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 – Chatswood to Sydenham Central Station Main Works
Application Title: (e.g. Smith St trenching works)	Services investigation (Non-destructive digging) Soil Resistivity Testing and Construction of Overhead Wiring Structures
Application Number:	CSMW 007
Application Date:	Version 1 - 19/6/18 Version 2 – 29/6/18 Version 3 – 04/07/18
Planning Approval:	SSI 15_7400 Mod 2 - Central Walk - Sydney Metro City & Southwest - Chatswood to Sydenham (SSI Mod)
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 have the potential to affect heritage items, threatened species, populations or	Yes. The works are within the Sydney Terminal and Central Railway Station curtilage (SHR no.01255) and a local heritage curtilage 'Prince Alfred Park', however there will not be any impacts to the heritage values of any items within the Park. The works do not have the potential to impact on threatened species, populations or

endangered ecological communities?	endangered ecological communities. The works have the potential to impact on built heritage and archaeology within the Central Station curtilage. Works would be undertaken in accordance with the Statement of Heritage Impact (SOHI)(Artefact 2018) and the Archaeological Method Statement (AMS)(Artefact 2018), which were prepared to act as a framework to facilitate the avoidance of impacts to heritage items as defined by the approval, during early works. Refer to Appendix 2 for a copy of the SOHI and the AMS.

Part 2: Details

Describe the proposed Minor Works:

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

Work Activity	Location	Plant and equipment	Indicative timing
The works involve the installation of Overhead Wiring (OHW)masts which involves overhead wiring footing potholing, footing excavation, footing installation, de-wiring of existing OHW structures	Chainages B0+231, B0+243, B0+261, B0+299 and B0+333 (refer to Figure 1 below)	8t excavator Vacuum excavators Concrete Agis Boom pump Hand tools	Standard daytime construction hours. OOHW works during day, evening and night-time periods. A separate OOHW application will be submitted to Sydney Metro for approval. Between 14 July – 31 August 2018
Soil Resistivity Testing	Sydney Yard (refer to the Figure 3 below).	Ground resistance tester	Standard daytime construction hours July 2018
Soil Resistivity Testing	Prince Alfred Park (refer to the Figure 3 below).	Ground resistance tester	Standard daytime construction hours July 2018

Excavation and installation of footings and OHW structures are required to be constructed at chainages B0+231, B0+243, B0+261, B0+299 and B0+333 (see Figure 1). This would involve the following stages:

- De-wiring of existing overhead wiring structures
- Service investigation to locate all services within the vicinity of the new OHW structures, comprising of mechanical digging with an 8t excavator to remove ballast surface material between 0.3-0.5m followed by non-destructive digging (NDD) with vacuum excavators searching in an L shape to a depth of approximately 1.5mbelow ground level
- The footing construction would involve an 8t excavator to remove material to 1m deep with a bucket, then piling with an augur attachment to a depth of 6m
- The 8t excavator would then lift and lower the pile cage, followed by lifting and placing the pedestal top reinforcement and formwork box. Concrete agis would deliver concrete to be placed with boom pumps, the formwork box would be backfilled
- The installation of new overhead wire structures in the locations shown in Figure 1, consisting of the single mast type in close proximity to the platforms (two structures at chainages B0+231 and B0+243) and the over-track dual mast type further to the south (three structures at chainages B0+261, B0+299 and B0+333).

Figure 1 NDD works at OHW locations indicated by grey boxes. (Full page image is provided on page 23 for clarity)

Soil Resistivity Tests are proposed in Sydney Yard and Prince Alfred Park. Soil resistivity is a measure of how much the soil resists the flow of electricity. It is a critical factor in design of systems that rely on passing current through the earth's surface. The tests will use Ground Resistance testing equipment which apply the Wenner methodology involving the following:

- Insertion of four pins into the earth's surface equally spaced by hand
- Pin (probe) spacings typically 1, 2, 4, 8, 16 and 32m apart
- a sequence of measurements in two directions perpendicular to each other i.e. in a cross formation.

Figure 2 below indicates the Wenner 4-point test methodology and Figure 3 shows the Soil Resistivity Test locations.

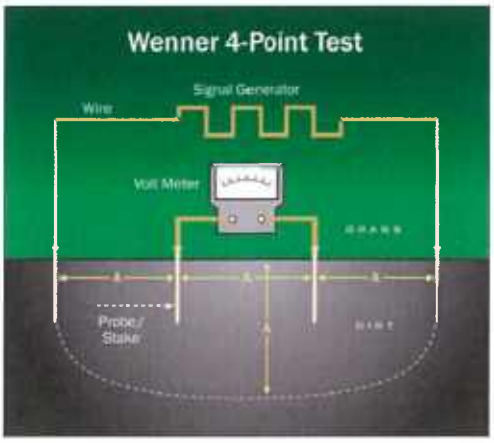

Figure 2 Soil Resistivity Testing using the Wenner methodology

	 Figure 3 Soil Resistivity Test locations in Sydney Yard and Prince Alfred Park The surrounding land uses are roads including Lee, Chalmers, Devonshire, Regent, Cleveland and Gibbons Streets and Eddy Avenue, the rail corridor and associated infrastructure, office buildings, a hotel and Prince Alfred Park. The installation of OHW and Soil Resistivity Test site 1 are both located within the state heritage listed Sydney Terminal and Central Railway Stations Group (01255), on Eddy Avenue, Sydney and is listed on the Sydney Trains s170 register. Work would occur on the tracks, platforms and within Sydney Yard. The works area is highly disturbed and there are no waterways within 50m. A heritage impact assessment has been undertaken in the Central Station Main Works: Additional Early Works - Overhead Wiring Statement of Heritage Impact (Artefact 2018) (SOHI). The Soil Resistivity Test site 2 is located within the local heritage curtilage of 'Prince Alfred Park including fence, tree planting, ground and coronation centre' listed on the Sydney Local Environmental Plan 2012. The works are minor in nature and would not impact the heritage values of the site. Works at this site will follow the mitigation measures outlined in the AMS.
Planned Commencement Date:	**Installation of OHW Structures** 14 July 2018 to 31 August 2018 **Soil Resistivity Testing** July 2018
Local Sensitivities: Describe the presence (if any) of local sensitive environmental areas and community receptors.	**Heritage** – The works are within the Sydney Terminal and Central Railway Station curtilage (SHR no.01255). **Community** – The excavation equipment will be temporarily visible to those residents on Regent Street whose properties back onto the rail corridor adjacent to Sydney Yard. Those residents will have a direct line of sight to the activities.

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	- Sydney Metro Construction Environmental Management Framework. - Sydney Metro City and Southwest, Chatswood to Sydenham, Planning approval SSI 15_7400. - Mod 2 - Central Walk - Sydney Metro City & Southwest - Chatswood to Sydenham (SSI Mod)

Appendix 2 (e.g. plans, procedures, procedures, etc.).	- Sydney Metro Community Communications Strategy - Central Station Main Works –Early Works: Archaeological Method Statement for OHW - Unexpected Finds Protocol

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?	All workers will undertake Sydney Metro Orientation Training & CSMW specific induction. 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.

Part 5: Community Consultation

What community consultation has been undertaken already?	No consultation in regards to these activities has been conducted to date
What community consultation is planned to be undertaken?	Laing O'Rourke will prepare and distribute community notifications in accordance with the Sydney Metro Community Communications Strategy and Out Of Hours Work Protocol.

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:	Jamie Jack	**Position:**	Project Leader	**Phone:**	0477 355 531
	Chris McCallum		Environmental Manager		0408 264 164
	~~Peter Whelan~~ Rachael De Zylva		Communications and Stakeholders Manager		~~0403 133 490~~ 0408 659 812

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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 McCallum		
Signature:		**Date:**	04/07/18

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:	Anne Patawaran		
Name:	Anne Patawaran	Fil Colone	Annabelle Tungol Reyes
Date:	5 July 2018	6/7/18	05 July 2018
Comments:	Community and Stakeholder Manager details must be updated		*Supporting letter attached as Appendix 4 if necessary.* Low impact works
Conditions:			*Supporting letter attached as Appendix 4 if necessary.* Endorsed for DPE Determination. Refer to ER Letter of Endorsement CSMW007

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

Appendix 1: Cover Page

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

Environmental Risk Assessment

Table 1 Heritage Risk Assessment

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P X	C =	Risk		P X	C =	Risk
Heritage								
Visual impact to heritage items	Potential visual impact to heritage items prior to CEMP approval and commencement of construction	P	2	M	Visual impacts to be considered in the Statement of Heritage Impact	U	2	L
Works at the Sydney Terminal and Central Railway Station curtilage (SHR no.01255).	Damage to listed heritage item.	U	3	M	The investigation works should be monitored by a suitably qualified archaeologist in accordance with the AMS (Artefact May 2018). No impact to significant heritage fabric is permitted during works.	R	3	L
Unexpected heritage items encountered.	Work delays, additional studies, approvals required, damage to heritage item.	P	3	M	Potential for heritage items to be impacted addressed in an Archaeological Method Statement. General inductions on heritage management 'stop-works' protocol and the location of known heritage items. The proposed machine excavation and NDD would be archaeologically monitored. If archaeological remains are identified during archaeological monitoring, they would be recorded and assessed to determine their heritage significance. Localised stoppages in the construction work would be required to facilitate	U	2	L

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P X	C =	Risk		P X	C =	Risk
					this process. Works would not recommence until the monitoring archaeologist has completed the recording and is satisfied that further investigation is not required. The auguring cannot be fully mitigated as monitoring of these works to reduce impacts to potential archaeology is not feasible. The Unexpected Heritage Finds Procedure set out in the Sydney Metro Chatswood to Sydenham Unexpected Finds Policy (Transport for NSW, 2016) will be followed. Unexpected finds of heritage items must be reported to LOR Environmental Manager and Sydney Metro. If previously unidentified Indigenous heritage items are uncovered during the work, all work in the vicinity of the find must cease and appropriate advice would be sought from OEH, RAPs and/or heritage consultants. Work in the vicinity of the find would not re-start until clearance has been received.			
Plant and Machinery movement in proximity to heritage structures	Damage to listed heritage items	P	3	M	The nominated Heritage Architect or Heritage Consultant should be consulted regarding methods and locations for installing equipment used for vibration, movement and noise monitoring of heritage-listed structures, in accordance with Condition E31 of the CSSI approval. Equipment to be used at safe work distances as detailed in the Sydney Metro Noise and Vibration Strategy. Excavators and auger should follow the existing access roads (or railway lines where	U	2	L

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P X	C =	Risk		P X	C =	Risk
					required) and should not be parked abutting or close to any elements of significance. Tools, equipment and materials should be stored away from elements of significance. The excavators and auger should be controlled sufficiently to prevent inadvertent direct or indirect impacts to any nearby significant fabric or infrastructure.			

Table 2 General Risk Assessment

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	Planning approval has been granted for the Sydney Metro City and Southwest - Chatswood to Sydenham works (SSI 15_7400). Mod 2 - Central Walk - Sydney Metro City & Southwest - Chatswood to Sydenham (SSI Mod). This minor works application is being completed to ensure appropriate documentation is completed to manage the environmental risks of the project. The Sydney Metro City and Southwest Chatswood to Sydney Conditions of Approval (SSI 15_7400) defines low impact work to include: - Investigations including investigative digging and excavation - other activities determined to have minimal environmental impact Dial before you dig / DSS searches	U	2	L

Noise								
Noise from the installation of OHW structures.	Disturbance to residents or neighbouring businesses with potential for complaints.	**P**	**2**	**M**	Control measures as per Sydney Metro Community Consultation Strategy (CCS) are to be implemented. Consult with the community in relation to upcoming activities that may result in concern. Use silenced lighting towers and equipment where practical. All plant used regularly on site will have non-tonal alarms. Turn off plant and equipment that is not being used. Ensure plant is regularly maintained, and repair or replace equipment that becomes noisy. Monitor noise levels, as required, to ensure compliance with project noise management levels. In the event of noise monitoring indicating noise levels are exceeding predicted levels, the team will be required to change work practices, such as reducing the number of plant/equipment operating concurrently and provide additional mitigation measures.	**U**	**2**	**L**

Vibration								
Vibration generating 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	None of the activities proposed are considered to be vibration intensive activities. No controls are required.	R	2	L
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	Risk of erosion is negligible. Existing stormwater drainage points will be identified prior to investigative excavation works. Install sedimentation controls as detailed in the ECM table. All vehicle wheels to be clean prior to exiting site. Ensure measures are inspected and maintained as the works progress and also prior to and post rainfall events. Investigative excavations backfilled with DGB and/or ballast. All excavated spoil will be removed via spoil bags, no spoil will be stockpiled on site.	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	Induction and toolbox talks; educate site staff on licence conditions and consequences of prosecution. No water discharge anticipated for the 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. If required, Environmental Manager/representative to approve all water discharges from site.	R	2	L

Ground water	Ground water entering excavations Without appropriate safeguards onsite could lead to ground water contamination	U	2	L	OHW structures will not be going to groundwater depth. BH006 at Central Station indicates that groundwater sits approximately 14.75 metres below ground level (Sydney Metro Chatswood to Sydenham Technical Paper 7: Groundwater Assessment May 2016, page 67).	R	2	L
Waste								
Waste disposal during works.	Incorrect disposal of waste, further costs incurred for classifications and disposal, fines may be issued.	P	2	M	Ensure accurate waste records are retained and recorded in monthly project report. Wastes to licenced waste facility only. 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 EPA Waste Classification Guidelines (2014).	U	2	L
Contamination								
Potential for discovery of unexpected contaminated spoil during works involving excavation.	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, concentration of contaminants on site if found.	P	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	2	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 removal/trimming for the works.	R	1	L
Clearing and grubbing of vegetation within work site.	Erosion of soils, uncontrolled runoff, sediment deposited into surrounding vegetated areas and water courses, and invasion of weeds. Wrong vegetation removed. Potential for injury to native fauna.	R	3	L	No vegetation clearing for the works.	R	1	L
Air Quality								
General works; investigative excavations	Dust activity in close proximity to residential and commercial premises, complaints received.	U	3	M	NDD works will use water aided digging – no dry excavations undertaken. All excavated spoil will be removed via spoil bags, no spoil will be stockpiled on site.	R	2	L

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. The engines of all on-site vehicles and plant would be switched off when not in use for an extended period.	R	2	L
Traffic								
Loss of on-street car parking in adjacent residential streets and commercial areas during works.	Loss of parking availability to adjacent residential and commercial properties could result in community complaints.	P	3	M	Community notifications. Site vehicles shall be parked within the rail corridor and not affect public parking area. No road/lane closures required.	U	2	L
Management of heavy vehicles / access routes.	Complaints from sensitive receivers due to increased level and frequency of noise.	P	2	M	Designated heavy vehicle routes are detailed in the EIS. Heavy vehicle operators to be inducted on haulage routes. Oversized deliveries would be undertaken in accordance with the requirements of NSW Police or Roads and Maritime Services. Deliveries of plant and materials shall be undertaken outside of peak periods where possible Site vehicles shall be parked within the rail corridor and not affect public parking areas. Scheduled road movements shall be minimised Designated heavy vehicle access routes given to contractors/suppliers. Community Notifications. Pedestrian management with traffic controller in place where required.	U	2	L

Truck deliveries out of normal working hours (un-approved).	Noise impact to community / potential complaints.	P	2	M	Truck deliveries during standard construction hours only. Designated heavy vehicle routes are detailed in the EIS. Heavy vehicle operators to be inducted on haulage routes. Induction on approved working hours for deliveries. Communication of delivery times to suppliers. Community Notifications on project activities occurring locally. Approved traffic/access routes.	U	2	L
Resources and Energy Use								
Energy consumption by plant and equipment.	Inappropriate energy use, waste of energy recourses, 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	Subcontractor's agreements to include project compliant waste management principles. Waste management undertaken in accordance with the *Waste Avoidance and Resource Recovery Act 2001*. Recycled aggregate to be considered to backfill trenches. Only sufficient materials to complete the works will be procured.	U	2	L
Light Spill								
Lighting for OOHW	Annoyance and nuisance to residents.	P	4	M	Lights to be faced away from adjacent residents.	U	2	L

Environmental Risk Assessment – Soil Resistivity Testing

Table 3 Risk Assessment

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P X	C =	Risk		P X	C =	Risk
Heritage								
Unexpected heritage items encountered.	Work delays, additional studies, approvals required, damage to heritage item.	P	2	M	Testing probes to be hammered into the earth's surface by hand, if resistance is met indicating potential subsurface heritage material the probe would be moved to an alternative location. General inductions on heritage management 'stop-works' protocol and the location of known heritage items. 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 Unexpected Heritage Finds Procedure set out in the Sydney Metro Chatswood to Sydenham Unexpected Finds Policy (Transport for NSW, 2016) will be followed. The site is to be isolated and investigated by a heritage consultant. Approval to proceed required prior to re-commencing works. If previously unidentified Indigenous heritage items are uncovered during the work, all work in the vicinity of the find must cease and appropriate advice would be sought from OEH and/or heritage consultants. Work in the vicinity of the find would not re-start until clearance has been received.	U	2	L

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	Planning approval has been granted for the Sydney Metro City and Southwest - Chatswood to Sydenham works (SSI 15_7400). Mod 2 - Central Walk - Sydney Metro City & Southwest - Chatswood to Sydenham (SSI Mod). This minor works application is being completed to ensure appropriate documentation is completed to manage the environmental risks of the project.	R	3	L
Noise								
Noise impacts	Noise impacts are not predicted.	R	2	L	No environmental controls are required	R	2	L
Vibration								
Vibration impacts	Vibration impacts are not predicted.	R	2	L	No environmental controls are required	R	2	L
Water Quality, Erosion & Sedimentation								
Impacts to water quality and soil impacts are not anticipated.	Water Quality and Soil impacts are not predicted.	R	2	L	No environmental controls are required	R	2	L
Waste								
Waste generation	Waste would not be generated.	R	2	L	No environmental controls are required	R	2	L
Contamination								
Risk of contamination	The proposal does not involve excavation, no contamination risk is identified.	R	2	L	No environmental controls are required	R	2	L

Hazardous Materials								
Hazardous materials	No hazardous materials or plant equipment are involved in the proposal.	R	2	L	No environmental controls are required	R	2	L
Biodiversity								
Impacts to flora and fauna	Vegetation trimming / clearing is not required, no impacts to biodiversity are anticipated.	R	2	L	No environmental controls are required	R	2	L
Air Quality								
Impacts to air quality.	There would be no impacts to air quality.	R	2	L	No environmental controls are required	R	2	L
Traffic								
Impacts to local traffic.	There would be no impacts to local traffic.	R	2	L	No environmental controls are required	R	2	L
Resources and Energy Use								
Impacts to resources and energy use.	There would be no impacts to resources and energy use.	R	2	L	No environmental controls are required	R	2	L

