prosecution and reputational loss.	P	3	M	<p>Planning approval has been granted for the Sydney Metro - Chatswood to Sydenham works (SSD 15_7400).</p> <p>This minor works application is being completed to ensure appropriate documentation is completed to manage environmental risk of the project.</p> <p>Only works with minimal impact are being undertaken.</p>	U	1	L
Noise								
Noise from Standard Construction Hours works	Disturbance to residents or neighbouring businesses. Potential for complaints.	P	3	M	<p>Control measures as per Community Consultation Strategy (CCS) are to be implemented. Consult with the community in relation to upcoming activities that may result in concern (completed by Sydney Metro).</p> <p>An existing noise barrier runs along the rail corridor. Additional acoustic blankets will be used to mitigate noisiest activities.</p> <p>Wood chipper would be used for three hours with a one hour break as respite.</p>	U	3	M
Vibration								



Vibration intensive activities undertaken on the site in proximity to sensitive heritage structures and community.	Damage to listed heritage items. Disruption, annoyance and nuisance to residents. Potential damage to adjacent residential and commercial residences and structures. Disruption to businesses as a result of vibration nuisance	U	4	M	Consult with potentially affected parties prior to commencement of works for any activities that may create vibration impacts caused by the works. No heritage structures within close proximity of proposed minor works. No vibration intensive works to be undertaken.	R	3	M
Water Quality, Erosion & Sedimentation								
Sediment laden runoff from investigation works leaving site.	Degradation of local watercourses. Increased turbidity in local water ways resulting in impact on aquatic life. Fines for sediment escaping site.	U	3	M	Control measures as per Environmental Control Map (ECM). All vehicle wheels to be cleaned prior to exiting site. Stockpiled materials are to be covered when not in use. Drains to be covered.	R	3	L
Non-compliant water from investigation works discharged from site	Non-compliant water entering stormwater system waterways (i.e. polluting - not compliant with discharge criteria).	P	3	M	No water discharge anticipated for minor works. Erosion and Sediment Controls to be maintained for the duration of works. If water discharge is required, Sydney Metro Water Discharge or Reuse Approval form to be utilised. Form to be approved by LORAC Environmental Manager prior to discharge.	U	2	L
Ground water	Ground water entering excavations Without appropriate safeguards onsite could lead to ground water contamination	U	2	L	No excavation to be undertaken during these works that are predicted to impact groundwater. Note: Groundwater levels are predicted to be 10-30 meters below ground level. Sydney Metro EIS – Groundwater and geology, Chapter 17.	R	1	L
Waste								



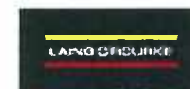
Waste disposal during works.	Incorrect disposal of waste, further costs incurred for classifications and disposal, fines may be issued.	P	2	M	Waste will be transferred to licenced waste facility only. Ensure accurate waste records are retained. Removal of wastes from the site would only be undertaken by a licensed contractor as required by the POEO Act and with appropriate approvals, if required, for contaminated materials, etc. All material that requires off-site disposal to be appropriately classified against the NSW EPA Waste Classification Guidelines (2014).	R	2	L
Contamination								
Potential for discovery of unexpected contaminated spoil during investigation works involving excavation and drilling.	Health effects resulting from airborne contamination, e.g. asbestos. Complaints received from odours.	P	3	M	If contaminated soil is encountered, all works are to stop in the vicinity of the find and investigations commence. Occupational hygienist in attendance on site. Induct personnel on location, type, nature and concentration of contaminants on site if found.	U	2	L
Hazardous Materials								
Storage of hazardous substances, leaking plant and equipment and spillage from refuelling.	Localised ground contamination / pollution of stormwater and requiring clean-up and/or receiving fines. Risk of igniting volatile substances.	U	3	M	No fuels or hazardous materials to be stored on site for minor works. Spill kits to be onsite when using plant/equipment. No major servicing of equipment to be undertaken onsite. Pre-mobilisation checks on all plant/equipment to come to site, including check of fuel and hydraulic leaks.	R	3	L
Biodiversity								



Vegetation trimming / clearing required outside approved work area.	Unauthorised works / removal of vegetation outside defined work area, possibility of removing threatened species, fines incurred.	R	3	L	No vegetation to be removed outside of the approved work area. All vegetation removal will be subject to a Vegetation Removal and Trimming Permit and or Minor Works Application	R	1	L
Clearing and grubbing of vegetation within work site.	Erosion of soils, uncontrolled runoff, sediment deposited into surrounding vegetated areas and watercourses, and invasion of weeds. Wrong vegetation removed. Potential for injury to native fauna.	R	3	L	All vegetation removal will be subject to a Vegetation Removal and Trimming Permit All vegetation removal will be subject to the conditions of the ecology report: - Avoid damage to adjoining vegetation - Ensure erosion and sediment controls are in place and maintained - Segregate weeds and dispose of separately from other vegetative waste. The works will be monitored and inspected for the presence of any additional flora/fauna. If identified works will stop with an ecologist engaged to reinspect the area. The local WIRES group and / or veterinarian would be contacted if any fauna are injured on site or require capture and / or relocation. Note: The subject area falls outside of the scope of the current Tree Report and as such has been subjected to a third part ecology assessment.	R	1	L
Air Quality								
General works	Dust activity in close proximity to residential and commercial premises, complaints received.	U	3	M	No dust generation is expected during these works. Works will be monitored on an on-going basis, and where dust generation is identified a water cart will be called upon. Operators of plant and vehicles are to drive to conditions.	R	2	L



