

Consistency Assessment Approval Form – Change to the location of the traction substation and construction footprint at Barangaroo Station

Existing Approved Project

Planning approval reference details (Application/Document No. (including modifications)): SSI-15_7400 Sydney Metro City & Southwest – Chatswood to Sydenham

Date of determination: 9 January 2017

Type of planning approval: Part 5.1 – Critical State Significant infrastructure

Description of existing approved project:

The Chatswood to Sydenham component of Sydney Metro City & Southwest comprises a new metro rail line, approximately 16 kilometres long, between Chatswood and Sydenham. New metro stations would be provided at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Waterloo, as well as new underground metro platforms provided at Central Station.

Section 6.6.3 of the Environmental Impact Statement outlines the description of the approved infrastructure at Barangaroo Station. The indicative layout provided in Figure 6-16 of the EIS shows two station entries both to the west of Hickson Road – one to the north (in North Cove Park) and one to the south (north of the proposed Agar Street and integrated with future development). A traction substation would be provided at Barangaroo Station, to the south of the southern entry, on the southern side of the proposed Agar Street. The substation would be located partly underground.

The construction footprint for Barangaroo Station is shown in Figure 7-13 of the EIS. Barangaroo Station would be constructed as a cut and cover station.

The EIS noted that it may be feasible to remove some of the spoil generated through this site by barge using wharf facilities around Barangaroo. Section 3.2 of the Submissions and Preferred Infrastructure Report provided further clarification regarding the use of barges to transport spoil generated from the Barangaroo Station construction site. Figure 3-8 of the Submissions and Preferred Infrastructure Report illustrated the location and layout of barging infrastructure at Barangaroo. The barging infrastructure would be partially located within the foreshore areas of Barangaroo Reserve, referred to as Wulugul Walk, and partially within the construction footprint of Central Barangaroo. It would require the temporary closure of access along Wulugul Walk.

Relevant background information (including EA, REF, Submissions Report, Director General’s Report, MCoA):

- Chatswood to Sydenham Environmental Impact Statement and accompanying technical papers (May, 2016)
- Chatswood to Sydenham Submissions and Preferred Infrastructure Report (October, 2016)
- Conditions of Approval (dated 9 January 2017).

Description of proposed development/activity/works

Describe ancillary activities, duration of work, working hours, machinery, staffing levels, impacts on utilities/authorities, wastes generated or hazardous substances/dangerous goods used:

The Submissions and Preferred Infrastructure Report noted that TfNSW would continue to work with the Barangaroo Delivery Authority (BDA) to ensure that critical station and rail infrastructure (including the traction substation) is fully integrated within the Central Barangaroo locality and development and addresses design challenges associated with Barangaroo Station and optimise heritage outcomes, the public domain response and station and development outcomes. It also stated that the temporary occupation of construction areas within Central Barangaroo could impact on the staging of that development and that the final configuration of construction activities within Central Barangaroo would be determined in consultation with BDA with the objective of minimising disruption to construction staging within the precinct.

As part of this commitment to work with BDA to ensure integration within the Central Barangaroo locality and minimise construction staging impacts, Transport for NSW propose the following changes to the construction and design of Barangaroo Station:

- The location of the traction substation would be moved to be integrated with, and located wholly underground, adjacent to the northern station entry. Refer to Figure 1 of the proposed location of the traction substation.
- The construction footprint for Barangaroo Station would be altered to support the new location of the traction substation and to ensure barging of spoil from the construction site minimise impacts on the staging of the Central Barangaroo development. Refer to Figure 2 for revised indicative layout of the Barangaroo Station construction site for the north entry and barging activities. The location of the haul and conveyor to the spoil barge will be located within this area. The construction site to the south at the approved location for the traction substation will no longer be required.

The scope and methodology of the construction activities at Barangaroo Station has not changed, although the location of some of these activities has been moved. There would be no change to the duration of work, working hours, machinery or staffing levels.

The approved traction substation location was partly underground and required some excavation. The proposed new traction substation location is wholly underground and therefore the depth of excavation would be greater and would generate additional spoil. The proposed underground location of the traction substation would require a cooling system to be installed. There are a number of options available for cooling, including connections to cooling system infrastructure being delivered by BDA. Identification of potential impacts and assessment of consistency of the final design of the substation cooling system would be undertaken as the detailed design is developed.