Probability:	**Consequence:**
5 = Certain **4** = Likely **3** = Possible **2** = Unlikely **1** = Rare	**5** = 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	

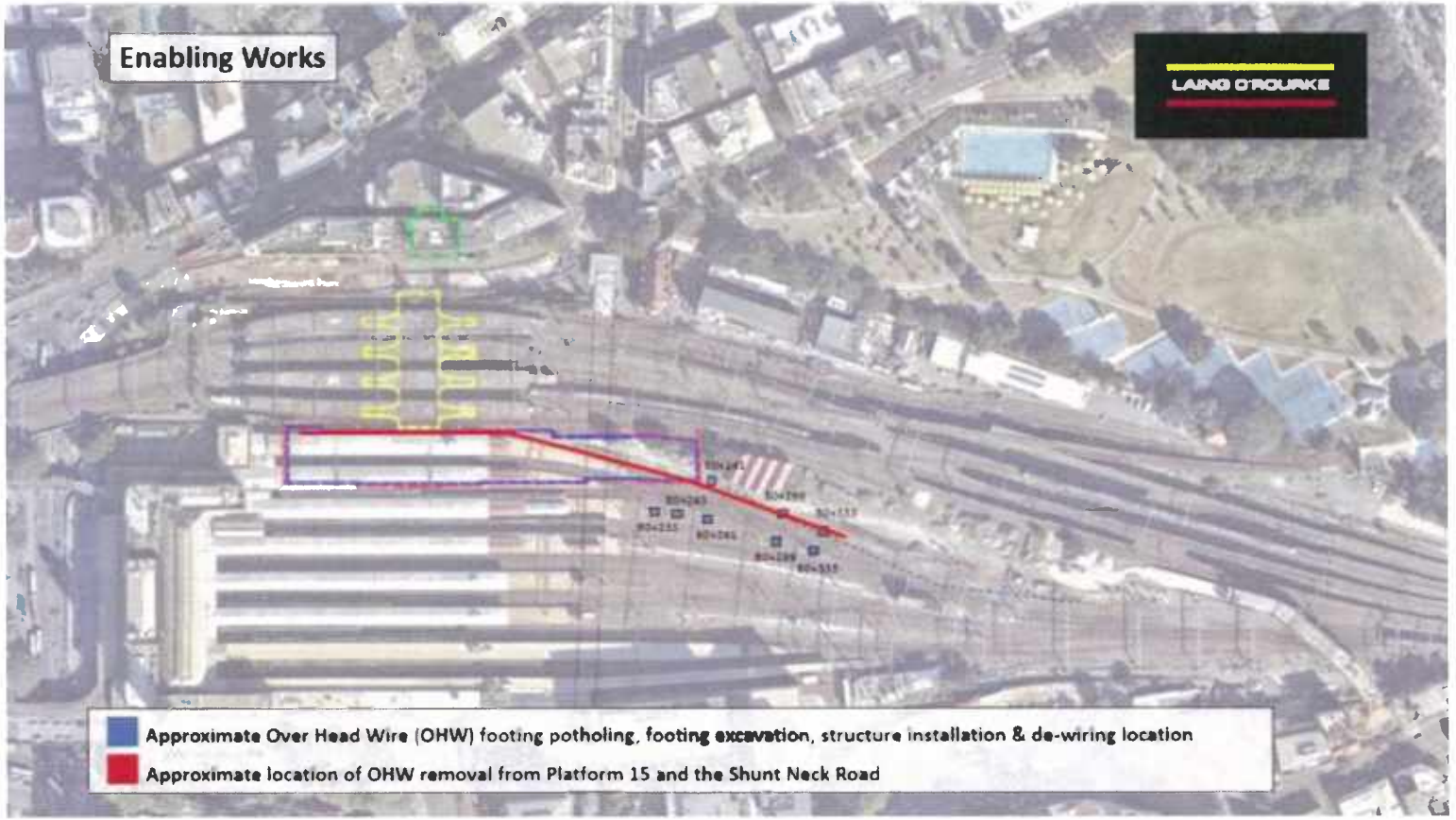
5	Certain	– Common or repeating occurrence – Consequence can reasonably be expected to occur in life of Project.	5	Severe	– Major pollution incident causing significant and widespread damage or potential to health or the environment – Persistent reduction in ecosystem function and value. – Ongoing disruption and loss of protected species. – Major prosecution likely, outcome in excess of $500,000
4	Likely	– 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	– 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	– 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	– 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	– 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	– 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	– Practically impossible – Not known to have occurred in industry or unheard of.	1	Incidental	– 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 ► / ▼Consequence	CERTAIN 5	LIKELY 4	POSSIBLE 3	UNLIKELY 2	RARE 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

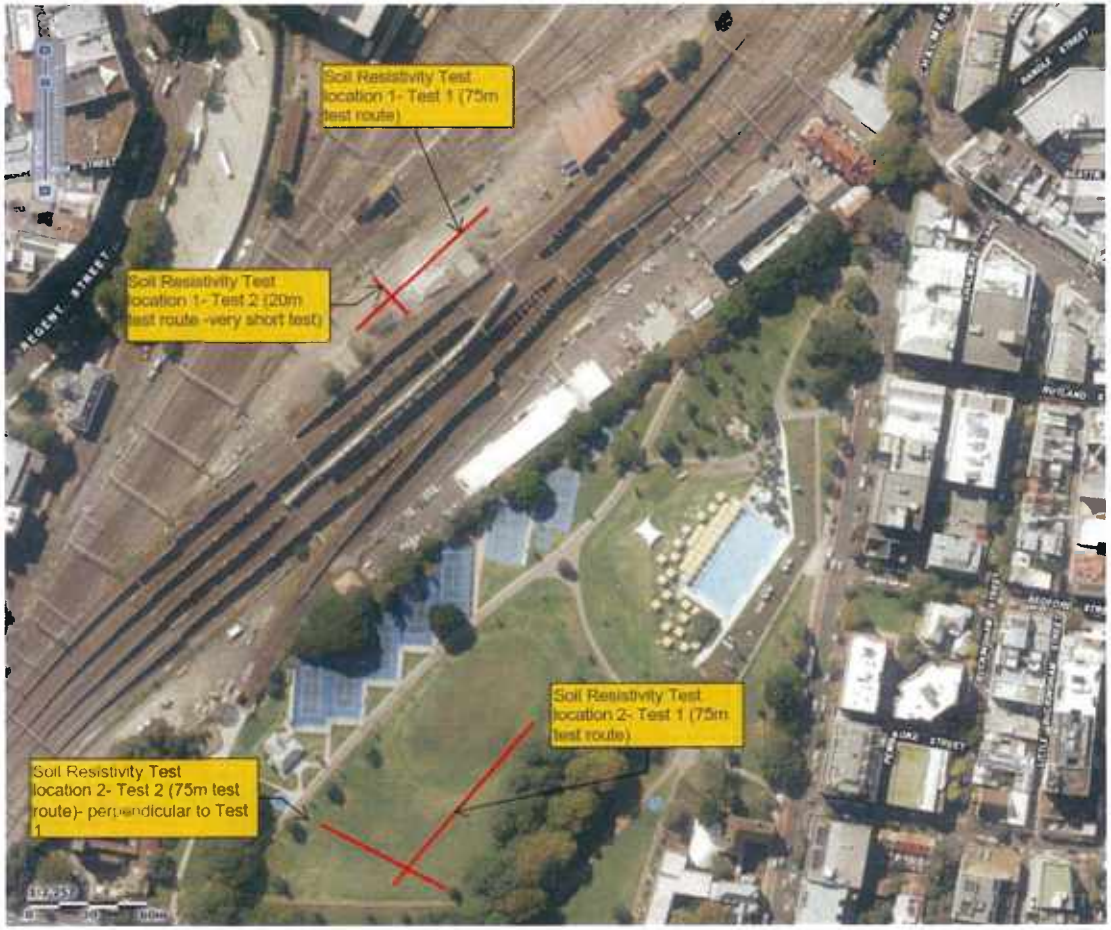
Central Station Main Works 007

Locations of new OHW structures (grey boxes)



Note: The requirements for locating mitigation and management measures are detailed in the table further below.

Locations of Soil Resistivity Testing in Sydney Yard and Prince Alfred Park



Environmental Control Map

Environmental Management - Environmental Control Map Central Station Main Works 007	
Investigative Work / Environmental Aspect	**Description**
Works	• De-wiring of existing overhead wiring structures at B0+231, B0+243, B0+261, B0+299 and B0+333 • Service investigation to locate all services within the vicinity of the new OHW structures, comprising of mechanical digging with an 8t excavator to remove ballast surface material between 0.3-0.5m followed by non-destructive digging (NDD) with vacuum excavators searching in an L shape to a depth of approximately 1.5mbelow ground level • The footing construction would involve an 8t excavator to remove material to 1m deep with a bucket, then piling with an augur attachment to a depth of 6m • The 8t excavator would then lift and lower the pile cage, followed by lifting and placing the pedestal top reinforcement and formwork box. Concrete agis would deliver concrete to be placed with boom pumps, the formwork box would be backfilled • The installation of new overhead wire structures in the locations shown in Figure 1, consisting of the single mast type in close proximity to the platforms (two structures at chainages B0+231 and B0+243) and the over-track dual mast type further to the south (three structures at chainages B0+261, B0+299 and B0+333). • Soil Resistivity Testing at Sydney Yard - one 20m transect and one 75m transect. • Soil Resistivity Testing at Prince Alfred Park – two 75m transects.
Program	• 14 July to 31 August 2018 • Out of Hours (including Saturday and Sunday) as required. A separate Out of Hours Application will be submitted to the Acoustic Advisor, Environmental Representative and Sydney Metro for Approval prior to works proceeding
Induction / General	• All staff and contractors to be trained on the sensitive heritage environment they are working in and the location of sensitive receivers near the works, the worksites and access points. Other relevant environmental issues will also be discussed. • Daily pre-start/toolbox meetings to include this Environmental Controls Map and to address specific day to day environmental concerns. • This ECM will be displayed on site at worksites and accommodation.
Soils and water	• Where required, sandbags / silt socks to be placed around drain inlets adjacent/downslope. • Existing stormwater drainage points will be identified prior to investigative excavation works. • All vehicle wheels to be clean prior to exiting site. • Ensure measures are inspected and maintained as the works progress and also prior to and post rainfall events. • Investigative excavations backfilled after shift finishes. • Induction and toolbox talks; educate site staff on licence conditions and consequences of prosecution. • No water discharge anticipated for the works. If required, Environmental Manager/representative to approve all water discharges from site
Air Quality	• All excavated spoil will be removed via spoil bags, no spoil will be stockpiled on site. • Well maintained plant/ equipment and pre-start checks and servicing. • Non-complaint vehicles removed from site / repaired. • The engines of all on-site vehicles and plant would be switched off when not in use for an extended period. • All vehicle and machinery movements during works is restricted to designated areas.
Waste	• Maintain waste dockets for the site. • Removal of wastes from the site would only be undertaken by a licensed contractor as required by the POEO Act. All material that requires off-site disposal to be appropriately classified against the EPA Waste Classification Guidelines (2014).
Heritage	• A number of items of heritage significance have been identified adjacent to the proposal area, the

	items include: - Platforms 10/11, 12/13 and 14/15 - the Cleaners Amenities - Rolling Stock Building • The State Heritage listed Sydney Terminal and Central Railway Station curtilage (SHR no.01255) is at the proposed works. • The investigation works should be monitored by a suitably qualified archaeologist in accordance with the AMS (Artefact May 2018). • If suspected heritage item encountered. Works to stop immediately and Environmental Manager contacted. The Unexpected Heritage Finds Procedure set out in the Sydney Metro Chatswood to Sydenham Unexpected Finds Policy (Transport for NSW, 2016) will be followed. The site is to be isolated and investigated by a heritage consultant. Approval to proceed required prior to re-commencing works. • If previously unidentified Indigenous heritage items are uncovered during the work, all work in the vicinity of the find must cease and appropriate advice would be sought from OEH, RAPs and/or heritage consultants. Work in the vicinity of the find would not re-start until clearance has been received. • Unexpected finds of heritage items must be reported to Sydney Metro and ER. • An archaeologist is to monitor investigation works • Excavators should follow the existing access roads (or railway lines where required) and should not be parked abutting or close to any elements of significance. Tools, equipment and materials should be stored away from elements of significance. • The excavators should be controlled sufficiently to prevent inadvertent direct or indirect impacts to any nearby significant fabric or infrastructure. • General inductions on heritage management 'stop-works' protocol and the location of known heritage items. • No impact to significant heritage fabric is permitted during works. • The nominated Heritage Architect or Heritage Consultant should be consulted regarding methods and locations for installing equipment used for vibration, movement and noise monitoring of heritage-listed structures, in accordance with Condition E31 of the CSSI approval.
Noise and Vibration	• Control measures as per Community Consultation Strategy (CCS) are to be implemented. • Residential receivers on Chalmers, Devonshire, Regent and Gibbons Streets (those within the vicinity of the access points and work sites and with a direct line of sight) will be notified of the works via letter box notifications. • All plant used regularly on site will have non-tonal alarms. • Schedule noisy activities during daytime hours as far as practical. • Turn off plant that is not being used. • Ensure plant is regularly maintained, and repair or replace equipment that becomes noisy. • Noise monitoring will be carried out to validate noise predictions and also in response to any complaints. • All out of hours works require endorsement / approval from the Environmental Manager, Sydney Metro, Environmental Representative and Acoustic Advisor. • All works will be completed in compliance with Sydney Metro CEMF, SSI 15_7400 Planning Approval and Modification, Construction Noise Strategy and EPL 12208 requirements. • Community notifications will be drafted and sent to Sydney Metro Community Liaison team for approval and issued in accordance with the Sydney Metro Community Communication Strategy. • Vibration impact from the works are unlikely. • The works are likely to result in negligible indirect impacts to Platforms 10/11, 12/13 and 14/15, the Cleaners Amenities and Rolling Stock Building. • Ensure that vibration from construction activities does not exceed the vibration limits set out in the British Standard BS 7385-2:1993, in accordance with Condition E28 of the CSSI approval.
Traffic and Transport	• Access to site will be from Regent Street via the SYAB. • Plant movements are restricted to the designated traffic routes. If plant is required to be delivered outside of normal hours due to safety concerns contact Environmental Manager. • Site vehicles shall be parked within the rail corridor and not affect public parking area • No road/lane closures required. • Deliveries of plant and materials shall be undertaken outside of peak periods where possible • Truck deliveries during standard construction hours only. • All delivery drivers will be briefed on the sensitive nature of the site given its State Heritage listing.

	• Additional traffic control will be implemented as required. • 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. • Adhere to the TCP for access on the Sydney Yard Access Bridge
Utilities	• Any impacts to utilities will be reported to site HSE Manager, supervisors, Sydney Trains and Sydney Metro. • Dial before you dig as control measure for underground utilities
Biodiversity	• No vegetation removal/trimming is permitted • If fauna is encountered on site – stop work and contact the site supervisor. • Trenches/excavations would be covered at the end of each day and inspected before they are backfilled to ensure no fauna species are harmed.
Chemical and fuel storage and use	• 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, concentration of contaminants on site if found. • 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.
Imported materials	• All sources of imported materials must be approved and sourced by appropriately licenced supplier.
No-go zones	• Work within approved areas only as identified in this Minor Works Approval
Lighting	• Lighting towers for OOHW to face away from residents so as to prevent light spill.

Contact Information		
Position	Name	Phone
LOR Project Leader	Jamie Jack	0477 355 531
LOR/Sydney Metro Communications Manager	Peter Whelan	0403 133 490
LOR Environmental Manager	Chris McCallum	0408 264 164
LOR WHS Manager	Richard Keys	0408 966 187
Environmental Representative	Annabelle Reyes	0416 170 480
Sydney Metro Environment Manager	Andrew Hendy	0475 983 494
Sydney Metro City and Southwest Info Line		1800 019 989
Sydney Trains Info Line		131 500
TfNSW Construction Response Line		1800 775 465
TfNSW Info Line		1800 684 490
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

Appendix 2: Cover Page

Environmental Management Documentation

- Archaeological Method Statement
- Statement of Heritage Impact
- OEH / Heritage Division Consultation

artefact

Central Station Main Works –Early Works: Archaeological Method Statement for piling and excavation

Project: Sydney Metro – Chatswood to Sydenham	**Date:** 28 May 2018
Project site: Central Station Main Works	**Author:** Shona Lindsay (Senior Heritage Consultant); Dr Iain Stuart (Excavation Director - Historical), Dr Sandra Wallace (Excavation Director – Aboriginal)
Contractor: Laing O'Rourke	**Contact:** Chris McCallum

Background

This Archaeological Method Statement (AMS) outlines the archaeological approach and methodology to manage early works impacts to significant non-Aboriginal archaeological remains and Aboriginal objects at the Central Station Main Works site. An initial AMS was prepared by Artefact Heritage for early works (Artefact April 2018), and this report will deal with early works for overhead wire structure preparation.

Heritage items, including significant archaeological remains and Aboriginal objects, cannot be impacted prior to approval of the Construction Environmental Management Plan (CEMP) and heritage sub-plan in accordance with the Minister's Conditions of Approval for the Sydney Metro City & Southwest - Chatswood to Sydenham project, unless otherwise determined by the Secretary in consultation with OEH.

This AMS does not include management for other areas of the Central Station Main Works project site.

The methodology has been informed by, and is in accordance with, the following project assessment and management documents:

- Artefact Heritage 2016a. Sydney Metro City & Southwest - Chatswood to Sydenham Non-Aboriginal Archaeological Assessment and Research Design (AARD)
- Artefact Heritage 2016b. Sydney Metro City & Southwest - Chatswood to Sydenham Aboriginal Cultural Heritage Assessment Report (CHAR)
- Artefact Heritage 2017. Central Walk – Addendum AARD
- Artefact Heritage April 2018. Central Station Main Works – Early Works: Archaeological Method Statement (AMS)
- Transport for NSW 2017. Sydney Metro Unexpected Heritage Finds Procedure
- Transport for NSW 2018. Sydney Metro Exhumation Management Plan

Approval framework

The CEMP including the heritage sub-plan for the approved Central Station Main Works project has not yet complied with Conditions C1 to C7 of the Minister's Conditions of Approval for the Sydney Metro City & Southwest - Chatswood to Sydenham project.[1] The Heritage Division of the NSW Office of Environment and Heritage (OEH) and the relevant local councils are required to review the CEMP heritage sub-plan prior to its publication, in accordance with Conditions C1 and C3 of the Critical State Significant Infrastructure (CSSI) approval.