					Spoil stockpiles to be covered to prevent wind erosion and dust.			
Exhaust from plant and equipment.	Emissions resulting in air pollution.	U	3	M	Well maintained plant/ equipment and pre-start checks and servicing. Non-complaint vehicles removed from site / repaired.	R	2	L
Heritage								
Unexpected heritage items encountered.	Work delays, additional studies, approvals required, damage to heritage item.	P	3	M	General inductions on heritage management 'stop-works' protocol. If suspected heritage item encountered. Works to stop immediately and Environmental Manager contacted. Unexpected finds of heritage items must be reported to LOR Environmental Manager and Sydney Metro. The site is to be isolated and investigated by a heritage consultant. Approval to proceed required prior to re-commencing works. The site is to be isolated and investigated by a heritage consultant. Approval to proceed required prior to re-commencing works. Label any known heritage items on Environmental Control Maps.	U	2	M
Flora & Fauna								
Removal of flora without approval.	Failure to identify flora prior to removal.	R	3	L	All vegetation removal will be subject to a Vegetation Removal and Trimming Permit and the conditions of the Ecology Report: All vegetation removal will be subject to the conditions of the ecology report: - Avoid damage to adjoining vegetation - Ensure erosion and sediment controls are in place and maintained	R	1	L



					<p>- Segregate weeds and dispose of separately from other vegetative waste.</p> <p>The local WIRES group and / or veterinarian would be contacted if any fauna are injured on site or require capture and / or relocation.</p>			
Traffic								
Loss of on-street car parking in adjacent residential streets and commercial areas during investigation works.	Loss of parking availability to adjacent residential and commercial properties could result in community complaints.	P	3	M	<p>Community notifications.</p> <p>Site vehicles shall be parked within the rail corridor and not affect public parking area.</p> <p>Temporary lane closure of Drake Street and Hopetoun Ave required for deliveries.</p>	U	3	L
Management of heavy vehicles / access routes.	Complaints from sensitive receivers due to increased level and frequency of noise.	P	4	M	<p>Deliveries of plant and materials shall be undertaken outside of peak periods where possible.</p> <p>Site vehicles shall be parked within the rail corridor and not affect public parking areas.</p> <p>Scheduled road movements shall be minimised where possible.</p> <p>Oversized deliveries would be undertaken in accordance with the requirements of NSW Police or Roads and Maritime Services.</p> <p>Heavy vehicle access routes given to contractors/suppliers/deliveries.</p> <p>Community Notifications.</p> <p>Pedestrian management with traffic controller in place where required.</p>	U	3	L
Truck deliveries out of normal working hours (un-approved).	Noise impact to community / potential complaints.	P	3	M	<p>Induction on approved working hours for deliveries only within standard construction hours.</p> <p>Communication of delivery times to suppliers only within standard construction hours.</p> <p>Community Notifications on project activities occurring locally.</p>	U	3	M



					Approved traffic/access routes. Planning and staging of works within standard construction hours only.			
Resources and Energy Use								
Energy consumption by plant and equipment.	Inappropriate energy use, waste of energy resources, energy wastage costs, increased greenhouse gas emissions.	U	2	L	No idling of plant equipment where possible onsite. Equipment / plant equipment inspections must be undertaken prior to use on site.	R	2	L
Resource usage (e.g. building materials, water, fuels, packaging), waste generation and disposal	Depletion of resources due to wastage (e.g. wastage of water / no recycling, poor management of procurement, ineffective removal of off-cuts, waste, i.e. no recycling).	U	2	L	Only sufficient materials to complete the works will be procured.	U	2	L

For each identified issue, consider the 'maximum credible' (not absolute worst case) risk that could result with **minimal or no controls** other than existing and using normal work practices.

Note: Any one of the listed consequences must result in the use of the applicable consequence grading.



Probability:		Consequence:	
5 = Certain 4 = Likely 3 = Possible 2 = Unlikely 1 = Rare		6 = Severe 4 = Major 3 = Moderate 2 = Minor 1 = Incidental	
1- 4 Acceptable 5 - 9 Acceptable with control measures 10 - 16 Requires the implementation of best practice 17 and Above = UNACCEPTABLE			

5	Certain	<ul style="list-style-type: none"> Common or repeating occurrence Consequence can reasonably be expected to occur in life of Project. 	5	Severe	<ul style="list-style-type: none"> Major pollution incident causing significant and widespread damage or potential to health or the environment Persistent reduction in ecosystem function and value. Ongoing disruption and loss of protected species. Major prosecution likely, outcome in excess of \$500,000
4	Likely	<ul style="list-style-type: none"> Known to have occurred / "has happened" Conditions may allow the consequence to occur on the Project during its lifetime The event has occurred within the Business Unit within the previous 5 years. 	4	Major	<ul style="list-style-type: none"> Significant widespread and persistent changes to habitat, species or environmental media Significant pollution incident causing damage or potential damage to health or the environment external to the site. Potential for prosecution. Potential outcome between \$50,000 - \$500,000 Numerous substantial complaints Actual material environmental harm
3	Possible	<ul style="list-style-type: none"> Could occur / "heard of it happening" Exceptional conditions may allow consequences to occur on the Project, or has occurred nationally within the Australian Business. 	3	Moderate	<ul style="list-style-type: none"> Localised irreversible habitat loss or effects on habitat, species or environmental media Reportable incident to the relevant environmental regulator or other authority. Demonstrated breach of legislative, licence or guideline requirements. Likely infringement notice or fine, potential for prosecution up to \$50,000. Will cause complaints.
2	Unlikely	<ul style="list-style-type: none"> Not likely to occur Reasonable to expect that the consequence will not occur on the Project. Has occurred in industry but not in Business Unit. 	2	Minor	<ul style="list-style-type: none"> Localised degradation of habitat or short term impacts to habitat, species or environmental media. Pollution incident that marginally exceeds licence conditions or guidelines for acceptable pollution. Fine unlikely. Potential for complaints.

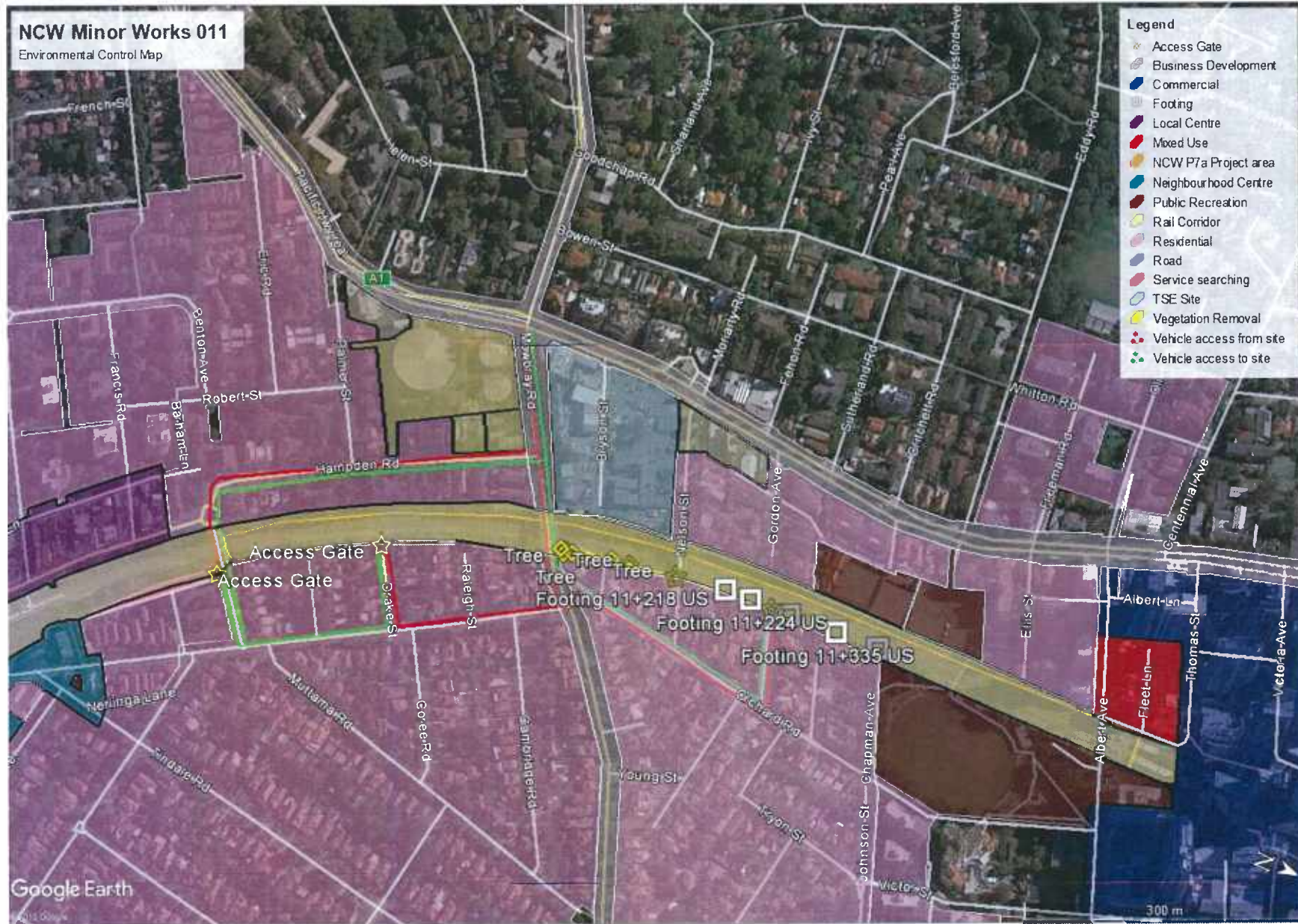


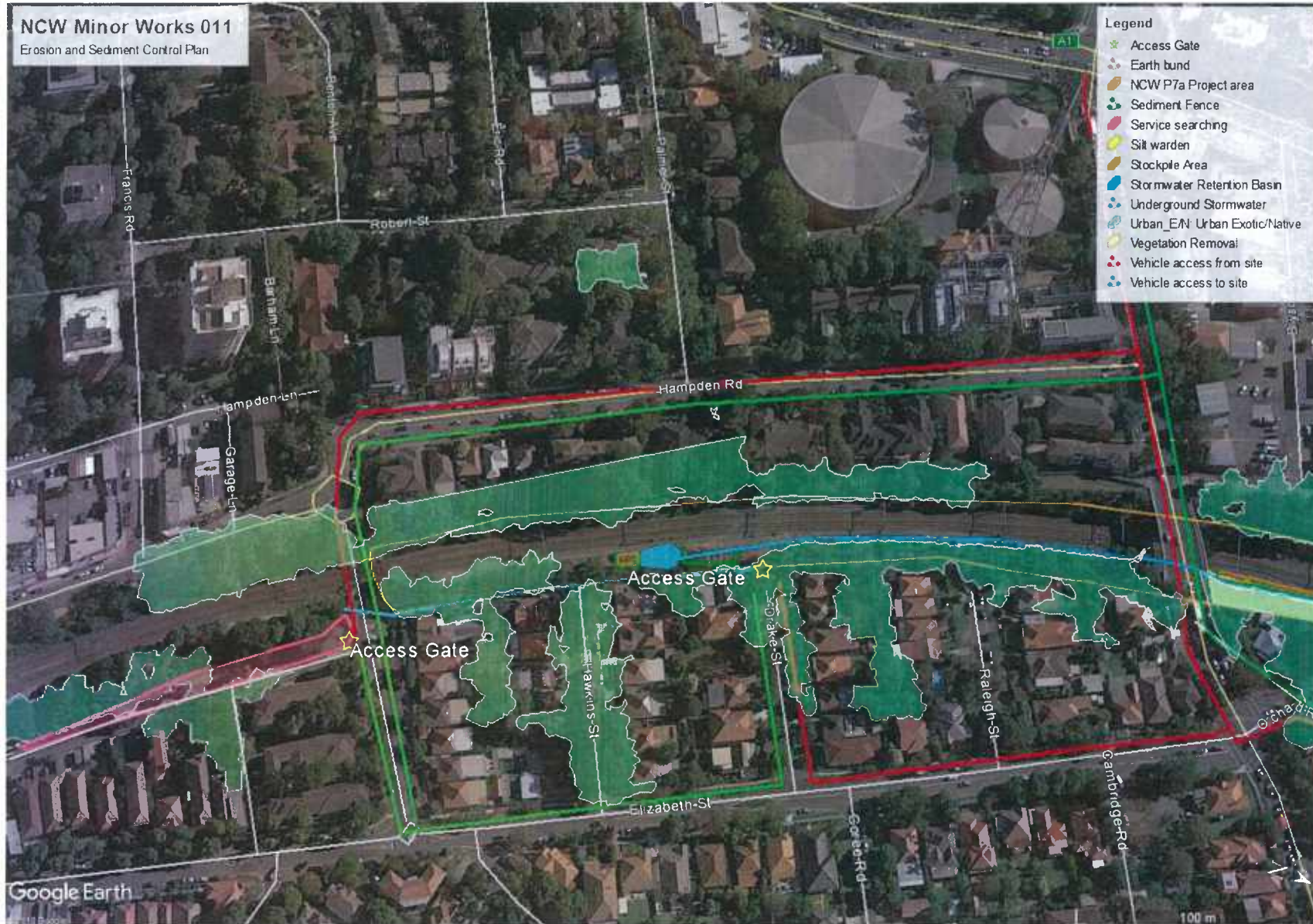
1	Rare	<ul style="list-style-type: none"> – Practically impossible – Not known to have occurred in industry or unheard of. 	1	Incidental	<ul style="list-style-type: none"> – Localised or short term effects on habitat, species or environmental media. – Fully contained on site and can be fully remediated. Little potential for fine or complaints. – Insignificant or trivial incident 	
Probability ▶		CERTAIN	LIKELY	POSSIBLE	UNLIKELY	RARE
▼ Consequence		5	4	3	2	1
5 – Severe		25	20	15	10	5
4 – Major		20	16	12	8	4
3 – Moderate		15	12	9	6	3
2 – Minor		10	8	6	4	2
1 – Incidental		5	4	3	2	1

Environmental Control Map















Indicative Works Schedule

Work Activities	March				April				May
	03/03/18 - 09/03/18	10/03/18 - 16/03/18	17/03/18 - 23/03/18	24/03/18 - 30/03/18	31/03/18 - 06/04/18	07/04/18 - 13/04/18	14/04/18 - 20/04/18	21/04/18 - 27/04/18	28/04/18 - 04/05/18
	36	37	38	39	40	41	42	43	44
Service Searching					Ongoing service searching as required				
Footings works									
Vegetation removal									
Survey works									To be completed as required
Removal of materials									Ongoing removal of materials as required
Delivery of materials									To be completed as required