The Conditions of Approval stipulate that low impact work, such as investigative excavations, is able to be undertaken prior to the approval of the CEMP heritage sub-plan unless heritage items (including significant archaeological sites, relics and Aboriginal objects) are affected or potentially affected.[2] However, where heritage items (including significant archaeological sites, relics and Aboriginal objects) are affected or potentially affected by any low impact work, the approval of the works is determined by the secretary in consultation with OEH. This AMS is required to act as a framework to manage impacts to archaeological heritage items during additional early works.

Condition E17 stipulates requirements for AMS documents. As this AMS relates only to early works the Condition E17 would not be met at this stage. An additional AMS, or several work stage specific AMS documents, would be provided prior to construction works at a later date.

Condition E18 requires the nomination of an Excavation Director who complies with the Heritage Council of NSW's Criteria for Assessment of Excavation Directors (July 2011). Information on the nominated Excavation Directors have been provided for approval by the Heritage Division as a delegate of the NSW Heritage Council. Heritage Division have acknowledged that both the Primary and Secondary Excavation Directors have complied with the requirement of Condition E18 on 7 May 2018.

Archaeological Resources

Archaeological resources at the Central Station site are related to the First and Second Railway Station expansion, Third Central Station, and the expansion of Central Station in the twentieth century and associated upgrades. The First Station was constructed in 1855 and the Second Station was built in 1874. The Third Central Station was constructed between 1906-1926 during large-scale expansion of Central Station.

The plan of archaeological management for the Central Station Main Works site prepared as part of the Sydney Metro City & Southwest - Chatswood to Sydenham AARD and amended in accordance with the Central Walk CSSI modification has been reproduced in Figure 1 (Artefact 2016a and 2017).

Proposed Works

The proposed additional early works are:

Overhead wire footing potholing and Construction in Sydney Yard

To enable amendments and removal of overhead wire (OHW) runs, new OHW structures are required to be constructed at chainages B0+231, B0+243, B0+261, B0+299 and B0+333. This would involve two stages. Firstly, service investigation to locate all services within the vicinity of the new

[1] NSW Government Department of Planning & Environment, 2017. *Critical State Significance Infrastructure Sydney Metro City & Southwest Chatswood to Sydenham Conditions of Approval*.
[2] NSW Government Department of Planning & Environment, 2017. *Critical State Significance Infrastructure Sydney Metro City & Southwest Chatswood to Sydenham Conditions of Approval*, p. 6.

OHW structures, comprising of mechanical digging with an 8t excavator to remove ballast surface material between 300-500mm followed by non-destructive (NDD) with vacuum excavators searching in an L shape to a depth of approximately 1500mm from ground level. Secondly, the footing construction would involve an 8t excavator to remove material to 1000mm deep with a bucket, then piling with an augur attachment to 6000mm. The 8t excavator would then lift and lower the pile cage, followed by lifting and placing the pedestal top reinforcement and formwork box. Concrete agis would deliver concrete to be placed with boom pumps. To ensure the track formation integrity remains before trains resume, the formwork box would be backfilled.

The locations for overhead wire footing potholing are seen in blue in Figure 2 which are south of the station platforms.

Removal of Platform 15 and Shunt Neck Road Overhead Wiring.

The works will involve the removal of overhead wiring of Platform 15 and Shunt Neck Road Overhead Wiring from OHW portals (i.e. stanchions). Elevated work platforms and power tools would be used. No excavation is required, and heritage structures will not be impacted. As no excavations are required these works will only be assessed in the Statement of Heritage Impact for the proposed additional early works.

Figure 1: Archaeological management plan for Central Railway Station including Central Walk (Source: Artefact 2016: 333 modified for Central Walk)

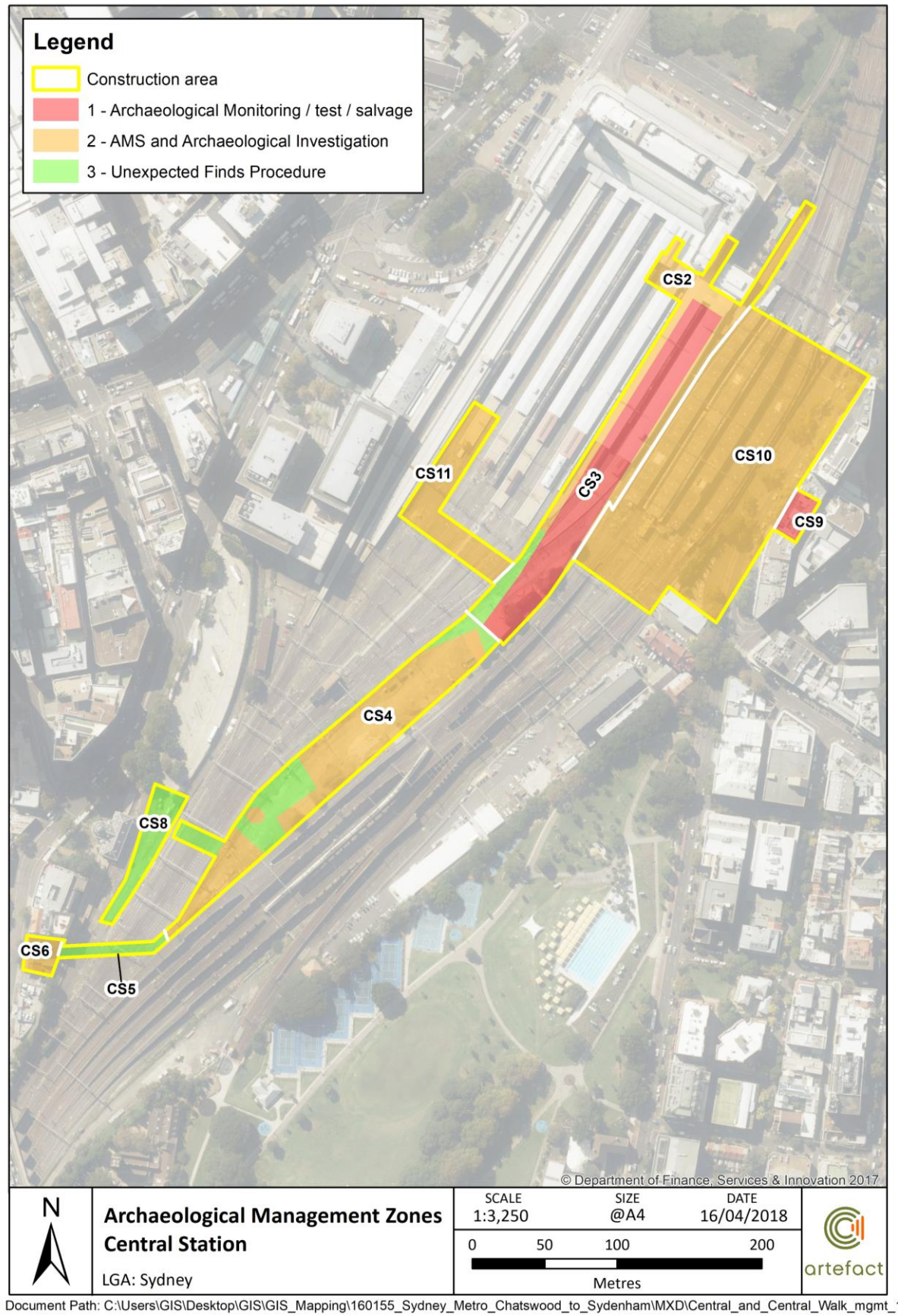


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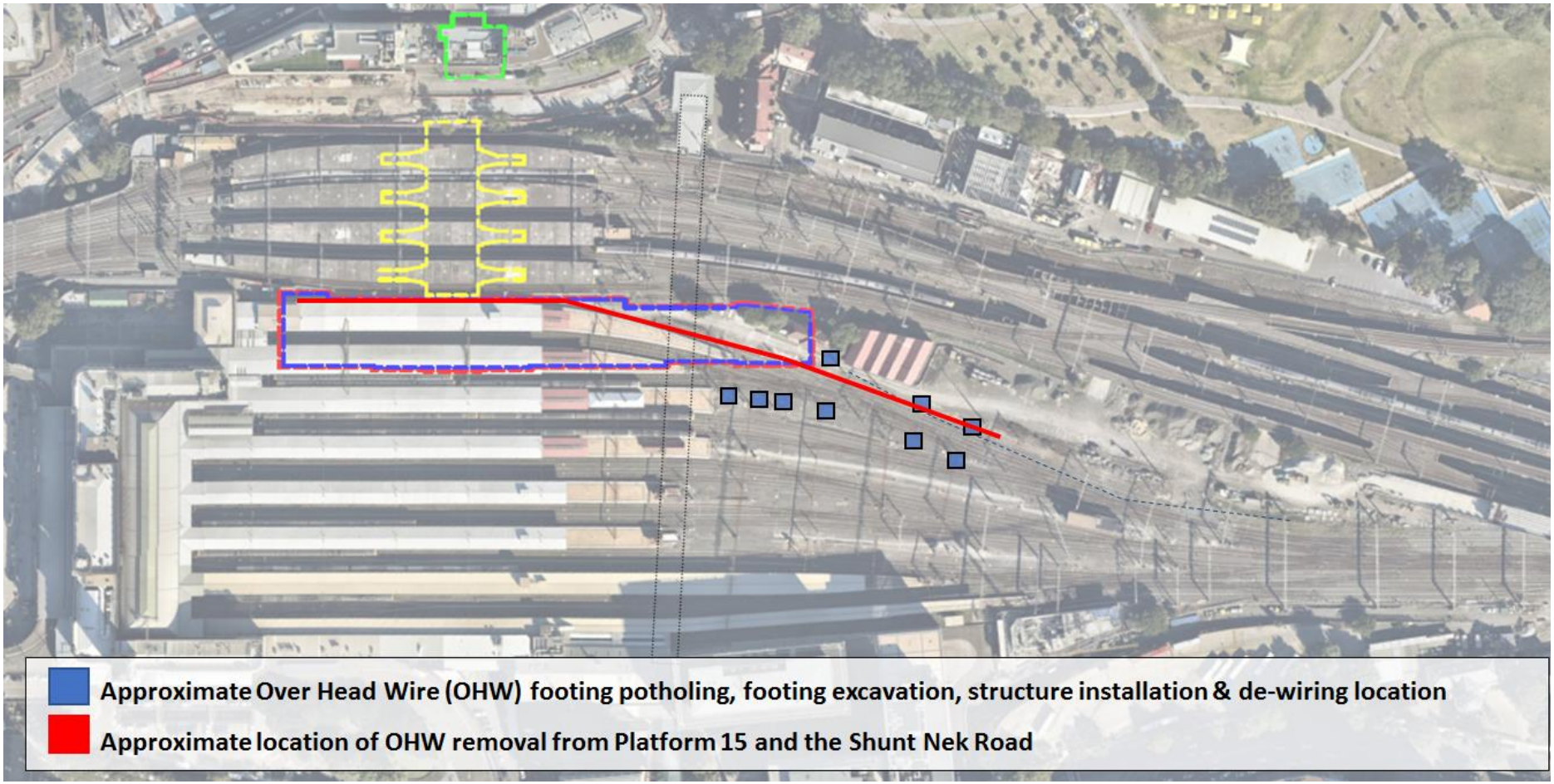
Figure 2: Plan of additional proposed early works in blue (Source: Laing O'Rourke)



Land Use Summary

A detailed historical context is included in the AARD (Artefact 2016a) and is not reproduced here. In the AARD, European occupation of the Central Station study area has been divided into four distinct phases of historical activity, which are:

- Phase 1 (1788 – 1855) early European settlement. Early land use associated with the construction of early brick and sandstone buildings, road building, wall construction, and pasturage.
- Phase 2 (1855 – 1900) first and second railway stations. Land use predominantly associated with the development of Sydney's first railway station and the expansion of the railway station. Earthworks and industrial rail infrastructure developed on the site at this time. Road building and grading in the area as nearby subdivisions are laid out and built on. Construction of early water and sewerage infrastructure.
- Phase 3 (1900 – 1930) twentieth century land resumptions and station expansion. Land use predominantly associated with the enlargement of Central station north of Devonshire Street and the large-scale earthworks required for this expansion. Excavation of large areas of tunnels, basements and below station services. Renovation of existing station sidings and facilities in southern part of the station.
- Phase 4 (1930 – present) mid- to late-twentieth century station modifications. Further excavation of below-ground service tunnels and new underground platforms. Redevelopment of carriage sheds and rail sidings areas.

Recent archaeological investigations

Sydney Yard Access Bridge (SYAB)

Artefact Heritage were engaged by Laing O'Rourke to archaeologically manage construction activities for the SYAB, which is part of the Sydney Metro City & Southwest – Chatswood to Sydenham project. The construction of SYAB involved excavations within Sydney Yards in CS 4. Monitoring works in November 2017 uncovered brick remains of a former structure, likely associated with the 'Railway Shop' which was part of the 'second station' development phase of Central Railway Station. The remains were recorded and removed and were assessed as being of local significance.[3]

CBD and South East Light Rail (CSELR)

Artefact Heritage were engaged by Acciona to archaeologically manage investigation and construction activities for the CBD and South East Light Rail (CSELR) project. The utility and civil works involved excavations within the Former Radio Workshop of Central Station, and within the road corridors of the surrounding streets.

Archaeological test excavations at the intersection of Eddy Avenue and Pitt Street undertaken by Artefact Heritage in May 2017 encountered the remains of a brick barrel drain. The feature was interpreted as being the remains of a brick drain depicted in Map 36 of the 1865 Trigonometrical

[3] Artefact Heritage December 2017. *Memo – Archaeological monitoring summary report.*

Survey of the City of Sydney. Metal tracks and timber sleepers associated with the former tramways were also exposed within the intersection. The remains of the drain and the tramway were assessed as being of local significance.

Preliminary investigative works monitored by GML in February 2014 identified a possible bottle dump and sandstone block at the corner of Chalmers Street and Eddy Avenue. In July 2017 the bottle dump was encountered during NDD works monitored by Artefact Heritage. The area was shown to be heavily disturbed by existing services and the bottle dump had likely been previously excavated and then redeposited. No evidence of the sandstone block identified by GML was uncovered.

NDD works within the Former Radio Workshop in Central Station undertaken in September and October 2017 uncovered the remains of former brick and trachyte block floor surfaces beneath the modern floor of the structure. The remains were assessed as being of local significance.

In March 2018 a brick and concrete structure was identified during NDD investigative works within Prince Alfred Park. The structure was identified as likely being associated with 20th century utilities. The remains were assessed as unlikely to reach the threshold of local significance.

In March 2018 a substantial sandstone structure was identified on the west side of Elizabeth Street during trenching for the installation of a conduit alignment. The feature was identified as likely representing the remains of the boundary wall of the former Devonshire Street Cemetery. The remains were assessed as potentially being State significant.

Additional archaeological test excavations and monitoring undertaken by Artefact Heritage between 2016 and 2018 also encountered numerous services along Eddy Avenue, Elizabeth Street, and Chalmers Street. These included terracotta and metal pipes, and brick service pits. These were assessed as unlikely to reach the threshold of local significance. No evidence of human burials or remains were identified within the former boundaries of the Devonshire Street Cemetery. No evidence associated with Carter's Barracks or the Benevolent Asylum have been identified along Eddy Avenue or Pitt Street.

It is noted that the excavation works and analysis of the remains for this project are still underway.

Non-Aboriginal Archaeological Resources

The following section outlines the potential archaeological remains for each site code within the study area and archaeological significance and has been divided by phase. It has been adapted from the AARD (Artefact 2016a).

Table 1: Summary of potential archaeological remains at the Central Station site

Site Code	Phase	Likely archaeological remains	Potential	Significance
CS 3	**4 (1930 – Present)**	Expansion of Central Station, existing built heritage and sub-surface deposits relating to post-1901 station infrastructure.	Nil	N/A
CS 4	**1 (1788 – 1855)**	Area located within Government Paddocks, no evidence of built structures in this area. Potential for evidence of former wooden boundary fences, postholes, field drains, isolated artefact scatters.	Nil - Low	N/A

Site Code	Phase	Likely archaeological remains	Potential	Significance
	2 (1855 – 1900)	First and second railway station expansion (1855 and 1874) located in this area. This area was predominantly the location of the main rail sidings and train storage areas. Buildings consisted of stone, wood and brick train sheds and workshops, of which former footings and discarded industrial objects are likely to be present. Rail siding lines also present, likely partially remaining below modern ground surface. Rail infrastructure from this period could include former signalling equipment and rail points as well as rail beams, sleepers and ballast. A train turntable was located in this area from 1855 until 1895. The turntable was likely infilled during the third phase of Central Station's expansion in 1901. Remains associated with the turntable would include the outer brick-lining of the turntable; a metal circular rail around the lower base of the turntable supported by wooden sleepers and footings; the possible remains of a steel rail bridge used to support the locomotives; and mechanical remains of the central pivot to the rail bridge. Remnants of the original fabric of the Prince Alfred Sewer may be located in this area. Remains associated with the sewer could include sandstone culverts, sandstock brick barrel drains and isolated artefact deposits.	Moderate - High	Local – State
	3 (1900 – 1930)	East carriage shed was constructed during this period, demolished in 1987. Potential remains include postholes, footings, surfaces and artefacts.	Moderate - High	N/A
	4 (1930 – Present)	Area is predominately open ground with sealed road and side yards, with three existing structures on the site (two sheds, one brick building).	Nil	N/A

Archaeological potential

Archaeological remains associated with the following phases may be present in the proposed Central Station Main Works additional early works areas:

Overhead wire footing potholing and Construction in Sydney Yard

- First and second railway expansion
- Third Central Station expansion
- Expansion of Central Station, existing built heritage and sub-surface deposits relating to post-1901 station infrastructure.

Archaeological impact assessment

Excavation of ballast

The proposed machine excavation of ballast to a depth between 300-500mm would be located within modern ballast and would not impact the potential archaeological resource.

NDD and excavation of OHW footings

The proposed NDD for service investigation to a depth of approximately 1500mm from ground level and the proposed machine excavation for the footings of the OHW structures to a depth of 1000mm would have the potential to impact archaeological remains associated with the first, second, and third Central Station expansion. Previous excavations in the area have identified brick footings of twentieth century buildings relating to the third phase of expansion of Central Station, drainage infrastructure that was deemed to not reach the threshold of local significance, and twentieth century railway infrastructure such as footings of stanchions. The proposed NDD and machine excavation may impact on the potential archaeological resource. This impact cannot be avoided by relocating the OHW structures due to moderate to high potential of archaeological remains throughout the area, the small excavation area, and the requirement of having the OHW structures in place to align with rail tracks.

To mitigate potential archaeological impacts the proposed archaeological methodology would include archaeological monitoring, recording, surveying, and salvage, as required, as outlined in the below methodology. This information would inform (including the development of a specific research design and questions) a more detailed AMS that would be prepared prior to excavation of the station box during the construction phase of the project.

Impacts to significant archaeology mitigated by the proposed archaeological methodology are likely to be minor and acceptable as any impacted archaeological remains in the localised area of excavation would be recorded.