Environmental Control Map		
ID	Environmental Aspect	Description
1	Project	<ul style="list-style-type: none"> This ECM applies to Pre-Construction Minor Works 009 for Portion 7a delivered under Northern Corridor Works (Enabling works for Sydney Metro City and Southwest, Chatswood to Sydenham).
2	Site Access	<ul style="list-style-type: none"> Site access will be from existing Hopetoun Ave and Drake St rail corridor access gate.
3	Program of works	<ul style="list-style-type: none"> Works will occur during Standard Construction Hours from 5/03/2018 to 04/05/2018 between 0700-1800 Mon-Fri and 0800-1300 Sat.
4	General	<ul style="list-style-type: none"> The team will be trained on this ECM, general environmental issues, and location of sensitive areas Works will be subject to inspections by the ER, Sydney Metro Environment and Planning Manager and LOR Environmental Manager. This ECM will be displayed on site sheds. The Drake Street endorsed ECM will be used for the Drake Street minor ancillary facility
5	Contamination	<ul style="list-style-type: none"> Unexpected contamination finds will be managed onsite by occupational hygienist in attendance. All waste to be classified prior to disposal.
6	Air Quality	<ul style="list-style-type: none"> No air quality related issues are expected to be encountered. Stockpiles would be maintained and contained appropriately, which could include covering or regular watering to minimise dust Haul roads will be maintained using dust suppression regularly, particularly in hot and windy conditions
7	Waste	<ul style="list-style-type: none"> All waste will be transferred to bins located at Drake Street Minor Ancillary Facility and transported to a licenced waste facility. Waste spoil will be tested in accordance with the NSW EPA Waste Classification Guidelines and will be disposed of to a licenced waste facility. Waste vegetation will be disposed of at a licenced waste facility.
8	Soils and water	<ul style="list-style-type: none"> No soil and water related issues are expected to be encountered. Stockpiles will be covered when not in use Stormwater drains will be protected Concrete washout will occur at the concrete depot located in Artamon on Reserve Road. A concrete washout bin will be provided for the line pump, to located at least 20m from the nearest water body, where possible. Existing erosion and sediment controls are in place across the site and are to be maintained for the duration of the works.
9	Heritage	<ul style="list-style-type: none"> Unexpected finds of heritage items must be reported to LOR Environmental Manager and Sydney Metro. The site is to be isolated and investigated by a heritage consultant. Approval to proceed required prior to re-commencing works. If suspected heritage item encountered. Works to stop immediately and Environmental Manager contacted.
10	Noise and Vibration	<ul style="list-style-type: none"> All works will be completed in compliance with Sydney Metro CEMF, SSD 15_7400 Planning Approval, Construction Noise Strategy and EPL 12208 requirements. All plant will have non-tonal alarms. Community notifications will be drafted and sent to Sydney Metro Community Liaison team separately.
11	Traffic and Transport	<ul style="list-style-type: none"> Access to the site will be from existing access gates at Brand Street, Hopetoun Ave and Drake St All delivery drivers will be given an induction showing the approved traffic/access/haulage routes as identified in the EIS prior to accessing site. All Site vehicles shall be parked within the rail corridor and not affect public parking area. Additional traffic controls will be implemented in accordance with TCP(s) as approved by Willoughby City Council. Temporary lane closures on Drake Street and Hopetoun Ave may be required to allow trucks to exit the site. All closures are expected to be for minor durations (less than 5 minutes). Any closure will be managed in accordance with the TCP. All vehicles to enter rail corridor immediately on arrival to gate Plant and vehicles engines to be switched off when not in use, with engine idling minimised as much as possible.
12	Utilities	<ul style="list-style-type: none"> Any impacts to utilities will be reported to site HSE Manager, supervisors, Sydney Trains and Sydney Metro.
13	Biodiversity	<ul style="list-style-type: none"> If any vegetation outside of the scope of the ecology report and other than grass and weeds needs to be trimmed or removed, further assessment would be undertaken and approval sought from Sydney Metro prior to trimming or removal. If threatened flora or fauna species are identified on site, work in the vicinity of these species would stop immediately. A spotter/catcher would be engaged to survey the site and advise on species management. Stockpiles, plant, equipment and materials will be located on existing cleared areas, away from the drip zone of trees and native vegetation. Weeds encountered during vegetation removal will be stockpiled separately and disposed of accordingly to avoid contamination. Soil and vegetation that could contain weed material should be removed from machinery prior to any movements off site.



14	Chemical, fuel storage and use	<ul style="list-style-type: none"> No fuels and chemicals are expected to be brought to site as part of these works. All plant and equipment will be checked daily to ensure there is no leaking oil, fuel or other liquids.
15	Imported materials	<ul style="list-style-type: none"> Materials to be delivered during standard construction hours. Materials to be stockpiled in a bunded area and covered (Drake Street) when not in use. All materials imported will have a classification certificate and be 'clean' material.
16	No-go zones	<ul style="list-style-type: none"> Activities will be restricted to the rail corridor. Any activities outside the NCW site boundary will undergo a review for potential environmental impacts and require approval from Sydney Metro.

Contact Information		
Position	Name	Phone
LOR Project Leader	Tony Deacy	0467 762 987
LOR Construction Manager	Martin O'Brien	0457 560 728
LOR/Sydney Metro Communications Manager	Helena Johansson	0466 545 189
LOR Environment and Sustainability Manager	Chris Standing	0431 338 578
LOR WHS Manager	Clive Hunter	0428 412 130
ER	Erran Woodward	0437 343 178
Sydney Metro Environmental Manager	Andrew Hendy	0475 983 494
Sydney Metro City and Southwest Info Line		1800 019 989
Sydney Trains Info Line		131 500
Environmental Line / Pollution Incident Response Line		131 555
Office of Environment & Heritage Pollution Line		131 555
Emergency		000 or 112 (mobiles)
WIRES		1300 094 737

Standard Working Hours
<p>Audible construction works unless otherwise approved by the Environmental Manager will be restricted to:</p> <ul style="list-style-type: none"> 7:00AM to 6:00PM - Monday to Friday 8:00AM to 1:00PM - Saturdays No work on Sundays or public holidays <p>Any works outside of the hours above require OOHW and Sydney Metro and LOR Environmental Manager's Approval</p>

Out-of-Hour Works
Nil.



Road Occupancy Permit

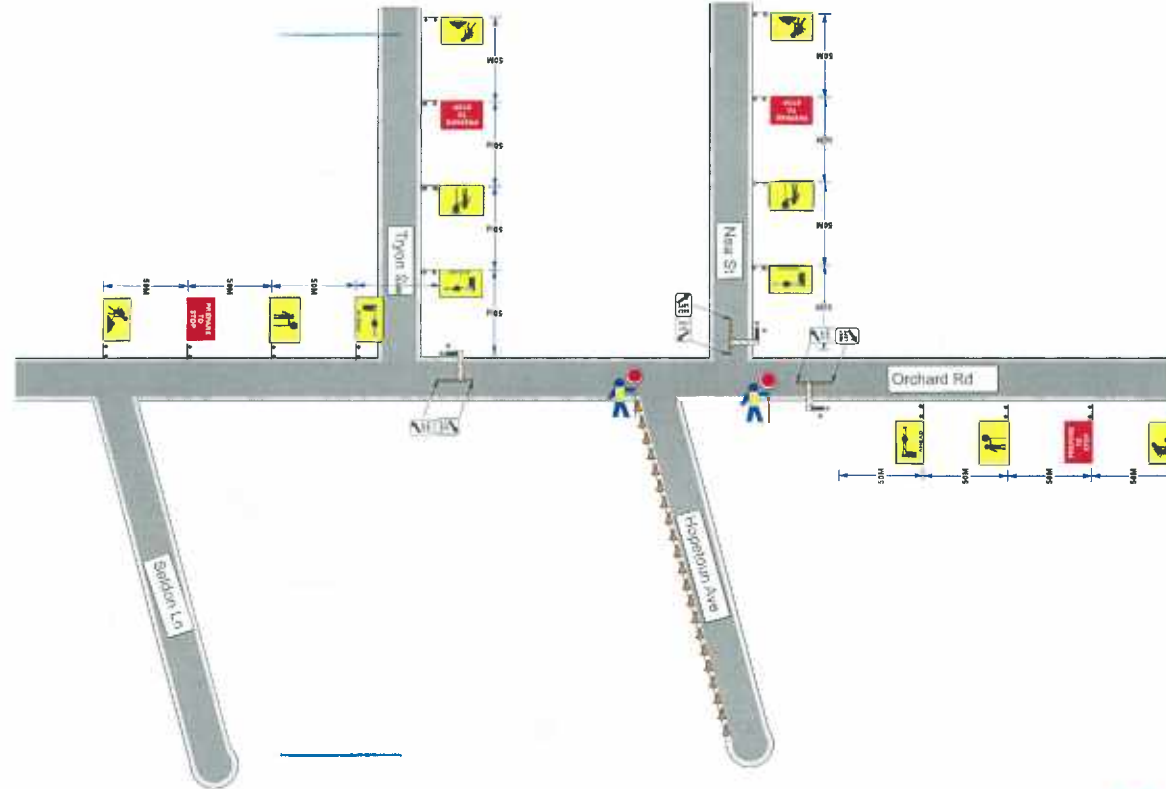
Not required for these works






Traffic Control Plans

Laing O'Rourke

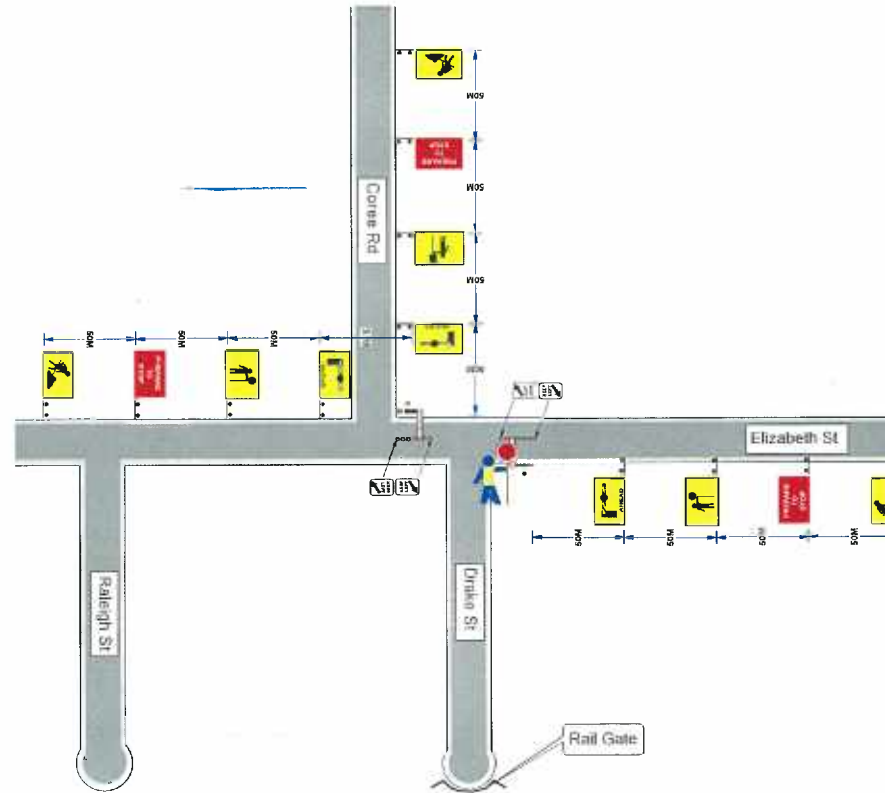
Location - Hopetoun Avenue, Chatswood



<p>Client: Laing O'Rourke</p> <p>Scope of Works: Construction works</p> <p>Job location: Hopetoun Avenue, Chatswood</p>		<p>WORKERS ON FOOT</p> <p>NO GO ZONE = [Red bar]</p> <p>RESTRICTED ZONE = [Red bar with white border]</p> <p>SHARED ZONE = [Green bar]</p> <p>SITE EXIT = [Blue circle with X]</p> <p>SITE ENTRY = [Blue circle with A]</p> <p>EVACUATION POINT = [Blue circle with EA]</p>	<p>Implemented By</p> <p>Name -</p> <p>Cert No -</p> <p>Date -</p> <p>Signed -</p>	<table border="1"> <thead> <tr> <th>Approximate speed of traffic at beginning of taper</th> <th>Traffic control at beginning of taper</th> <th>Lateral shift taper</th> <th>Merge taper</th> </tr> </thead> <tbody> <tr> <td>45 or less</td> <td>15</td> <td>0</td> <td>15</td> </tr> <tr> <td>46 - 55</td> <td>15</td> <td>15</td> <td>30</td> </tr> <tr> <td>56 - 65</td> <td>30</td> <td>30</td> <td>60</td> </tr> <tr> <td>66 - 75</td> <td>N/A</td> <td>70</td> <td>115</td> </tr> <tr> <td>76 - 85</td> <td>N/A</td> <td>80</td> <td>130</td> </tr> <tr> <td>86 - 95</td> <td>N/A</td> <td>90</td> <td>145</td> </tr> <tr> <td>96 - 105</td> <td>N/A</td> <td>100</td> <td>160</td> </tr> <tr> <td>Greater than 105</td> <td>N/A</td> <td>110</td> <td>180</td> </tr> </tbody> </table>	Approximate speed of traffic at beginning of taper	Traffic control at beginning of taper	Lateral shift taper	Merge taper	45 or less	15	0	15	46 - 55	15	15	30	56 - 65	30	30	60	66 - 75	N/A	70	115	76 - 85	N/A	80	130	86 - 95	N/A	90	145	96 - 105	N/A	100	160	Greater than 105	N/A	110	180	<p>D = THE SPEED OF TRAFFIC MEASURED IN KM/H</p> <p>80KM = 50M</p> <p>70KM = 70M</p> <p>60KM = 60M</p> <p>50KM = 50M</p> <p>SEE SECTION 4.2 TRAFFIC CONTROL AT WORK SITES MANUAL</p> <p>WORK AREA = [Hatched box]</p>	 <p>Web www.ddtraffic.com.au</p> <p>Email sydney@dd-group.com.au</p> <p>Phone 1300 597 622</p> <p>D&D Traffic Management does not accept liability for implementation of this tcp if not directly involved in its implementation</p>	