OHW piling

Ground disturbing impacts from auguring for the piles would be to a depth of 6000mm but localised to the vicinity of the piling works. Piling works could impact potential archaeological remains to a significant depth, restricted directly to size of piling areas. Potential archaeological remains associated with the first, second, and third Central Station expansion may be impacted. Due to the nature of the proposed works being localised areas that could not be fully mitigated under monitoring it is assessed that the proposed auguring may impact on the potential archaeological resource.

Impacts to significant archaeology are likely to be minor and acceptable as piling would start at 1500mm depth so it is likely any archaeological remains would be identified during the monitoring for the NDD and footings excavation above. Given the localised nature of the excavation any deeper impacts are likely to be minor.

Work Stage Specific Archaeological Methodology

The AMS archaeological methodology would meet the requirements of Chapter 12 of the project ARD which discusses details of archaeological methodologies. These requirements are not reproduced in detail, but where relevant are discussed below.

The Archaeological Method section of the AARD in relation to Central Station notes that ground disturbance and excavation works would be required.

> *Excavation work within the former Devonshire Cemetery site (Sites CS 2 and CS 3) would require archaeological management. As potential for human skeletal and burial-related remains cannot be ruled out entirely at this stage, archaeological monitoring and testing should be undertaken.*

Ground disturbance and excavation work in Sites CS 4 with potential to impact significant archaeological remains (rail-related 1850s-1900s) would require archaeological mitigation. This would be monitoring or test/salvage depending on extent of work and level of potential impact, for example, archaeological test/salvage in the northern part of Site CS 4 subject to bulk excavation for the station utilities structure.

In summary, the archaeological mitigation for CS 3 and CS 4 would include preparation of an AMS (this document), and archaeological monitoring during early works due to the low potential for impacts.

The proposed overhead wire footing potholing and construction would be located in Sydney Yards. It would involve service investigation including mechanical digging for removal of ballast material between 300mm-500mm followed by NDD to a depth of approximately 1500mm from ground level. Following this machine excavation would remove material to 1000mm deep then piling with an augur attachment to 6000mm. It is recommended that archaeological monitoring is undertaken during the machine excavation and NDD to mitigate potential impacts to the archaeological resource. This would include recording significant archaeological resources as per the below methodology prior to impacts. The auguring cannot be mitigated as monitoring of these works to reduce impacts to potential archaeology is not feasible therefore archaeological management is not proposed.

Works may proceed under on call provisions if approved to do so by the Excavation Director.

Contractor

The contractor would set up site and then operate under the direction of the archaeologists during archaeological monitoring of the early works, as appropriate. This would involve:

- Set out and secure the work area for the construction and archaeological team
- Provide a site induction to contractors in consultation with the Excavation Director.

Historical archaeological monitoring of early works – Machine excavation and NDD

Due to the potential for archaeological resources to be located within the study area, the proposed machine excavation and NDD would be archaeologically monitored. As the auguring for piles cannot be archaeologically managed through monitoring this would occur under the unexpected finds procedure.

Archaeological monitoring is where an archaeologist is in attendance and supervising construction excavation work with potential to expose or impact archaeological remains. Monitoring is generally undertaken where there is lower potential for significant archaeological remains and/or where minor excavation work is in an area of archaeological sensitivity.

If archaeological remains are identified during archaeological monitoring, they would be recorded and assessed to determine their heritage significance. Localised stoppages in the construction work would be required to facilitate this process. Works would not recommence until the monitoring archaeologist has completed the recording and is satisfied that further investigation is not required.

Should hazardous materials or contaminants be identified during archaeological monitoring, ground excavation would cease until appropriate controls or remediation is conducted by Laing O'Rourke.

Excavation recording methodology

Excavation recording

A record of archaeological investigation would be made in accordance with the methodology outlined in the ARD 2016. The recording methodology includes the following:

- A site datum would be established
- Survey and scaled plans of the monitoring area and any significant archaeological features uncovered in the monitoring program. The plans would include elevations recorded with a dumpy level. Should a large amount of archaeological resources be identified, the site would be digitally surveyed and recorded
- Scaled section drawings where appropriate
- Digital photography, in RAW format, using photographic scales and photo boards where appropriate. A photographic record of all phases of the work on site would be undertaken
- A standard context recording system will be employed: The locations, dimensions and characteristics of all archaeological features and deposits will be recorded on a sequentially numbered context register. This documentation will be supplemented by preparation of a Harris matrix showing the stratigraphic relationships between features and deposits
- Artefact collection by context. Large or redundant artefactual materials from individual contexts would be sample collected. Hazardous material would not be collected.

Reporting

A preliminary findings report would be prepared following completion of the works outlined in this AMS in accordance with the ARD (Artefact 2016a:314). This report would outline the main results and identify if further archaeological work would be required.

An archaeological excavation report would be prepared following the completion of the program of archaeological works for the entire Central Station Main Works. This report would comprehensively describe and interpret the findings of the excavation program within the context of the research design. It would include photographs and plans of the site and contexts. Recovered artefacts would be catalogued, assessed and analysed by material specialists as required, depending on the nature of the finds. These records and analyses would be developed in response to research questions provided in the ARD for the project (Artefact 2016a: 261 – 263).

Curation of archaeological material

Storage and curation strategies have been adapted from the Salvage and Storage Strategy of the Sydney Metro Integrated Management System (Transport for NSW 2016a: 5 – 6).

Collection of artefacts would be in the context of the ARD, which state that “retrieval of artefacts would focus on those whose analysis would contribute to research agendas, or would be representative of the site” (Artefact 2016a:315).

Following excavation, all collected artefactual material would be stored by Artefact Heritage in order to conduct post-excavation material analysis. Once post-excavation analysis and salvage excavation

reporting has been completed, ongoing curation and long-term care of the collection would be at the discretion of Transport for NSW. Archaeological materials may be incorporated into interpretative or public display depending on the nature of recovered finds.

Large archaeological items, or items that require special care (i.e. material that is in danger of deterioration post-excavation), would be stored in appropriate facilities co-ordinated with and managed by Transport for NSW under the projects salvage strategy.

Human Remains

Discovery of suspected human remains would be managed under the project Unexpected Finds Policy and the Exhumation Policy (Transport for NSW 2016b; Transport for NSW 2016c). All suspected bone must be treated as potential human skeletal remains and work around them must stop while they are protected and investigated. **Human remains cannot be impacted during early works.** As the location of the augers is outside the boundary of the former cemetery it is unlikely that human remains would be impacted.

Aboriginal archaeological heritage strategy

The Central Station Main Works site is within Method Area 2 as outlined in the Aboriginal Cultural Heritage Assessment Report (CHAR) (Artefact Heritage 2016b). In accordance with the provisions for MA2 Aboriginal archaeological test/salvage excavation would be undertaken where intact natural soil profiles with the potential to contain significant deposits, or Aboriginal objects, are located during historical archaeological excavations. Intact sands may be impacted by the piling works but as the augur holes are small and localised the piling works are unlikely to impact Aboriginal objects.

If Aboriginal objects were identified during early works the Aboriginal archaeological team would be notified by the Excavation Director and a qualified archaeologist experienced in Aboriginal archaeology would assess the find**.** If the find was found to trigger archaeological management under the CHAR, the registered Aboriginal Parties and Office of Environment and Heritage (OEH) would be notified in accordance with the Unexpected Finds Procedure.

If Aboriginal objects or areas of intact soil profile were to be identified this AMS would be updated to outline an appropriate methodology for the works in accordance with the CHAR. Any excavation and analysis would be undertaken in accordance with the project CHAR.

Team and timing

Archaeological team

The archaeological team would comprise:

- Primary Excavation Director – Dr Iain Stuart (JCIS Consultants/ Artefact Heritage)
- Secondary Excavation Director – Jenny Winnett (Senior Heritage Consultant, Artefact Heritage)
- Site Director – Shona Lindsay (Senior Heritage Consultant, Artefact Heritage)
- Excavation Director (Aboriginal) – Dr Sandra Wallace (Principal, Artefact Heritage)
- Forensic Anthropologist – Dr Denise Donlan (Senior Lecturer in Anatomy and Curator, Shellshear Museum, University of Sydney)

- Archaeologists – Adele Zubrzycka (Senior Heritage Consultant, Artefact Heritage), HollyMae Steane Price (Heritage Consultant, Artefact Heritage), Jessica Horton (Graduate Heritage Consultant, Artefact Heritage) and other subconsultants as needed.
- Archaeological Surveyor - Guy Hazell and Gala Hazell (ArcSurv)

The Excavation Directors meet the requirements of the AARD, CHAR and Condition E18.

Excavation timing

The excavation works would be monitored by an archaeologist as required under the direction of the Excavation Director. The Excavation Director would be on site during the NDD and 1000mm excavation works and when it is predicted that archaeological remains of potentially State or Local significance would be encountered, to determine the correct level of significance for any items found.

Otherwise the Excavation Director would make regular visits to the site as required to supervise the archaeological works. The Excavation Director would be on call during the excavation works to oversee responses to unexpected finds or attend on site as required.

Central Station Main Works: Additional Early Works - Overhead Wiring Statement of Heritage Impact

Project: Central Station Main Works	**Date:** 21 May 2018
Project site: Central Station	**Author:** Elanor Pitt (Heritage Consultant), Shona Lindsay (Senior Heritage Consultant), Dr Sandra Wallace (Managing Director)
Contractor: Laing O'Rourke	**Contact:** Chris McCallum

Introduction

The purpose of this Statement of Heritage Impact (SoHI) is to provide an impact assessment for additional early (enabling) works required in Sydney Yards to facilitate construction of the Central Station Main Works (CSMW), approved under the Sydney Metro City & Southwest Chatswood to Sydenham project. The works proposed involve the removal of existing overhead wiring (OHW) on Platform 15 and in Sydney Yard, and installation of the OHW in Sydney Yards. This SoHI provides a brief background for the project, outlines the proposed works, summarises the heritage listings and significance of Central Railway Station Group and elements, assesses the potential heritage impact to Central Railway Station Group as a result of the early works and provides mitigation measures to minimise potential impact. Note that this SoHI only assesses the potential built heritage impacts to the heritage item of Central Railway Station Group, and does not attempt to assess potential impacts to archaeological remains within the heritage item. A separate assessment detailing the potential archaeological impact has been prepared by Artefact Heritage (see *Central Station Main Works: Additional Early Works: Archaeological Method Statement*, dated 15 May 2018).

Background

The Sydney Metro City & Southwest Chatswood to Sydenham project involves the construction of a new metro rail line between Chatswood and Sydenham. New metro stations will be provided along the line. As part of the project, new underground platforms will be constructed at Central Station along with other modifications to upgrade sections of the station to metro standard. This part of the project is known as Central Station Main Works.

As part of the Sydney Metro City & Southwest Chatswood to Sydenham project, the Central Station Main Works project has Critical State Significant Infrastructure (CSSI) approval (SSI15_7400). The Environmental Impact Statement (EIS, May 2016) for the project included a Non-Aboriginal Heritage Impact Assessment (HIA) prepared by Artefact Heritage in April 2016.[1] The HIA identified the

[1] Artefact Heritage Services, 2016. *Sydney Metro City & Southwest – Chatswood to Sydenham Technical Paper 4 – Non-Aboriginal Heritage Impact Assessment*. Report to Jacobs / Arcadis / RPS. Version dated 12 April 2016.

heritage and archaeological impact of the proposed corridor and associated works, including proposed works at Central Station.

Early Works

The aim of this SoHI is to assess the proposed impacts of the early (enabling) works for the Central Station Main Works project.

The CEMP including the heritage sub-plan for the Central Station Main Works project is currently being developed in accordance with Conditions C1 to C7 of the Minister's Conditions of Approval for the Sydney Metro City & Southwest - Chatswood to Sydenham project.[2] The Heritage Division of the NSW Office of Environment and Heritage (OEH) and the relevant local councils are required to review the CEMP heritage sub-plan prior to its publication, in accordance with Conditions C1 and C3 of the CSSI approval.

The Conditions of Approval stipulate that low impact work is able to be undertaken prior to the approval of the CEMP heritage sub-plan unless heritage items (including significant archaeological sites, relics and Aboriginal objects) are affected or potentially affected by any low impact work, the approval of the works is determined by the Secretary in consultation with OEH.[3]. This SoHI is required to act as a framework to facilitate the avoidance of impacts to archaeological heritage items as defined by the approval, during early works.

The early works for Central Station stipulated in the Sydney Metro City & Southwest - Chatswood to Sydenham Staging Report (v3.1, February 2018), prepared to meet Conditions A12 to A15 of the CSSI approval, include works to Platforms 12 to 15 as well as customer continuity works to reduce construction impacts and to ensure the effective operation of Central Station, a new eastern concourse to connect future metro platforms to a new Chalmers Street entry and connections to the existing aboveground suburban platforms (and associated platform works).[4]

Proposed Works

The works proposed to be included as part of the early works at Central Station involve the removal of overhead wiring on Platform 15 and the Shunt Neck Roads Wiring from the OHW portals (i.e. stanchions) in Sydney Yards to the south of Platform 15, as shown in Figure 15 below. The works also involve the preparation of the area to the south of Platform 10/11, 12/13 and 14/15 within Sydney Yards for the installation of overhead wire masts, as shown in Figure 15 below. This involves overhead wire footing potholing, footing excavation, footing installation, de-wiring of existing overhead wire structures and installation of five new overhead wire structures. The new wire structures would consist of two single mast types in close proximity to the platforms and three over-track dual mast types further to the south.

Heritage Listings

A search of all relevant registers was undertaken on 4 April 2018. The results are displayed below in Table 1 and Figure 1.

[2] NSW Government Department of Planning & Environment, 2017. *Critical State Significance Infrastructure Sydney Metro City & Southwest Chatswood to Sydenham Conditions of Approval*.
[3] NSW Government Department of Planning & Environment, 2017. *Critical State Significance Infrastructure Sydney Metro City & Southwest Chatswood to Sydenham Conditions of Approval*, p. 6.
[4] Sydney Metro Delivery Office, 2018. *City & Southwest Chatswood to Sydenham Staging Report*. Revision v3.1, dated 15 February 2018. Prepared for TfNSW. Section 3.2.3.

The Heritage Item

The study area, Platform 15 and the area of Sydney Yards to the south of Platforms 10/11, 12/13 and 14/15 of Central Station, are located within the Sydney Terminal and Central Electric Precincts of the State significant heritage item, Sydney Terminal and Central Railway Stations Group (Central Station) (SHR Item No. 01255).[5] Central Station is listed on the NSW State Heritage Register (SHR), the Sydney Local Environmental Plan (SLEP) 2012 and the RailCorp Section (S.) 170 Heritage and Conservation Register (RailCorp S.170), as shown in Table 1 and Figure 1 below. The study area is also part of an item listed on the non-statutory Register of the National Estate (RNE).[6] The study area is not listed or in the vicinity of any items on the Commonwealth Heritage List or the National Heritage List.

Mortuary Station is located on Regent Street to the southwest of the Central Station SHR curtilage. It is at a distance from the works assessed in this SoHI so it is not included in the detailed impact assessments below.

Table 1: Heritage registers search results.

Item	Significance	Listing
Sydney Terminal and Central Railway Stations Group	State	SHR (Item No. 01255)
Central Railway Station group including buildings, station yard, viaducts and building interiors	State	SLEP 2012 (Item No. I824)
Central Railway Station and Sydney Terminal Group	State	RailCorp S.170 (SHI No. 4801296)
Mortuary Station	State	State Heritage Register 00157 Included in the 'Sydney Terminal and Central Railway Station Group' SHR item no. 01255 Sydney Trains S170 Sydney LEP 2012 I194

Statement of Significance for the Heritage Items

The Statements of Significance for Central Station (Sydney Terminal and Central Railway Stations Group), Sydney Terminal Precinct, Country and Interstate Platforms (Platforms 1-15), Central Electric Precinct and the Above Ground Platforms (Platforms 16-23), as well as the pertinent areas of the Sydney Yards, have been extracted in full from the *Central Station Conservation Management Plan* 2013 (CMP), prepared for NSW Transport RailCorp by the NSW Government Architect's Office and Rappoport Pty Ltd. These Statements of Significance are provided in the Appendix of this report. Note that though this CMP has not been endorsed by the Heritage Council, it is assumed to be a good foundation on which to base an assessment. A full reassessment of the Statements of Significance is considered to be out of the scope of this SoHI.

[5] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013. Central Station Conservation Management Plan, NSW Transport RailCorp, Section 5.0 Central Electric, p. 1.
[6] The Register of the National Estate is no longer recognised as a statutory heritage list, though it is still used as an inventory of Australian heritage places registered between 1976 and 2007.

Figure 1: Listed curtilage for Central Station.

Document Path: C:\Users\GIS\Desktop\GIS\GIS_Mapping\18070_Sydney_Central_Metro_SoH\MXD\Heritage_Curtilage_Central_Sydney_Yards_OHW.mxd

Grading of Elements

The following grading of elements for Central Station is not exhaustive, targeting only the items of significance with direct views of the study area. Therefore, only elements within Sydney Yards have been included. Elements not included here are considered not to be sufficiently proximate to require assessment, due to having obstructed or only partial views of the study area. Note that the significance and condition of the elements have been extracted from the 2013 CMP, but a reassessment of their significance and condition has also been reassessed for the purposes of this SoHI.

Sydney Terminal Country and Interstate Platforms (Platforms 1-15)

The Country and Interstate Platforms (Platforms 1-15) to the south of the Main Concourse, of which Platform 15 is a part, were originally built in 1906 as part of the third Central Station Terminus. The platforms were originally built with brick walls beneath the level of the platform and with timber-framed platform awnings, clad with corrugated iron (Figure 2). The original platform and awning on Platform 15 are still extant.[7]

The platforms were extended with concrete walls in the late 1990s prior to the 2000 Sydney Olympics, as part of the 1998 Olympic Enhancement Project. The existing brick paving was constructed on top of the previous surface of the platforms as part of the late 1990s works to raise the level of the platforms. As part of the Olympic Enhancement Projects, the awnings of Platform 15 were extended to the south to cover the stair connections to the subway tunnels (Figure 3).[8]

The significance of the relevant individual elements within the Country and Interstate Platforms (Platforms 1-15) area of the Sydney Terminal Precinct are provided in Table 2 below, extracted from the 2013 CMP. Note that Platform 0 is included in this assessment.