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<p>Author: Benjamin Wiffen</p> <p>Cert. No: 0040970460</p>	<p>Plan No: xxxxxxxxxxxxxxxx</p> <p>PLAN NOT TO SCALE</p>	<p>TCP - 83 USED AS A GUIDE</p>																																									

LAING O'ROURKE

Location - Drake Rd, Artarmon



Client: Laing O'Rourke	Revisions	Description	Date	WORKERS ON FOOT NO GO ZONE = RESTRICTED ZONE = SHARED ZONE = SITE EXIT = SITE ENTRY = EVACUATION POINT =	Implemented By			Approximate speed of traffic Traffic control at beginning of taper Lateral shift/ Merge taper Merge taper	D - THE SPEED OF TRAFFIC MEASURED IN KM/H 80KM = 80M EG 70KM = 70M 60KM = 60M 50KM = 50M SEE SECTION 4.2 TRAFFIC CONTROL AT WORK SITES MANUAL WORK AREA =	 Web: www.ddtraffic.com.au Email: sydney@dd-group.com.au Phone: 1300 597 622 D&D Traffic Management does not accept liability for implementation of this sign if not directly involved in its implementation.	
	Scope of Works: Gate Control Job location: Drake Rd, Artarmon	Plan No:XXXXXXXXX PLAN NOT TO SCALE	TCP - 101 USED AS A GUIDE		Name - Cert No - Date - Signed -	45 or less 15 0 15 46 - 55 15 15 30 56 - 65 30 30 60 66 - 75 N/A 70 115 76 - 85 N/A 80 130 86 - 95 N/A 90 145 96 - 105 N/A 100 160 Greater than 105 N/A 110 180					



Appendix 2: Cover Page

Environmental Management Documentation - Not Used



Appendix 3: Cover Page

Community Notification - Undertaken by Sydney Metro in conjunction with LOR. Combined letter to be issued which will cover MNNSCW Portion 6 and NCW Portion 7a works.

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. Sydney Metro includes new CBD railway stations underground at Martin Place, Pitt Street and Barangaroo and new metro platforms under Central.

In 2024, Sydney Metro will have 31 stations on a new 66km rail system – the biggest urban rail project in Australian history. Sydney Metro will have ultimate capacity for a train every two minutes in each direction under the CBD.

Building capacity on the North Shore Line

When Sydney Metro Northwest opens between Rouse Hill and Chatswood in 2019, capacity on the T1 North Shore Line will increase to 20 trains per hour. To enable this increased capacity, work is underway between Waitara and Waverton stations, and around Epping Station. Work started in March 2016 and includes signalling and electrical upgrades and track relocations.

Work in Artarmon and Chatswood

Work within the rail corridor between Waitara and Waverton is ongoing until 2019.

Standard work hours

Standard working hours are Monday to Friday, 7am–6pm and Saturday, 8am–1pm.

Work will involve:

- Installation of signalling equipment, high voltage cables and overhead wiring structures including excavation and concreting for signal footings and installation of steel masts onto concrete footings.
- Geotechnical investigations and vegetation removal including the installation of anchor points for safety.
- Non-intrusive service location surveys in and around the rail corridor.

What to expect:

- Deliveries and access to the rail corridor will be via the existing gates in Brand Street, Drake Street and Cleland Road, Artarmon and Hopetoun Avenue, Chatswood. Spoil removal will be via Drake Street.
- Access to buildings and driveways will be maintained at all times.
- Equipment will include elevated work platforms, boom lifts, bobcat, chainsaws, wood chipper, excavators, concrete truck, crane truck, vacuum excavation and other trucks, hand augers, surveying and welding equipment, skip bins, light vehicles and various power and hand tools.

Out-of-hours work

Due to the nature of some activities and for the safety of our workers, some work will occur outside standard construction hours when trains are not running. When this work is required, you will receive a notification from Sydney Trains outlining all work being undertaken in the rail corridor by multiple contractors.

Specifically between St Leonards and Gordon, Sydney Metro out of hours work is required between **10pm and 4am Monday 5 March to Friday 9 March** (subject to approval).

Work will involve:

- Installation of signalling equipment, high voltage cables and overhead wiring structures.
- Excavation and concreting for signal footings at Wilson Road, Chatswood.

- Service location surveys at Mowbray Road Bridge, Chatswood.

What to expect:

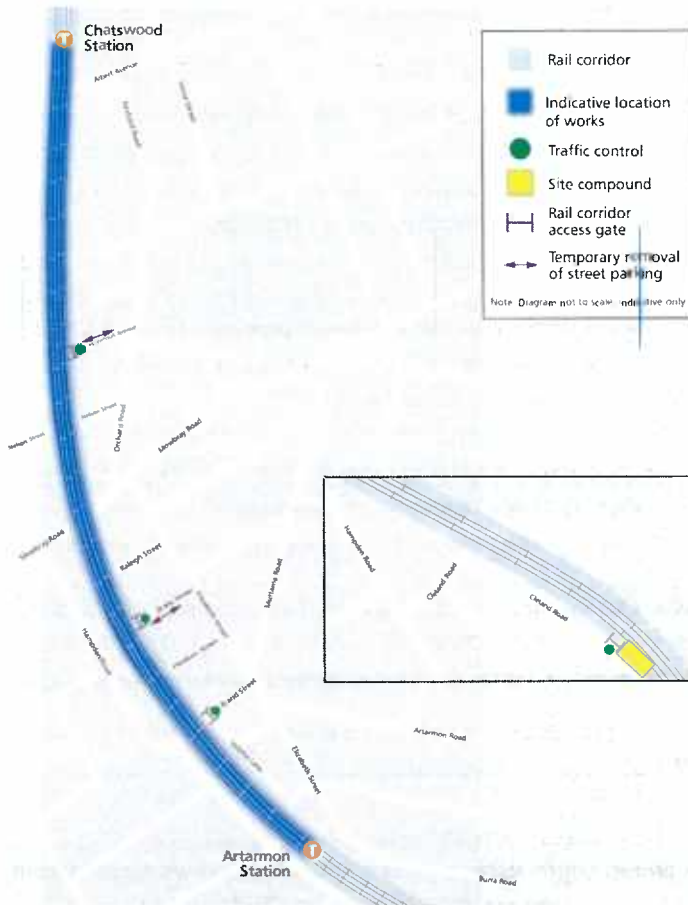
- Access will be via the existing rail corridor access gates in Brand Street, Drake Street and Cleland Road, Artarmon and Hopetoun Avenue and Wilson Street in Chatswood.
- Temporary traffic and pedestrian changes will be required including lane and footpath closures on Drake Street, Hopetoun Avenue and Mowbray Road. Temporary Traffic control and directional signage will be in place for the safety of workers and the community.
- Equipment to be used during these works includes excavators, concrete truck, cranes trucks, vacuum excavation and other trucks, generators, lighting towers, light vehicles, winches, surveying equipment, various power and hand tools.

Due to the nature of the work, some of these day and out-of-hours activities are expected to be noisy. The project team will minimise noise impacts wherever possible by reducing the number of machines operating at the same time and turning off equipment when not in use. Non-tonal reversing beepers will be used and workers will be instructed to keep noise to a minimum.

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

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

Artarmon and Chatswood work area





Appendix 4: Cover Page

Environmental Representative Supporting Letter - Refer to Section 12 Determination Page above