Table 2: Gradings of Significance and Condition for the Sydney Terminal Precinct at Central Station.[9]

Element	Date	Significance (2013 CMP)	Significance (Revised)	Condition (2013 CMP)	Condition (Revised)
Country and Interstate Platforms Overall	1906-Contemporary	Moderate	High	Good	Good
Country and Interstate Platforms Views and Vistas	N/A	-	High	-	N/A
Views to Central Electric Aboveground Platforms	N/A	-	High	-	N/A
Platforms 1-15 (original 1906 brick supporting walls)	1906	Moderate	High	Good	Good-Fair

[7] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 3.0 Sydney Terminal Precinct, 3.12 Country and Interstate Platforms, pp. 1-9.
[8] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 3.0 Sydney Terminal Precinct, 3.12 Country and Interstate Platforms, pp. 1-9.
[9] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 3.0 Sydney Terminal Precinct, 3.12 Country and Interstate Platforms, pp. 1-9.

Element	Date	Significance (2013 CMP)	Significance (Revised)	Condition (2013 CMP)	Condition (Revised)
Platform 1-15 Extensions (c.1990s concrete extension)	c.1998	Moderate	Moderate-Little	Good	Good
Brick paving (all platforms, including original sections and extensions)	c.1998	Moderate	Moderate-Little	Good	Good
Platforms 8-15 Original Awnings, Skylights Columns and Trusswork	1906 (timber)	Moderate	High	Fair	Fair
Platforms 8-15 Awning Extensions/Intrusions	20th century (steel)	Moderate	Little-Intrusive	Good	Good
Platform Goods Lifts (On Platforms 1-8 and 14/15)	c.1906	Moderate	High	Fair	Fair
Original Platform Lift Mechanism	1906	High	High	Good	Good
Information Boards, Vending Machines, Signage & Wayfinding	Contemporary	Little	Little-Intrusive	Good	Good
Platform Furniture	Contemporary	Little	Little	Good	Good
Introduced Services; Mechanical, Electrical, Lighting & Data	Contemporary	Intrusive	Intrusive	Good	Good
Steel mesh fencing along the edge of Platform 15	Contemporary	-	Intrusive	-	Good
Green steel fence between Platforms 15 and 16	Contemporary	-	Intrusive	-	Good
Rail infrastructure (railway lines and overhead wiring)	20th-21st century	-	Little	-	Good

Figure 2: Typical original awnings on the Sydney Terminal platforms and the c.1998 brick paving tiles (Source: Rappoport, 2013).

Figure 3: Typical awning extension on the Sydney Terminal platforms and extant balustrading (Source: Rappoport, 2013).

Central Electric Above Ground Platforms (Platforms 16-23)

The Central Electric Section is to the east of Sydney Terminal, with Platform 16 being the western-most platform, located directly opposite Platform 15. The four island platforms of the Central Electric Station, known as the Above Ground Platforms (Platforms 16-23), were built between 1922 and c.1926 as part of the electrification of Central Station. The platforms were originally accessed by the Northern Concourse below the track level, with a staircase connecting it to the Main Concourse. The platforms were built with corbelled brick supporting walls with a rendered brick top course, which are still extant (Figure 4). The still extant original awnings were built from reinforced concrete slabs supported by steel columns and trusses (Figure 5). The original asphalt surface of the platforms has been covered by the c.1998 brick tiles used to raise the level of the platforms. In c.2000, goods and passenger lifts were constructed at the northern end of the platforms to access the Northern Concourse.[10]

The significance of the relevant individual elements within the Above Ground Platforms (Platforms 16-23) area of the Central Electric Precinct are provided in Table 3 below, extracted from the 2013 CMP.

Table 3: Gradings of Significance and Condition for the Central Electric Precinct at Central Station.[11]

Element	Date	Significance (2013 CMP)	Significance (Revised)	Condition (2013 CMP)	Condition (Revised)
Above Ground Platforms Overall	1922-c.1926	Moderate	High	Good	Good
Aboveground Platforms Views and Vistas	N/A	-	High	-	N/A
Views to Country and Interstate Platforms	N/A	-	High	-	N/A

[10] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 5.0 Central Electric Precinct, 5.4 Above Ground Platforms, pp. 1-5.
[11] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 5.0 Central Electric Precinct, 5.4 Above Ground Platforms, pp. 1-5.

Element	Date	Significance (2013 CMP)	Significance (Revised)	Condition (2013 CMP)	Condition (Revised)
Platforms and Original Asphalt Platform Surface	1922-c.1926	Moderate	High	Fair	Good-Fair
Brick Paving	c.1998	Moderate	Moderate-Little	Fair	Good
Corbelled Platform Walls	1922-c.1926	Moderate	High	Good	Fair
Iron Balustrades and Sign Brackets	1922-c.1926	Moderate	High	Good	Good
Concrete Platform Roofs, Columns and Trusswork	1922-c.1926	High	High	Good	Good
Stairs to Subway Tunnels and Northern Concourse	1922-Mid 20th Century	Moderate	Moderate	Good	Good
Central Signs/Signage and Wayfinding	Mid-20th century/ contemporary	High/Little	High/Little	Good	Good
Mid to Late 20th Century Platform Sheds	Mid to Late 20th Century	Little	Little	Good	Good
c.2000 Metal Clad Platform Sheds	c.2000	Little	Little	Very Good	Good
Lifts (northern platform ends)	c.2000	Little	Little	Very Good	Good
Introduced Services; Mechanical, Electrical, Lighting & Data	Late 20th century/ contemporary	Intrusive	Intrusive	Good	Good
Furniture	Contemporary	Little	Little	Good	Good
Rail infrastructure (railway lines and overhead wiring)	20th-21st cent.	-	Little	-	Good

Figure 4: Original corbelled brickwork of the platform supporting wall, trusswork and columns of the awnings and original iron balustrading (Source: Rappoport, 2013).

Figure 5: The steel trusses and reinforced concrete awning along the platforms (Source: Rappoport, 2013).

Figure 6: Typical guard room/information shed located centrally on all platforms (Source: Rappoport, 2013).

Sydney Yards

The Sydney Yards comprise the central portion of Central Station, located to the south of the Sydney Terminal Platforms. The Sydney Yards date back to c.1855 as part of the yards of the first and second Sydney Termini, which contained a number of workshops, railway tracks and vacant land. The Rolling Stock Officers Building, built between 1929 and 1949, is situated at the northern end of the Sydney Yards. The building is a two-storey face-brick Inter-War structure, but has undergone some internal alterations for an office fit-out and a ground level substation (Figure 7).[12] The garden surrounding the Rolling Stock Officers Building appears to have been established contemporaneously with the Rolling Stock Officers Building as a formal entry to the building (.[13]

The Shunters Hut, constructed from recessed cast concrete panels and a fibro pitched roof, was built in the first half of the twentieth century, is located along the south-eastern boundary of the Sydney Yards (Figure 10).[14] The Brick Store, located to the north-east of the Shunters Hut along the

[12] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.0 Sydney Yards, 4.2 Rolling Stock Officers Building, pp. 1-3.
[13] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.0 Sydney Yards, 4.1 Garden, pp. 1-3.
[14] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.5 Shunters Hut, pp. 1-2.

south-eastern boundary of the Sydney Yards, was constructed from red brick and a metal skillion roof in the early to mid-twentieth century (Figure 11).[15]

The Cleaners Amenities, located to the north of the Sydney Yard, is a face-brick Interwar building constructed in c.1929 (Figure 13).[16] The Prince Alfred Sewer, constructed in 1857, crosses the Sydney Yard, to the south of the Cleaners Amenities Building. It is an unlisted subsurface sewer that is a disconnected part of the heritage listed Blackwattle Bay stormwater system. A steel drain cover with concrete casing (Figure 12) is the only visible above-ground component of the sewer.[17] The Yard Controller Building is a narrow two-storey face-brick utilitarian building built in the 1960s, located to the north-east of the study area (Figure 14).[18]

The significance of the relevant individual elements within the Sydney Yards to the south of the Central Electric Precinct are provided in Table 4 below, extracted from the 2013 CMP.

Table 4: Gradings of Significance and Condition for the Sydney Yards at Central Station.[19]

Element	Date	Significance (2013 CMP)	Significance (Revised)	Condition (2013 CMP)	Condition (Revised)
Sydney Yards Overall	c.1855-Present	Moderate	Moderate	Good	Good-Fair
Sydney Yards Views and Vistas	N/A	Little	Little-Moderate	N/A	N/A
Sydney Yards Context and Setting	N/A	Little-Moderate	Little-Moderate	N/A	N/A
Sydney Yards Garden	c.1929-1949	High	Moderate	Fair	Fair
Rolling Stock Officers Building Overall	c.1929-1949	Moderate	Moderate	Good	Good
Shunters Hut Overall	c.1900-1950	Moderate	Moderate	Fair	Fair
Brick Store Overall	c.1920s-1950	Little	Little	Very Poor	Poor
Prince Alfred Sewer Overall	1857	High	High	Unknown	Unknown
Cleaners Amenities Overall	c.1929	Moderate	Moderate	Fair-Poor	Fair-Poor
Yard Controller Building	c.1960s	Little	Little	Good	Fair
Rail infrastructure (railway lines and overhead wiring)	20th-21st cent.	-	Little	-	Good

[15] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.6 Brick Store, p. 1.
[16] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.3 Cleaners Amenities, p. 3.
[17] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.4 Prince Alfred Sewer, pp. 1-2.
[18] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.7 Yard Controller Building, pp. 1-2.
[19] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.0 Sydney Yards.

Figure 7: The Rolling Stock Officers Building (Source: Rappoport, 2013).

Figure 8: The garden surrounding the Rolling Stock Officers Building (Source: Rappoport, 2013).

Figure 9: The Cleaners Amenities building (Source: Rappoport, 2013).

Figure 10: The Shunters Hut (Source: Rappoport, 2013).

Figure 11: The Brick Store (Source: Rappoport, 2013).

Figure 12: The steel drain cover of the Prince Alfred Sewer (Source: Rappoport, 2013).

Figure 13: The Cleaners Amenities from the steel drain cover (Source: Rappoport, 2013).

Figure 14: The Yard Controllers Building from south of the study area. (Source: Rappoport, 2013).

Heritage Impact

The following section provides a description of the proposed works, an assessment of the heritage impact, a brief justification for the works and recommendations for management and mitigation for each class of proposed work in accordance with the CSSI Conditions of Approval and supporting documents.

Removal of Existing Overhead Wiring

Description of impacts

The following works are required as part of the removal of the existing overhead wiring:

- Removal of overhead wiring on Platform 15 (Figure 15);
- Removal of the Shunt Neck Roads Wiring from the OHW portals (i.e. stanchions) in Sydney Yards to the south of Platform 15 (Figure 15);
- Power tools and elevated work platforms (EWPs) along and adjacent to the rail corridor would be used to complete the works; and
- No excavation is required and no direct impact to heritage structures is proposed.

Impact assessment

The proposed works for the removal of the overhead wiring on Platform 15 and the Shunt Neck Roads Wiring from the OHW portals, undertaken in accordance with the mitigation methods provided below, would result in the following direct, visual and indirect impacts.

The removal of the overhead wiring on Platform 15 and the Shunt neck Roads Wiring from the OHW portals would result in a minor localised direct impact to fabric of little significance, as only wiring of little significance would be removed. There is no proposed direct impact to significant elements of Central Station, including elements of high or moderate significance. Highly significant fabric in close proximity to the area of works includes the awnings, platforms and good lifts of Platform 15 (see *Grading of Elements* above) within Sydney Terminal. There would be no ground surface or subsurface works, resulting in no impact to the underground or aboveground components of the highly significant Prince Alfred Sewer within Sydney Yards. Any inadvertent direct impact caused by the movement of the elevated platforms and electrical tools to the worksite to nearby significant fabric would be negated through ensuring the use of existing access roads and rail corridors, and

sufficient control of the elevated platforms, as recommended below. The works would only occur in the vicinity of the aforementioned significant elements and no works are proposed to them. There would be therefore no loss of, or damage to, significant fabric. Therefore, there would be no direct impact to the nearby significant elements of Central Station, including Platform 15 and the structures within Sydney Yard.

The works would result in minor localised direct impact to elements of little significance to Central Station and neutral direct impacts to significant elements of Central Station. The works would have an overall neutral direct impact to Central Station.

The works would result in the temporary use of elevated platforms and electrical tools along and adjacent to the rail corridor between Platform 15 and Platform 16, which are located within the Sydney Terminal Precinct and Central Electric Precinct, respectively. The works would therefore have a temporary localised minor visual impact to the visual significance of the area during the removal of the overhead wires. The works would have a temporary localised minor visual impact to the views of high significance of and between the Central Electric Precinct and Sydney Terminal Precinct, particularly the views between Platforms 15 and 16. The works would also have a temporary localised minor visual impact to the significant views within Sydney Yards due to the use of the elevated work platforms. The removal of the wires themselves would have a permanent negligible localised impact to views between Platforms 15 and 16 and the views of little to moderate significance within Sydney Yard, due to the removal of rail infrastructure. The permanent overall impact of the removal of the wires themselves to Central Station would be neutral. The works would result in a temporary localised minor visual impact to views considered to be of little to high significance and permanent negligible impacts to views of little to high significance.

The works would result in localised temporary minor and permanent negligible visual impacts to views within and between Sydney Yards, Central Electric and Sydney Terminal Precincts. The works would have an overall negligible temporary visual impact to Central Station and an overall neutral permanent visual impact to Central Station.

The works involving the removal of the overhead wires are unlikely to result in a localised indirect impact to nearby significant fabric, as the works would not result in vibration.

The localised and overall indirect impact to Central Station is likely to be neutral.

Justification

The removal of the existing overhead wiring is required adjacent to Platform 15 and the Shunt Neck Roads Wiring in Sydney Yard in order to prepare the site for the future works of providing overhead wiring. This would maintain connection to services on the platform during the main construction works at Central Station as part of the CSSI Sydney Central Station Metro project.

Management and mitigation

- In order to avoid inadvertent direct impacts to significant fabric in the vicinity of the works, the elevated working platforms should follow the existing access roads or rail corridors and should not be parked abutting or close to any elements of significance;
- The elevated working platforms should be controlled sufficiently to prevent inadvertent direct or indirect impacts to any nearby significant fabric or infrastructure;
- Any required temporary hoarding/fencing should be free-standing, lightweight and visually permeable in order to minimise impacts to views within the Sydney Yards area;

- Any required temporary hoarding/fencing should have an interpretative, partially transparent mesh wrap/screen in accordance with Condition E21 of the CSSI approval. This could include historic photographs of the construction of Sydney Yards or use of the yard over time, or more general historic photographs of Central Station; and
- Although it is understood no subsurface impacts are proposed, the Unexpected Heritage Finds Procedure set out in the Sydney Metro Chatswood to Sydenham Unexpected Finds Policy (Transport for NSW, 2016), should be followed for all works, in accordance with Condition E19 of the CSSI approval.

Installation of Overhead Wiring in Sydney Yards

Description of impacts

The following works are required to install new overhead wire structure in Sydney Yards to the south of Platforms 10/11, 12/13 and14/15:

- Excavation and installation of footings and OHW structures are required to be constructed at chainages B0+231, B0+243, B0+261, B0+299 and B0+333 (see Figure 15). This would involve the following stages:
  - De-wiring of existing overhead wiring structures;
  - Service investigation to locate all services within the vicinity of the new OHW structures, comprising of mechanical digging with an 8t excavator to remove ballast surface material between 0.3-0.5m followed by non-destructive digging (NDD) with vacuum excavators searching in an L shape to a depth of approximately 1.5mbelow ground level;
  - The footing construction would involve an 8t excavator to remove material to 1m deep with a bucket, then piling with an augur attachment to a depth of 6m;
  - The 8t excavator would then lift and lower the pile cage, followed by lifting and placing the pedestal top reinforcement and formwork box. Concrete agis would deliver concrete to be placed with boom pumps, the formwork box would be backfilled; and
  - The installation of new overhead wire structures in the locations shown in Figure 15, consisting of the single mast type in close proximity to the platforms (two structures at chainages B0+231 and B0+243) and the over-track dual mast type further to the south (three structures at chainages B0+261, B0+299 and B0+333).

The locations for overhead wire footing potholing and structures are seen in blue in Figure 15, to the south of the station platforms.

Note that the proposed early works do not include the removal of the existing overhead wire structures.

Impact assessment

The proposed works required to prepare the area in Sydney Yards to the south of Platforms 10/11, 12/13 and14/15 for the future installation of overhead wire structures, undertaken in accordance with the mitigation methods provided below, would result in the following direct, visual and indirect impacts.

The proposed works involving the excavation and construction of the footings and structures of the OHW would require the use of an 8t excavator and a vacuum excavator within Sydney Yards in the locations shown in Figure 15. This would involve the transportation of the excavators, materials and tools into the Sydney Yards via the SYAB. The use of such machinery and tools would have no proposed direct impact on significant elements within the Central Station heritage item. Any inadvertent direct impact caused by the movement of excavators, tools and materials would be negated through ensuring the use of existing access roads and railway lines (where required), parking vehicles and storing equipment away from any elements of significance and sufficient control of excavators, as recommended below. The subsurface works are sufficiently distant from the location of the aboveground and subsurface components of the Prince Alfred Sewer and therefore would have no direct impact on this significant element of Central Station. The works are located a sufficient distance from the significant elements within Sydney Yard and would not impact them, including the Sydney Yards Garden, the Rolling Stock Building, Shunters Hut, Brick Store, Cleaners Amenities, Yard Controllers Building and the Prince Alfred Sewer. The installation of the OHW would have no direct impact on existing fabric. As such, the works would only occur in the vicinity of the aforementioned significant elements and no works are proposed to them. There would therefore be no loss of, or damage to, significant fabric. Therefore, there would be no localised direct impact to the nearby significant elements of Central Station. There would be no direct impact to the significance of Central Station.

The works would result in neutral direct impacts to significant nearby elements of Central Station and an overall neutral direct impact to Central Station.

The proposed works involving the overhead wire footing potholing, footing excavation, footing installation and de-wiring would require the use of an 8t excavator and a vacuum excavator within Sydney Yards in the locations shown in Figure 15. This would involve the transportation of the excavators, materials and tools into the Sydney Yards via the SYAB. The use of such machinery and tools would have a temporary localised minor visual impact on views considered to be of little to moderate significance between these nearby significant elements of the heritage item within Sydney Yards. The direct views between the Sydney Yards Garden, the Rolling Stock Building, Shunters Hut, Cleaners Amenities and the Brick Store would not be obstructed by the works, but the direct views from these buildings to the Yard Controllers Building and the location of the Prince Alfred Sewer would be partially obstructed, resulting in a minor impact to views of little to moderate significance. The construction work would temporarily partially obstruct the views between the Sydney Terminal and Central Electric Precincts and the significant components of Sydney Yard, including the Yard Controllers Building, Sydney Yards Garden, the Rolling Stock Building, Cleaners Amenities, the Prince Alfred Sewer and the Brick Store. The works would only have a temporary negligible impact on such views. The construction works would not obstruct views from the significant elements of Sydney Yards to the Western Yard or Prince Alfred Sidings. The excavation works and installation of the footings would have a temporary localised minor visual impact due to the subsurface nature of the works, which would be visible from the nearby significant elements of Sydney Yard and the southern ends of Platforms 10/11, 12/13 and 14/15 within the Sydney Terminal Precinct. However, the works would be difficult to see from areas further away within Central Station. The two single mast and three over-track dual mast type overhead wiring structures would be installed on the footings, resulting in a minor localised permanent visual impact due to the installation of the structures between the Sydney Yards Garden, the Rolling Stock Building, Shunters Hut, Cleaners Amenities, the Brick Store and the Yard Controllers Building and the location of the Prince Alfred Sewer, which would be partially obstructed. The new structures would partially obstruct the views between the Sydney Terminal and Central Electric Precincts and the aforementioned significant components of Sydney Yard, but would not obstruct views from the significant elements of Sydney Yards to the Western Yard or Prince Alfred Sidings. The construction of the new overhead wiring structures would have an overall negligible visual impact on Central Station. The context and setting of the Sydney Yards comprises an active rail yard, of little to moderate

significance to the State significant Central Station. The use of excavators, de-wiring and installation of OHW footings and structures would continue this use of Sydney Yards as a rail yard used for construction and maintenance activities for Central Station, resulting in a localised minor impact to this setting. In addition, the works would have a temporary negligible impact to less direct and partially obstructed views to and from significant elements further away from the works within Central Station, such as the Western Yard, Central Electric, Prince Alfred Sidings and Sydney Terminal. Therefore, the overall visual impact to Central Station is likely to be negligible.

The works would result in temporary localised minor visual impacts to significant views within Sydney Yards and an overall temporary negligible visual impact to significant views within Central Station. The works would result in permanent localised negligible visual impacts to significant views within Sydney Yards and an overall permanent neutral visual impact to views within Central Station.

The proposed excavation works and construction of the OHW footings and structures have the potential to result in minor indirect impact to surrounding heritage fabric due to the vibration caused by such works. The works are likely to result in minor indirect impacts to Platforms 10/11, 12/13 and 14/15, the Cleaners Amenities and the Rolling Stock Building. The works are likely to result in negligible indirect impacts to the overall heritage item of Central Station.

The works are likely to result in minor indirect impacts to significant nearby elements of Central Station and an overall negligible direct impact to Central Station.

Justification

The proposed excavation, footing and overhead wiring structure construction and de-wiring Sydney Yards to the south of Platforms 10/11, 12/13 and14/15 is required to enable the previously approved CSSI Sydney Central Station Main Works to commence on time. This would maintain connection to services on the platform during the main construction works at Central Station as part of the CSSI Sydney Central Station Metro project.

Management and mitigation

- The potholing and excavation works should be monitored by a suitably qualified archaeologist in accordance with the AMS (Artefact May 2018);
- In order to avoid inadvertent direct impacts to significant fabric in the vicinity of the works, the excavators should follow the existing access roads (or railway lines where required) and should not be parked abutting or close to any elements of significance. Likewise, tools, equipment and materials should be stored away from elements of significance;
- The excavators should be controlled sufficiently to prevent inadvertent direct or indirect impacts to any nearby significant fabric or infrastructure;
- Any required temporary hoarding/fencing should be free-standing, lightweight and visually permeable in order to minimise impacts to views within the Sydney Yards area;
- Any required temporary hoarding/fencing should have an interpretative, partially transparent mesh wrap/screen in accordance with Condition E21 of the CSSI approval. This could include historic photographs of the construction of Sydney Yards or use of the yard over time, or more general historic photographs of Central Station; and
- Ensure that vibration from construction activities does not exceed the vibration limits set out in the British Standard BS 7385-2:1993, in accordance with Condition E28 of the CSSI approval.

Vibration testing/monitoring should be conducted prior to and during vibration generating activities that have the potential to impact on heritage items to identify minimum working distances to prevent cosmetic damage. If the levels are likely to be exceeded, review the construction methodology and, if necessary, implement additional mitigation measures, in accordance with Condition E30 of the CSSI approval;

- Sydney Trains must be notified prior to construction if the screening criteria for cosmetic damage is expected to be exceeded and Central Station should be included in the Noise and Vibration management sub plan, in accordance with Condition E29 of the CSSI approval;
- The nominated Heritage Architect or Heritage Consultant should be consulted regarding methods and locations for installing equipment used for vibration, movement and noise monitoring of heritage-listed structures, in accordance with Condition E31 of the CSSI approval;
- The subsurface works should be monitored by a suitably qualified archaeologist in accordance with the AMS (Artefact May 2018); and
- The Unexpected Heritage Finds Procedure set out in the Sydney Metro Chatswood to Sydenham Unexpected Finds Policy (Transport for NSW, 2016), should be followed for all works, in accordance with Condition E19 of the CSSI approval.

Figure 15: Location of OHW removal from Platform 15 and Shunt Neck Road, as well as the proposed footing potholing, footing excavation, structure installation, de-wiring and overhead wire structure installation (Source: Laing O'Rourke).

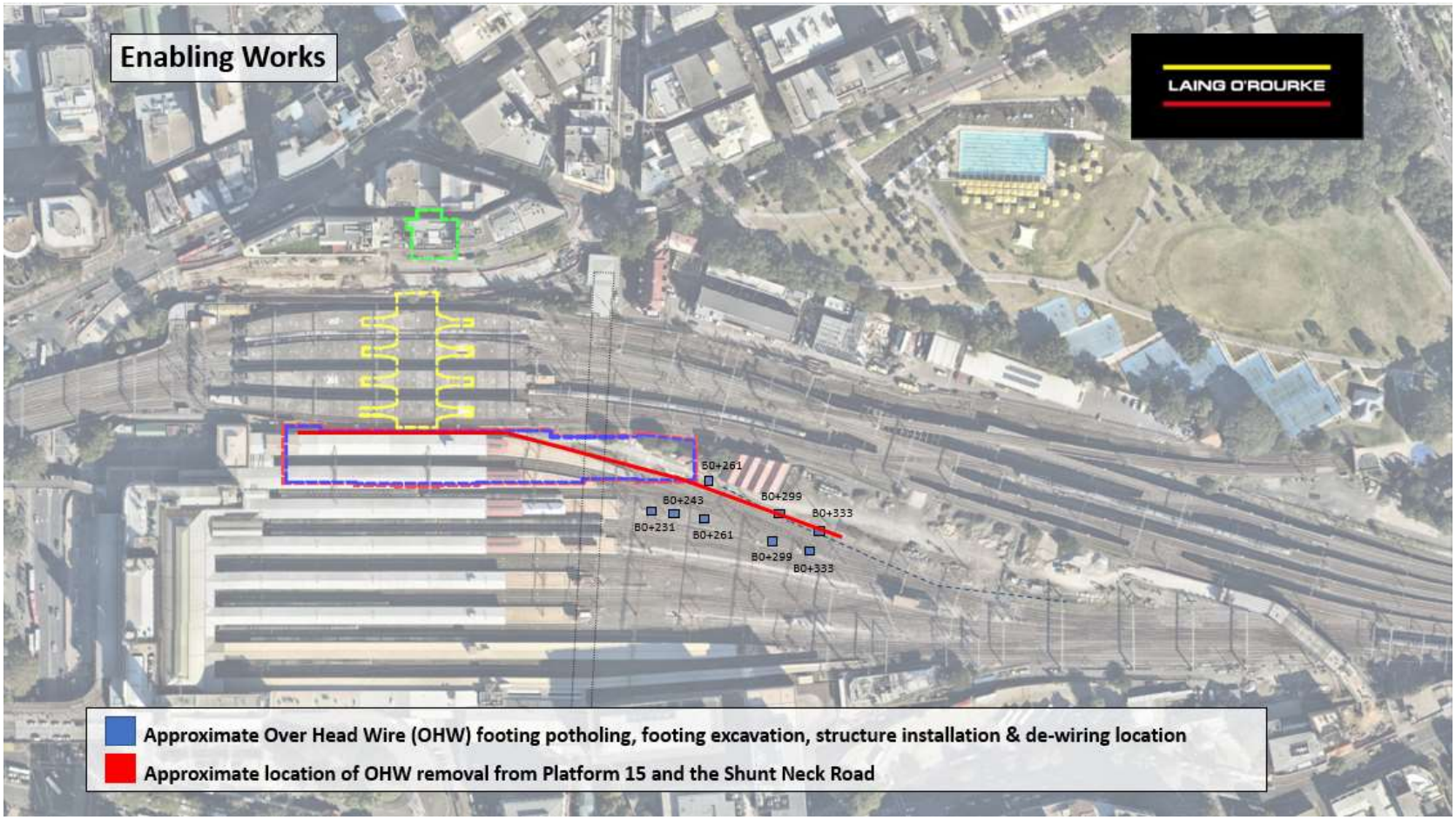


Figure 16: Proposed types of overhead wire structures to be installed at chainages B0+231 and B0+243 (Source: Laing O'Rourke).

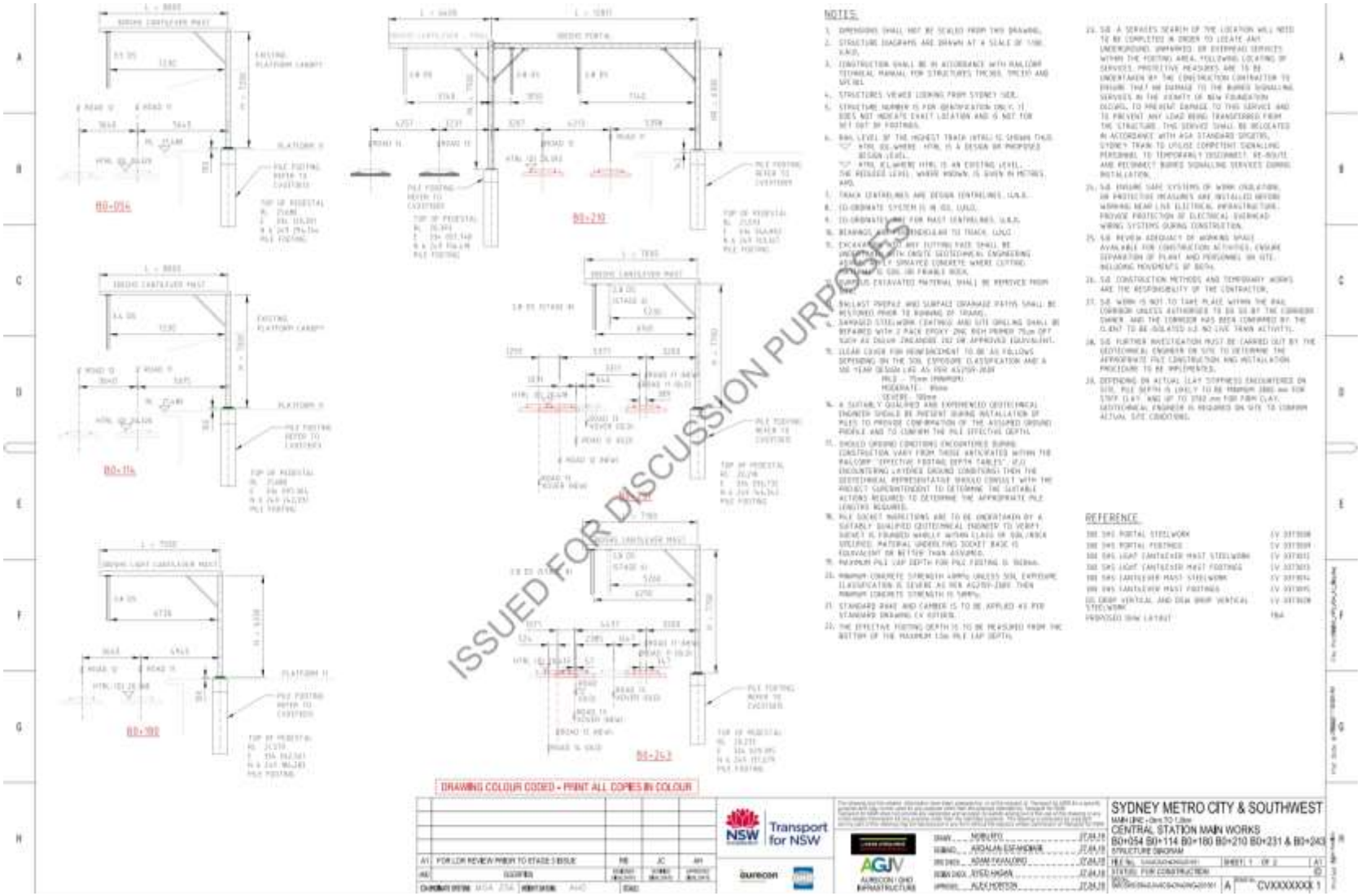
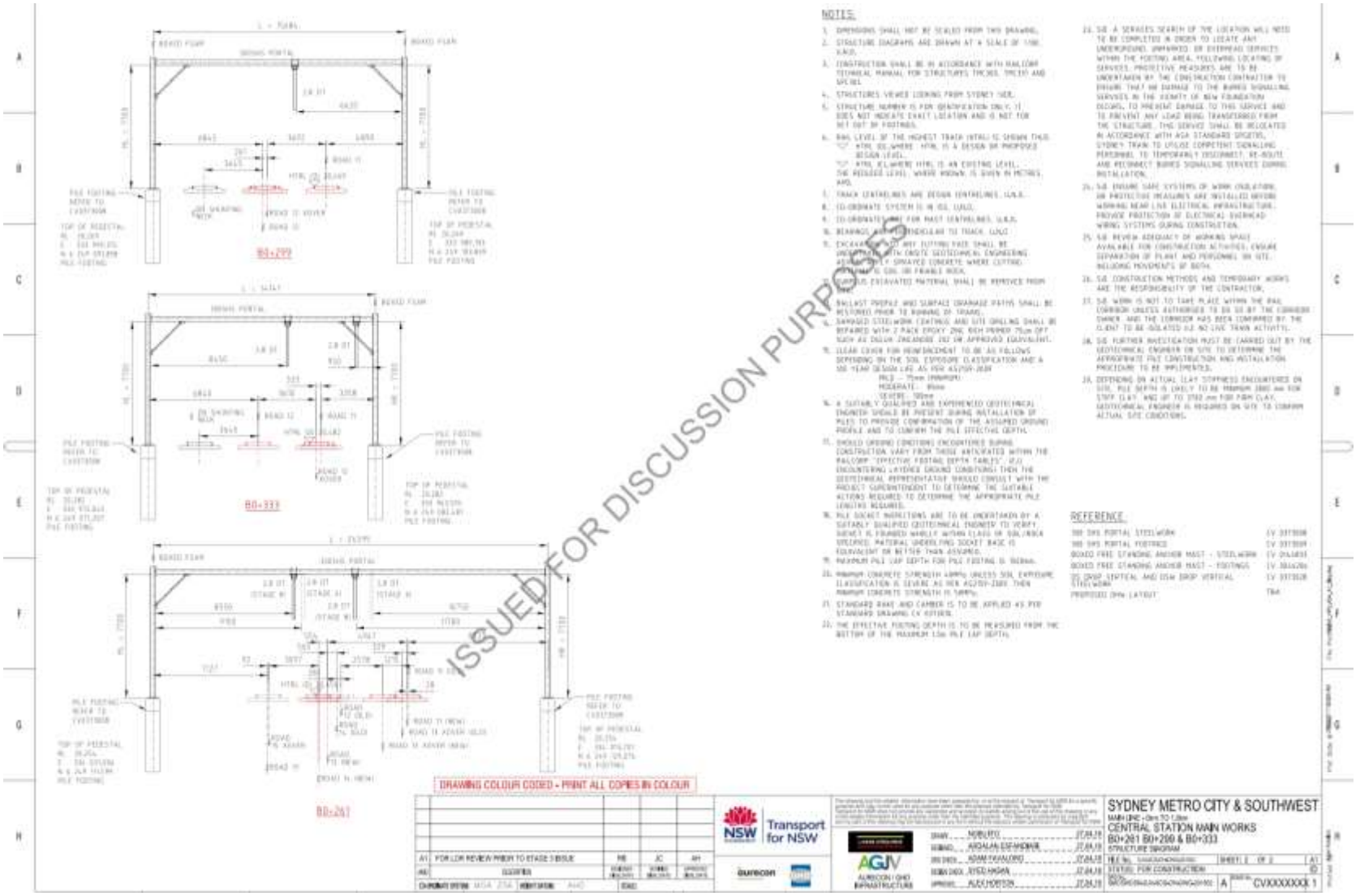


Figure 17: Proposed types of overhead wire structures to be installed at chainages B0+261, B0+299 and B0+333 (Source: Laing O'Rourke).



Summary of impacts and mitigation measures

Table 5: Summary of impacts and mitigation measures.

Item of Work	Direct Impact (fabric)		Visual Impact (views)		Indirect (vibration)		Mitigation (Approval Condition, if relevant)
	Localised	Overall to Central Station	Localised	Overall to Central Station	Localised	Overall to Central Station	
Removal of Existing Overhead Wiring	Minor (elements of little significance) Neutral (significant elements)	Neutral	Minor (temporary) Negligible (permanent)	Negligible (temporary) Neutral (permanent)	Neutral	Neutral	• Elevated working platforms should follow existing access roads or rail corridors and should not be parked abutting or close to any elements of significance to minimise risk of inadvertent damage; • Elevated working platforms should be controlled sufficiently to prevent inadvertent direct or indirect impacts to any nearby significant fabric or infrastructure; • Free-standing, lightweight and visually permeable fencing to minimise visual impact; • The temporary fencing should have an interpretative, partially transparent mesh wrap/screen (E21); and • Unexpected Finds Procedure (E19 and E20).

Preparation for Future Overhead Wiring Installation in Sydney Yards	Neutral	Neutral	Minor (temporary and permanent)	Negligible (temporary and permanent)	Minor	Negligible	• Excavators should follow existing access roads or rail corridors and should not be parked abutting or close to any elements of significance to minimise risk of inadvertent damage; • Excavators should be controlled sufficiently to prevent inadvertent direct or indirect impacts to any nearby significant fabric or infrastructure; • Free-standing, lightweight and visually permeable fencing to minimise visual impact; • The temporary fencing should have an interpretative, partially transparent mesh wrap/screen (E21); and • Ensure that vibration from construction activities does not exceed the vibration limits through vibration testing and monitoring (E28 and E30); • Notify Sydney Trains prior to construction if vibration levels are expected to be exceeded and Central Station should be included in the Noise and Vibration management sub plan (E29); and • Consult Heritage Architect or Heritage Consultant regarding methods and locations for installing equipment used for vibration, movement and noise monitoring of heritage-listed structures (E31); Monitoring by a suitably qualified archaeologist; and • Follow the Unexpected Heritage Finds Procedure set out in the Sydney Metro Chatswood to Sydenham Unexpected Finds Policy (Transport for NSW, 2016) (E19 and E20)

Conclusions

The proposed removal of existing overhead wiring (OHW) on Platform 15 and in Sydney Yard would result in localised minor direct impacts to elements of little significance (overhead wiring) and localised neutral direct impacts to significant fabric. The removal of the wiring would have a localised minor temporary visual impact to significant views due to the use of elevated working platforms, but a negligible permanent visual impact. The de-wiring works would have a temporary negligible and neutral permanent impact to overall significant views within Central Station. These works would result in no indirect impacts to Central Station.

The proposed excavation and installation of footings and structures for the OHW within Sydney Yard, would have no direct impact on elements of significance within Central Station and therefore would have no direct impact on the overall significance of Central Station. The works would result in localised minor temporary and permanent negligible impacts to significant views within Sydney Yards. The works would result in negligible temporary and permanent impacts to the overall views and setting of Central Station.

The works would continue the use of Sydney Yards as a rail yard used for construction and maintenance activities of Central Station and would assist in allowing Central Station to be used as a railway station.

The mitigation measures provided should be followed for the proposed early works to Central Station in order to minimise potential impacts to the heritage item. The mitigation methods would assist in ensuring the low impact of the works to the heritage item.

If you require any additional information, please do not hesitate to contact me.

Regards,

Elanor Pitt
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Appendix

The Statements of Significance for the relevant areas of Central Station (Sydney Terminal and Central Railway Stations Group) in which the study area is located, have been extracted, in full, from the *Central Station Conservation Management Plan* 2013 (CMP), prepared for NSW Transport RailCorp by the NSW Government Architect's Office and Rappoport Pty Ltd.

Table 6: Statement of Significance for the Central Railway Station and Sydney Terminal Group.

Central Railway Station and Sydney Terminal Group	
Listings	SLEP 2012 (Item No. I824) and SHR (Item No. 01255)
Significance	State
Statement of Significance	*Central Station is the largest railway station and transport interchange in NSW and is of State significance for its historical, aesthetic, technical values and for its research potential. With its grand sandstone edifices and approaches it is a well-known landmark in Sydney.* *The site contains the original Sydney Railway Company grant on which the first Sydney Station and yards were opened, in 1855, and so represents over 150 years of railway operations in the same place, making it the oldest and the longest continuously operated yard in Australia.* *The Sydney Terminal precinct has a high level of historic significance associated with its early government and institutional uses, as well as being the site of Sydney's second major burial ground, the Devonshire Street cemetery. Archaeological evidence of the government and institutional uses is rare and has high research potential.* *Central Station site contains evidence of the first phase of railway construction in NSW and has been the major hub of rail transportation in NSW since the mid-19th century and has the ability to demonstrate the evolution of changes in the NSW railways and in railway technology over the past 150 years, from steam to electric, reflected in the changes in yard layout and in signalling [sic] work practices. The Darling Harbour branch line and associated sandstone Ultimo Railway Overbridge is the only remaining example of railway infrastructure built for the Sydney Railway Company and is the oldest piece of railway infrastructure in NSW. The Prince Alfred Sidings contains some of the oldest remaining workshops in the NSW railway system. The Prince Alfred Substation is part of the Bradfield 1926 electrification works and was designed by Bradfield himself. The site has technical heritage value in such elements as: The Darling Harbour Dive; Central Electrics flyovers; the elliptical arch construction of the Elizabeth Street Viaduct; the western approach ramp underbridge the three-pin truss roof of the porte-cochère; the Devonshire Street subway (probably the first of its type in Australia); the underground men's toilets; and the early mail, parcels and luggage subway system.* *The main terminus building, accentuated by its clock tower and approach ramps, exemplifies the predominant use of sandstone at the site and it has been sited to dominate its surroundings and to mark the importance of the railway to both the city and the State. The construction of the Sydney Terminus was the largest planned intervention into the urban fabric of Sydney at the time and it was the only major complex of the period where the urban setting was consciously designed to enhance and provide views to and from the main structure. With its multi layered access modes and above ground level platforms not only was the development extraordinarily innovative but also the largest incursion into the southern part of Sydney prior to World War I.* *Some of Sydney's most notable 19th and 20th century architects and engineers have worked on the Central Station site, including: James Wallace and William Randle who together designed and built the first railway from Sydney to Parramatta and the*

Central Railway Station and Sydney Terminal Group

associated Darling Harbour Branch Line; the last serving Colonial Architect, James Barnet (Mortuary Station); the first NSW Government Architect, Walter Liberty Vernon (the main Terminus building and the Parcels Post Office); and the Chief Engineer for the City Underground and Sydney Harbour Bridge, Dr John Jacob Crew Bradfield (Central Electric). Mortuary Station, the main terminus building, and the Parcels Post Office were the only designs undertaken for the NSW Railways by the Colonial Architect and the Government Architect within the Department of Public Works.

The main terminus building is enhanced by its Neo-classical architectural features together with the high-quality workmanship and materials it contains, from carved sandstone, marble and terrazzo to cedar joinery, acid etched glazing and metalwork balustrades.

The same fine quality in design, materials and workmanship is seen in Mortuary Station, the Railway Institute and also in the Neo-classical Chalmers Street Entrance, the Central Electric Station main façade and the Parcels Post Office, all of which tends to unify these buildings with the main terminus.

The Mortuary Station is a fine and rare example by James Barnet of the Gothic Revival architectural style and is the only remaining example of a mortuary station in NSW. The exemplary Federation Anglo-Dutch architectural style of the Railway Institute is significant, and it was as the first institute of its type in Australia, demonstrating 19th century initiatives in railway workers educational and recreational facilities. The Parcels Post Office contains fine brickwork and sandstone detailed facades and documents the association of the site with railway postal services.

The significance of Central Station is widely appreciated by the broad community for its sense of place and theatre; as an extraordinary place of work for employees past and present and their families; and by many specialist transport and heritage community groups.[20]

[20] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, p. 27.

Table 7: Statement of Significance for the Sydney Terminal Precinct within the Central Railway Station and Sydney Terminal Group.

Sydney Terminal Precinct	
Listings	SLEP 2012 (Item No. I824) and SHR (Item No. 01255)
Significance	State
Statement of Significance	*Central Station, constructed to serve the expanding population of Sydney, was the first major metropolitan rail terminal to be constructed in Australia and is the main NSW terminus. There have been three successive passenger termini on this site, each successive station designed to provide a much greater level of passenger accommodation than the former. The debate concerning the location of the main terminal for Sydney occurred on and off during the last two decades of the nineteenth Century. The technical difficulties associated with extending the line further north and the associated cost as well as changing governments resulted in the creation and abandonment of numerous station designs and almost as many locations. The Sydney Terminal precinct has a high level of historic significance associated with its early government and institutional uses, as well as being the site of Sydney's second major burial ground, the Devonshire Street cemetery. The development of the Benevolent Asylum and Carters barracks are associated with Governor Macquarie and were part of his overall plan for Sydney. The Carters Barracks site had the first treadmill in use in Australia. The archaeological remains would be rare and important survivors from this early Colonial period. The striking form, character and materials of the Sydney Terminus contribute to the high degree of aesthetic significance of this precinct, and ensure that it remains an iconic landmark.* *Archaeological evidence of the charitable institutions on the site can contribute to a range of important research questions relating to:* *- the nature of charitable institutions during the convict period and after;* *- the way the residents and staff lived and worked;* *- the way the archaeological evidence contributes to a range of views on the nature of charitable institutions in NSW, Australia and the United Kingdom.*[21]

Table 8: Statement of Significance for the Country and Interstate Platforms (Platforms 1-15) within the Sydney Terminal Precinct of the Central Railway Station and Sydney Terminal Group.

Country and Interstate Platforms	
Listings	SLEP 2012 (Item No. I824) and SHR (Item No. 01255)
Significance	State
Statement of Significance	*Notwithstanding the various extensions and truncations of the Country and Interstate Platforms over the course of a Century, the overall layout of these platforms conforms to their c 1906 design. Some of the original fabric of these platforms remains in situ and the platforms document the evolution of the railways since the establishment of the c 1906 third Sydney Station.*[22]

[21] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 3.0 Sydney Terminal, pp. 7-8.
[22] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 3.12 Country and Interstate Platforms (Platforms 1-15), p. 7.

Table 9: Statement of Significance for the Central Electric Precinct within the Central Railway Station and Sydney Terminal Group.

Central Electric Precinct	
Listings	A part of the SLEP 2012 (Item No. I824) and SHR (Item No. 01255)
Significance	State
Statement of Significance	*The Central Electric Precinct documents the first phase of the suburban electrification of the NSW Railway in 1926. It is associated with Dr John Job Crew Bradfield. The aesthetic presentation is Neoclassical. The Precinct has the grandest of entrances on the City Circle Line using sandstone detailing. The monumental sandstone walling of the Elizabeth Street Viaduct and the tram ramps is a well known and iconic landmark in Sydney. The precinct has high technical value in the design of the viaducts, underbridges and overbridges. Central Electric was the only station on the new electric system to use reinforced concrete slabs for the platform canopy roofs.*[23]

Table 10: Statement of Significance for the Above Ground Platforms (Platforms 16 to 23) within the Central Electric Precinct of the Central Railway Station and Sydney Terminal Group.

Above Ground Platforms	
Listings	A part of the SLEP 2012 (Item No. I824) and SHR (Item No. 01255)
Significance	State
Statement of Significance	*The platforms are significant as evidence of the transition in the 1920s from the traditional use of bricks or stone to concrete; and also for the innovative use of reinforced concrete in the platform awnings. Central Electric was the only station on the new electric system to use reinforced concrete slabs for the platform canopy roofs.*[24]

Table 11: Statement of Significance for the Sydney Yards within the Central Railway Station and Sydney Terminal Group.

Sydney Yards	
Listings	A part of the SLEP 2012 (Item No. I824), SHR (Item No. 01255) and RailCorp S.170 (SHI No. 4801296)
Significance	State
Statement of Significance	*The Sydney Yards have historical associations with the development of the Sydney rail network and the first, second and third Sydney terminuses. It has been continuously used as a railway yard since the 1850s. Archaeological resources associated with the first and second Redfern Stations are likely to be disturbed but may contribute some information not available from other sources about the configuration and use of these early railway uses. This information is likely to be fairly limited however, as there are numerous historic plans, photographs and written records that describe the various changes made to the site and its operation over*

[23] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 5.0 Central Electric, pp. 4-5.
[24] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 5.4 Above Ground Platforms, p. 5.

Sydney Yards	
	time. Archaeological remains of the early railway uses will have higher historic than research values.[25]

Table 12: Statement of Significance for the Shunters Hut within the Sydney Yards of the Central Railway Station and Sydney Terminal Group.

Henry Deane Plaza	
Listings	A part of the SLEP 2012 (Item No. I824), SHR (Item No. 01255) and RailCorp S.170 (SHI No. 4801296)
Significance	State
Statement of Significance	*The small Shunters hut is situated in the vast open space of the Sydney Yards, west of the Central Electric Yard and immediately adjacent to the flying junctions. The hut consists of recessed cast concrete panels and is topped with a fibro pitched roof. A corrugated iron sheet functions as the door. The interior of the hut contains a raked ceiling with a light fitting but it is empty. This structure is not water tight and appears not to have been used since the late 20th Century.*[26]

Table 13: Statement of Significance for the Brick Store within the Sydney Yards of the Central Railway Station and Sydney Terminal Group.

Remnant Boundary Fence	
Listings	A part of the SLEP 2012 (Item No. I824) and SHR (Item No. 01255)
Significance	State
Statement of Significance	*The Store may be significant for its association with the Central Electric yard.*[27]

Table 14: Statement of Significance for the Prince Alfred Sewer within the Sydney Yards of the Central Railway Station and Sydney Terminal Group.

Prince Alfred Sewer	
Listings	A part of the SLEP 2012 (Item No. I824), SHR (Item No. 01255) and RailCorp S.170 (SHI No. 4801296)
Significance	State
Statement of Significance	*The Blackwattle Bay stormwater system is of high historical and technical significance as it was one of the five original combined sewers built in Sydney around 1857. The other four sewers were; Bennelong, Hay Street, Tank Stream and Woolloomooloo. These five sewers were responsible for greatly improving public health, hygiene and living standards for the city's residents in the late 1800s. The channel is also of technological significance as it provides an excellent example of the engineering*

[25] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.0 Sydney Yards, p. 9.
[26] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.5 Shunters Hut, p. 2.
[27] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.6 Brick Store, p. 1.

Prince Alfred Sewer	
	construction techniques of the late 1800's and of the city's early infrastructure… The section running through the Sydney Yards is part of the original phase of construction of the sewer.[28]

Table 15: Statement of Significance for the Cleaners Amenities within the Sydney Yards of the Central Railway Station and Sydney Terminal Group.

Cleaners Amenities	
Listings	A part of the SLEP 2012 (Item No. I824), SHR (Item No. 01255) and RailCorp S.170 (SHI No. 4801296)
Significance	State
Statement of Significance	*The Cleaners Amenities is representative of a building of the Inter War period which has been continuously used in conjunction with the administration of the Central Station site. The building documents the evolution of the Sydney Yards as its original use as a base for cleaning related purposes associated with the East Carriage Shed has changed to that of general administration. The building continues to house significant carpet cleaning equipment which was used in conjunction with the East Carriage Shed. It is an integral part of the Sydney Yard.*[29]

Table 16: Statement of Significance for the Yard Controller Building within the Sydney Yards of the Central Railway Station and Sydney Terminal Group.

Cleaners Amenities	
Listings	A part of the SLEP 2012 (Item No. I824), SHR (Item No. 01255) and RailCorp S.170 (SHI No. 4801296)
Significance	State
Statement of Significance	*The Yard Controllers Building is representative of the 20th Century development of the site.*[30]

[28] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.4 Prince Alfred Sewer, p. 2.
[29] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.3 Cleaners Amenities, p. 4.
[30] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.7 Yard Controllers Building, p. 3.

Table 17: Statement of Significance for the Rolling Stock Officers Building within the Sydney Yards of the Central Railway Station and Sydney Terminal Group.

Rolling Stock Officers Building	
Listings	A part of the SLEP 2012 (Item No. I824) and SHR (Item No. 01255)
Significance	State
Statement of Significance	*The Former Rolling Stock Officers Building is representative of a group of buildings which have been used in conjunction with administration of Central Station and, as such, is an integral part of the cultural landscape of the Sydney Yards.*[31]

[31] NSW Government Architect's Office, and Rappoport Pty Ltd, 2013, *Central Station Conservation Management Plan*, NSW Transport RailCorp, Section 4.2 Rolling Stock Officers Building, p. 3.

McCallum, Chris

From: Siobhan Lavelle <Siobhan.Lavelle@environment.nsw.gov.au>
Sent: Thursday, 31 May 2018 10:38 AM
To: McCallum, Chris; Tim Smith; Felicity Barry
Cc: Emmanuelle Fayolle; Turner, Ron; Andrew Hendy (andrew.hendy@transport.nsw.gov.au)
Subject: Updated Archaeological Method Statement for Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities - Overhead Wiring Works

Dear Mr McCallum,

Reference is made to your email of 23 May 2018 and subsequent email of 28 May 2018 which provided an updated Archaeological Method Statement for the above works at Central Station.
The supplied AMS document has now been reviewed by the Specialist Services Team. Our reference is DOC18/331212-3.

The AMS for the Early Works Piling and Overhead Wiring is considered generally appropriate to guide the work that is required to comply with the Conditions of Approval for the project.

Minor comments on the document are as follows:

Background, p.1 – perhaps specify that this AMS is to cover significant archaeological remains and provide a framework as required under the CoA.
p.2 Heritage Council does not 'approve' Excavation Directors, this is a planning approval. Comment is made on EDs as per Condition E18.
p.7 Heritage Division has noted the information that *"In March 2018 a substantial sandstone structure was identified on the west side of Elizabeth Street during trenching for the installation of a conduit alignment. The feature was identified as likely representing the remains of the boundary wall of the former Devonshire Street Cemetery. The remains were assessed as potentially being State significant."*
Heritage Division has not been notified about this find and requests more information in accordance with S146 of the NSW Heritage Act, 1977.
p. 8 Describes NDD and other works and notes these may impact archaeological remains associated with the first, second, and third Central Station expansion. It would be helpful to have an explanation about what (if any) options have been considered or would be available to mitigate these impacts.
p.9 refers 'methodology' discussion to Chapter 12 of the ARD. It may be helpful to briefly summarise and specify the relevant methodology here eg. not just "monitoring" but also recording, salvage, etc. Also noting that another AMS would be necessary for the excavation of the 'station box' during the construction phase of the project (this AMS only being for Early Woks Piling and Overhead Wiring).p.10 has slightly more detail about 'monitoring' including process for localised stoppages but again it may be useful to specify recording (photography, measured drawings, etc).
Alternatively p.9 and p.10 could refer to the more detailed discussion of methods on pages 11-12.
p.10 *"Works may proceed under on call provisions if approved to do so by the Excavation Director*." How would this be determined? What are the criteria?
p.13 nominated Team – spelling – Dr Denise Donlon.

Please note that the comments on the SOHI that was supplied with your email will be provided by the Major Projects Team of the Heritage Division (Emmanuelle Fayolle).

Regards,

NSW GOVERNMENT Office of Environment & Heritage

Dr Siobhán Lavelle OAM
Senior Team Leader
Specialist Services
HERITAGE DIVISION

Level 6, 10 Valentine Ave, Parramatta
Locked Bag 5020 Parramatta 2124

T 02 9873 8546 **M** 0455 093962

ALL APPLICATIONS ARE TO BE SUBMITTED TO heritagemailbox@environment.nsw.gov.au OTHERWISE THEY WILL NOT BE PROCESSED

From: McCallum, Chris [mailto:CMcCallum@laingorourke.com.au]
Sent: Monday, 28 May 2018 4:08 PM
To: OEH HD Heritage Mailbox <HERITAGEMailbox@environment.nsw.gov.au>
Cc: Siobhan Lavelle <Siobhan.Lavelle@environment.nsw.gov.au>; Emmanuelle Fayolle <Emmanuelle.Fayolle@environment.nsw.gov.au>; Turner, Ron <Ron.Turner2@transport.nsw.gov.au>; Andrew Hendy (andrew.hendy@transport.nsw.gov.au) <andrew.hendy@transport.nsw.gov.au>
Subject: HPE CM: RE: Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities - Overhead Wiring Works

Dear Siobhan and Emmanuelle,

Further to my email last Thursday, please find attached the updated AM for your review.

Thank you again for your help and understanding and please do not hesitate in contacting me if required to discuss.

Regards,

Chris

Chris McCallum
Environmental Manager
LAING O'ROURKE

Mobile: 0408 264 164
E-mail: cmccallum@laingorourke.com.au
Web: www.laingorourke.com.au

From: McCallum, Chris
Sent: Thursday, 24 May 2018 4:29 PM
To: 'OEH HD Heritage Mailbox'
Cc: Siobhan Lavelle; 'Emmanuelle Fayolle'; 'Turner, Ron'; 'Andrew Hendy (andrew.hendy@transport.nsw.gov.au)'
Subject: RE: Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities - Overhead Wiring Works

Dear Siobhan and Emmanuelle,

Apologies, the AMS is being updated and will be resubmitted on Monday 28/05/18. Please also find attached design drawings that were included as Figures 16 and 17 of the SOHI.

I'd also like to clarify the following statement:

For your information, the Project team will not be submitting any further early works applications ~~AMS and SOHI~~ to the Division

Thank you again for your help and understanding and please do not hesitate in contacting me if required to discuss.

Regards,

Chris

Chris McCallum
Environmental Manager
LAING O'ROURKE

Mobile: 0408 264 164
E-mail: cmccallum@laingorourke.com.au
Web: www.laingorourke.com.au

From: McCallum, Chris
Sent: Wednesday, 23 May 2018 5:10 PM
To: OEH HD Heritage Mailbox
Cc: Siobhan Lavelle; 'Emmanuelle Fayolle'; 'Turner, Ron'; Andrew Hendy (andrew.hendy@transport.nsw.gov.au); Annabelle Reyes; 'Jo Robertson'; Armstrong, Ben
Subject: Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities - Overhead Wiring Works

Attention:

Siobhan Lavelle.
Manager Heritage Division
Office of Environment & Heritage
Locked Bag 5020
Parramatta NSW 2124

Emmanuelle Fayolle
Senior Heritage Officer
Major Projects | Operations
Heritage Division
Office of Environment & Heritage

Dear Siobhan and Emmanuelle,

Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities ; consultation with Heritage Council

As you are aware, Laing O'Rourke has been engaged by the Sydney Metro Delivery Office to undertake construction of the Sydney Metro Central Station Main Works (the Project) as part of the approved Sydney Metro Chatswood to Sydenham project.

The Construction Heritage Management Plan for the Project is currently under review. A number of critical rail possession related activities are required as part of the enabling works for the Project. The Sydney Metro City & Southwest Chatswood to Sydenham Conditions of Approval, stipulate that low impact works are able to be undertaken prior to the approval of the Construction Environmental Management Plan and sub-plans unless heritage items are affected or potentially affected. In which case a determination is required from the Secretary in consultation with OEH, for the works to commence prior to construction.

The Project is required to decommission overhead wiring and construct new structures within Sydney yard to enable the works to proceed. An Archaeological Method Statement has been prepared to provide a framework to facilitate the avoidance of impacts to archaeological heritage items as defined by the approval, during early works. A Statement of Heritage Impact has been prepared to assess the potential heritage impact to Central Railway Station Group as a result of the early works required to facilitate construction of the Central Station Main Works, approved under the Sydney Metro City & Southwest Chatswood to Sydenham project. As such, Laing O'Rourke would like to formally submit the attached documents for comment.

The earliest Heritage Division response would be very much appreciated but S&SW project team need comments back by no later than Friday 8 June 2018. We are happy to meet with you to discuss the Project in further detail and to discuss any issues of concern the Heritage Division may have.

For your information, the Project team will not be submitting any further AMS and SOHI to the Division.

Thank you for your help and understanding and please do not hesitate in contacting me if required to discuss.

Kind regards,

Chris

Chris McCallum
Environmental Manager

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E-mail: cmccallum@laingorourke.com.au
Web: www.laingorourke.com.au

BEFORE PRINTING THIS E-MAIL
please consider the environment

McCallum, Chris

From: Turner, Ron <Ron.Turner2@transport.nsw.gov.au>
Sent: Monday, 18 June 2018 9:02 AM
To: Sarah Jane Brazil; McCallum, Chris; Hendy, Andrew; Armstrong, Ben
Cc: Felicity Barry; Emmanuelle Fayolle
Subject: RE: DOC18/331212: Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities - Overhead Wiring Works

Dear Sarah Jane,

In reference to your below noted advice, I have a few clarifications for the avoidance of doubt:

The OHWS will not be demolished as part of the early works, only the existing overhead wiring (of no significance) will be removed. Therefore your advice 13/06/18 appears to concur with our assessment of no adverse impact resulting from the overhead wiring works. Would you kindly confirm this via return email please?
Further…
During the Construction phase (post CEMP/CHMP approval) and prior to removal of the OHWS we will conduct an assessment, however the preliminary inspection suggests that these structures are relatively modern and would be of very little if any significance.

Please note that Metro has already recovered an early OHWS, from a redundant section of the rail line serving Mortuary Station, during the SYAB works. This item has been recorded and retained for possible interpretive uses. At this stage we would be looking to retain only one (or part) of the best example of these structures for interpretation.

I will keep OE&H posted on the Central Station Heritage Interpretation Plan as it is developed during design, but please feel free to give me a call if you have any questions.

Kind regards Ron

Ron Turner
Heritage Program Manager
Sydney Metro
Transport for NSW

M 0410 455 178
E Ron.Turner2@transport.nsw.gov.au
World Square Level 41, 680 George Street, Sydney NSW 2000

From: Sarah Jane Brazil [mailto:SarahJane.Brazil@environment.nsw.gov.au]
Sent: Wednesday, 13 June 2018 3:39 PM
To: CMcCallum@laingorourke.com.au; Turner, Ron; Hendy, Andrew; Annabelle Reyes; Jo Robertson; Armstrong, Ben
Cc: Felicity Barry; Emmanuelle Fayolle; McPherson, Craig; BARRY, STEVEN
Subject: DOC18/331212: Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities - Overhead Wiring Works
Importance: High

Dear Mr McCallum,

I refer to your email dated 23 May regarding Overhead Wiring Works within Sydney Yards as part of the Central Station Main Works Preconstruction Activities. This consultation is carried out in accordance with the Conditions of Approval for the approved Metro Project, City & Southwest Chatswood to Sydenham SSI 7400.
A review of the *Central Station Main Works: Additional Early Works – Overhead Wiring Statement of Heritage Impact* (Artefact; 21 May 2018) has been carried out.

Overhead Wiring Works
The following works are required to be undertaken in Sydney Yards as part of the Preconstruction Activities at Central Station, to be located on Platform 15 and to the south of Platforms 10/11, 12/13 and 14/15:

- removal of overhead wiring on Platform 15
- removal of the Shunt Neck Roads Wiring from the OHW portals (i.e. stanchions) in Sydney Yards to the south of Platform 15
- use of power tools and elevated work platforms along and adjacent to the rail corridor to complete the works
- excavation and installation of footings and OHW structures structure in Sydney Yards to the south of Platforms 10/11, 12/13 and 14/15.

Heritage Impacts
The impacts of sub-surface works related to the installation of OHW footings in Sydney Yards to the south of Platforms 10/11, 12/13 and 14/15 have been addressed in the AMS and commented on by the Specialist Services Team (Siobhan Lavelle) on 31 May 2018. Built heritage impacts include removal of existing overhead wiring, potential impacts during construction works and visual impacts of the OHW structures in Sydney Yards.

These impacts are proposed to be managed with the following measures outlined in the SoHI:

- elevated working platforms and excavators would follow the existing access roads or rail corridors and would not be parked abutting or close to any elements of significance
- elevated working platforms and excavators would be controlled sufficiently to prevent inadvertent direct or indirect impacts to any nearby significant fabric or infrastructure
- tools, equipment and materials would be stored away from elements of significance
- any temporary hoarding/fencing would be free-standing, lightweight and visually permeable in order to minimise impacts to views within the Sydney Yards area
- any temporary hoarding/fencing would have an interpretative, partially transparent mesh wrap/screen. This could include interpretative historic photographs
- the Unexpected Heritage Finds Procedure set out in the Sydney Metro Chatswood to Sydenham Unexpected Finds Policy (Transport for NSW, 2016) would be followed
- vibration from construction activities would be tested and monitored prior to and during construction activities with review of construction methodology and additional mitigation measures implemented if necessary
- the nominated Heritage Architect or Consultant would be consulted regarding methods and locations for installing equipment used for vibration, movement and noise monitoring of heritage-listed structures
- all subsurface works would be monitored by a suitably qualified archaeologist in accordance with the AMS (Artefact May 2018).

These mitigations measures are considered suitable to mitigating the potential and visual impacts proposed within this scope of works. In regards to heritage impacts of removing existing OHW, the following comments are made:

- existing stanchions and OHW located within the Metro project footprint have been approved for removal as this is a requirement of the project to construct the Metro box and allow continued rail operations during construction
- the SoHI has identified the significance of the overhead wiring within the Sydney Terminal and Sydney Yards precinct as ‘little’, and assessed that the proposed removal will not result in an adverse heritage impact on the item
- the SoHI does not identify the date of overhead wiring equipment to be impacted, and whether any stanchions and OHW in the impact area may be original to the electrification of the Sydney Terminal lines. This in an aspect of the station’s history that needs to be further understood to determine impacts. The impact assessment is considered inadequate in this regard

- electrification is a key aspect of NSW railway history represented at Central Station by the electrification of Sydney Terminal lines from 1930s until 1950-60s. Reciprocally, it is a significant layer of the station's development and demonstrate its adaptation to the evolution of railway engineering. Further assessment should be conducted to understand the heritage significance of the electric rail equipment within the Sydney Terminal and Yards precincts
- Electrification should be included as a theme within the heritage interpretation strategy developed to meet Condition E21 of the project approval. Any remnant elements of the electrification equipment should be duly recorded as part of the photographic record (Condition E13 of the project approval), and selected equipment samples salvaged and considered for inclusion in the interpretation strategy (CHMP Heritage sub-plan).

The recommended heritage significance assessment, salvage of equipment samples and inclusion in the interpretation strategy should be considered and addressed. OEH considers that the impacts of the Metro works on this aspect of significance of Central Station is timely for the preparation of such an assessment.

Thank you for providing us the opportunity to comment on these works.

NSW GOVERNMENT Office of Environment & Heritage

Sarah Jane Brazil
Senior Team Leader
Major Projects

Level 6, 10 Valentine Ave, Parramatta
PO Box A290, Sydney South 2000
T 02 9585 6510

From: McCallum, Chris [mailto:CMcCallum@laingorourke.com.au]
Sent: Wednesday, 23 May 2018 5:10 PM
To: OEH HD Heritage Mailbox <HERITAGEMailbox@environment.nsw.gov.au>
Cc: Siobhan Lavelle <Siobhan.Lavelle@environment.nsw.gov.au>; Emmanuelle Fayolle <Emmanuelle.Fayolle@environment.nsw.gov.au>; Turner, Ron <Ron.Turner2@transport.nsw.gov.au>; Andrew Hendy (andrew.hendy@transport.nsw.gov.au) <andrew.hendy@transport.nsw.gov.au>; Annabelle Reyes <annabelle.reyes@hbi.com.au>; Jo Robertson <jrh@hbi.com.au>; Armstrong, Ben <Ben.Armstrong2@transport.nsw.gov.au>
Subject: Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities - Overhead Wiring Works

Attention:

Siobhan Lavelle.
Manager Heritage Division
Office of Environment & Heritage
Locked Bag 5020
Parramatta NSW 2124

Emmanuelle Fayolle
Senior Heritage Officer
Major Projects | Operations
Heritage Division
Office of Environment & Heritage

Dear Siobhan and Emmanuelle,

Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities ; consultation with Heritage Council

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heritage items are affected or potentially affected. In which case a determination is required from the Secretary in consultation with OEH, for the works to commence prior to construction.

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For your information, the Project team will not be submitting any further AMS and SOHI to the Division.

Thank you for your help and understanding and please do not hesitate in contacting me if required to discuss.

Kind regards,

Chris

Chris McCallum
Environmental Manager
LAING O'ROURKE

Mobile: 0408 264 164
E-mail: cmccallum@laingorourke.com.au
Web: www.laingorourke.com.au

From: Sarah Jane Brazil [mailto:SarahJane.Brazil@environment.nsw.gov.au]
Sent: Thursday, 21 June 2018 10:37 AM
To: Turner, Ron; CMcCallum@laingorourke.com.au; Hendy, Andrew; Armstrong, Ben
Cc: Felicity Barry; Emmanuelle Fayolle
Subject: RE: DOC18/331212: Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities - Overhead Wiring Works

Dear Ron

Indeed it is understood that only overhead wiring will be removed at this stage and that existing stanchions will remain in place. We understand that the removal of overhead wiring in itself will not result in major adverse impacts on the item's significance. However, the SoHI is vague when assessing the significance of electric rail infrastructure as it refers to "Rail infrastructure (railway lines and overhead wiring)" and does not assess the significance of OHWS and other related equipment. In our previous email, we said little is known as to the provenance of OHW and OHWS equipment in the Sydney Terminal and Yards areas. OEH is drawing attention to the need for this aspect of significance to be further investigated so that impacts and mitigation measures can be adequately assessed and planned as the project progresses.

In regard to the heritage assessment advised below to be undertaken after the CEMP/CHMP are approved, prior to removal of the OHWS, we would appreciate if those findings could be shared with us for our information.

The salvaged OHWS from rail line serving Mortuary Station is noted and the salvage of best-condition representative samples encouraged for future research and interpretation. We recommend that the heritage assessment discussed above incorporate precise recommendations for representative samples to be salvaged for interpretation to guide the construction works and mitigate impacts.

We also look forward to hearing further on the Central Station Heritage Interpretation Plan as it is developed.

Kind regards

Sarah Jane

From: Turner, Ron [mailto:Ron.Turner2@transport.nsw.gov.au]
Sent: Monday, 18 June 2018 9:02 AM
To: Sarah Jane Brazil <SarahJane.Brazil@environment.nsw.gov.au>; CMcCallum@laingorourke.com.au; Hendy, Andrew <Andrew.Hendy@transport.nsw.gov.au>; Armstrong, Ben <Ben.Armstrong2@transport.nsw.gov.au>
Cc: Felicity Barry <Felicity.Barry@environment.nsw.gov.au>; Emmanuelle Fayolle <Emmanuelle.Fayolle@environment.nsw.gov.au>
Subject: RE: DOC18/331212: Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities - Overhead Wiring Works

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Ron Turner
Heritage Program Manager
Sydney Metro
Transport for NSW

M 0410 455 178
E Ron.Turner2@transport.nsw.gov.au
World Square Level 41, 680 George Street, Sydney NSW 2000

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Sent: Wednesday, 13 June 2018 3:39 PM
To: CMcCallum@laingorourke.com.au; Turner, Ron; Hendy, Andrew; Annabelle Reyes; Jo Robertson; Armstrong, Ben
Cc: Felicity Barry; Emmanuelle Fayolle; McPherson, Craig; BARRY, STEVEN
Subject: DOC18/331212: Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities - Overhead Wiring Works
Importance: High

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Thank you for providing us the opportunity to comment on these works.

NSW GOVERNMENT Office of Environment & Heritage

Sarah Jane Brazil
Senior Team Leader
Major Projects

Level 6, 10 Valentine Ave, Parramatta
PO Box A290, Sydney South 2000
T 02 9585 6510

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To: OEH HD Heritage Mailbox <HERITAGEMailbox@environment.nsw.gov.au>
Cc: Siobhan Lavelle <Siobhan.Lavelle@environment.nsw.gov.au>; Emmanuelle Fayolle <Emmanuelle.Fayolle@environment.nsw.gov.au>; Turner, Ron <Ron.Turner2@transport.nsw.gov.au>; Andrew Hendy (andrew.hendy@transport.nsw.gov.au) <andrew.hendy@transport.nsw.gov.au>; Annabelle Reyes <annabelle.reyes@hbi.com.au>; Jo Robertson <jrh@hbi.com.au>; Armstrong, Ben <Ben.Armstrong2@transport.nsw.gov.au>
Subject: Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities - Overhead Wiring Works

Attention:

Siobhan Lavelle.
Manager Heritage Division
Office of Environment & Heritage
Locked Bag 5020
Parramatta NSW 2124

Emmanuelle Fayolle
Senior Heritage Officer
Major Projects | Operations
Heritage Division
Office of Environment & Heritage

Dear Siobhan and Emmanuelle,

Sydney Metro, SSI_7400, C03, Central Station Main Works Preconstruction Activities ; consultation with Heritage Council

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The earliest Heritage Division response would be very much appreciated but S&SW project team need comments back by no later than Friday 8 June 2018. We are happy to meet with you to discuss the Project in further detail and to discuss any issues of concern the Heritage Division may have.

For your information, the Project team will not be submitting any further AMS and SOHI to the Division.

Thank you for your help and understanding and please do not hesitate in contacting me if required to discuss.

Kind regards,

Chris

Chris McCallum
Environmental Manager
LAING O'ROURKE

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Web: www.laingorourke.com.au

HBI Healthy Buildings International Pty Ltd
A.C.N. 003 270 693 A.B.N. 39 003 270 693

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29-31 Solent Circuit
Baulkham Hills NSW 2153

Tel: 61 (02) 9659 5433
e-mail: hbi@hbi.com.au
Web: www.hbi.com.au

Stuart Hodgson
Director
Program Sustainability Environment & Planning
Sydney Metro
Transport for NSW
PO Box K659
HAYMARKET NSW 1240

05 July 2018

Ref: CSMW007 Low Impact Works

Dear Stuart

RE: Sydney Metro City & Southwest - Central Station Main Works Project Low Impact Works within the Heritage Areas – CSMW007 Services investigation (Non-destructive digging) Soil Resistivity Testing and Construction of Overhead Wiring Structures

Thank you for providing the following documents for Environmental Representative (ER) review and endorsement as required by the Condition of Approval A24 (d) of the Sydney Metro City & Southwest project (SSI – 15_7400 January 9 2017).

- Pre-Construction Minor Works Approval Application Form MW007 – Services investigation (Non-destructive digging) Soil Resistivity Testing and Construction of Overhead Wiring Structures (20180704 Minor Works Application 007 V3 combined);
- Central Station Main Works –Early Works: Archaeological Method Statement for piling and excavation (4 June 2018);
- Central Station Main Works: Additional Early Works - Overhead Wiring Statement of Heritage Impact (21 May 2018);
- Office of Environment Heritage (OEH) Heritage Division Consultation Records for CSMWA 007 (31 May 2018);
- Office of Environment Heritage (OEH) Heritage Division Consultation Records for CSMWA 007 (13 June 2018) and responded by Sydney Metro on 18 June 2018.

As an approved ER for the Sydney Metro City & Southwest project, I have reviewed the proposed work and supporting documents provided by Laing O' Rourke. Although endorsed as low impact, the works may potentially affect heritage items within the Central Station precinct and are thus defined as construction unless otherwise determined by the Secretary in consultation with OEH.

We consider the documents are now appropriate for submission to the Secretary for consideration.

Yours sincerely,

Annabelle Tungol Reyes
Environmental Representative – Sydney Metro – City and South West