Figure 1: Proposed new location of the traction substation [Note: this is a basement/plant level plan as the substation is located fully underground and would not be visible from above ground. Only the northern station entry would be visible aboveground]

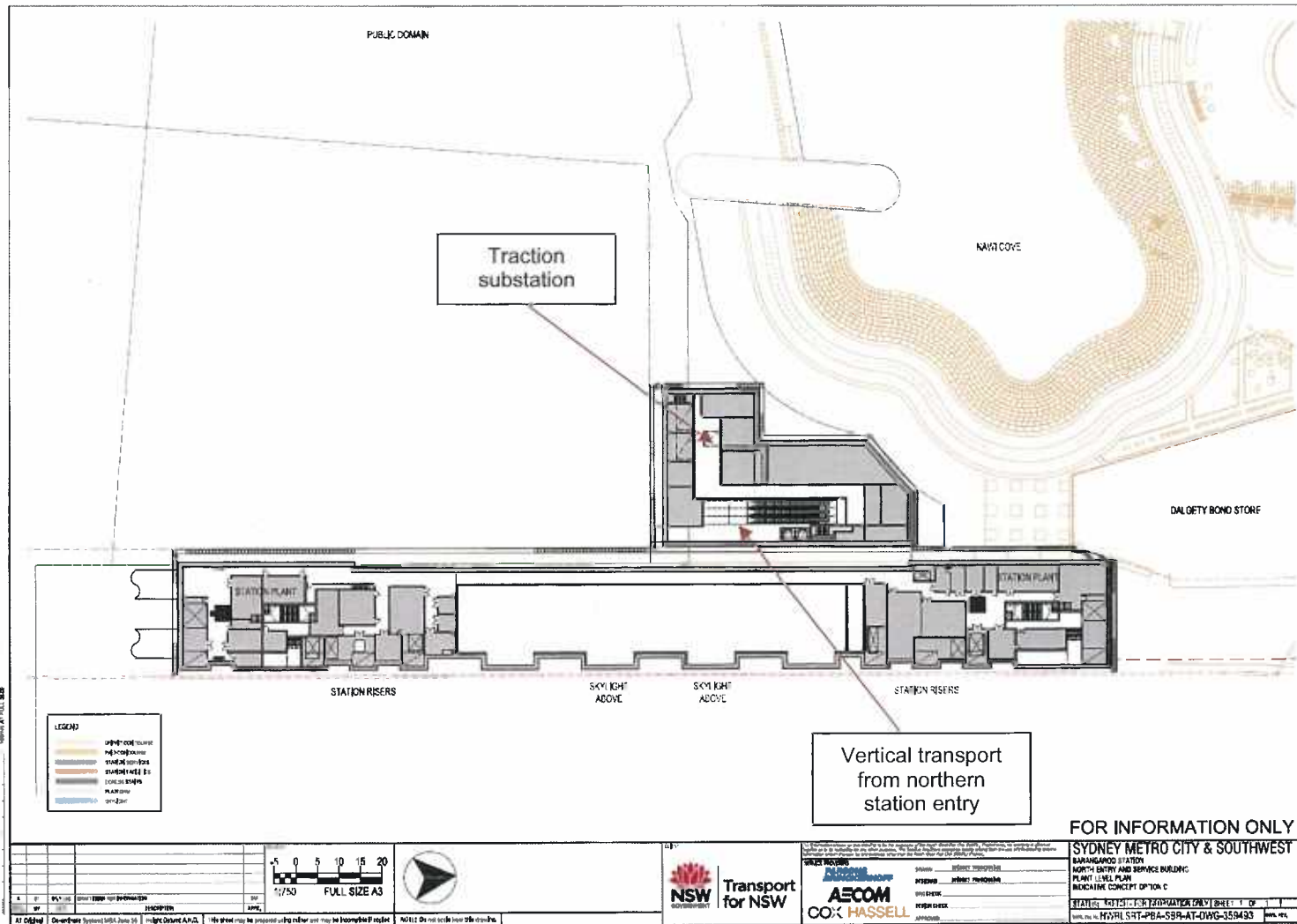
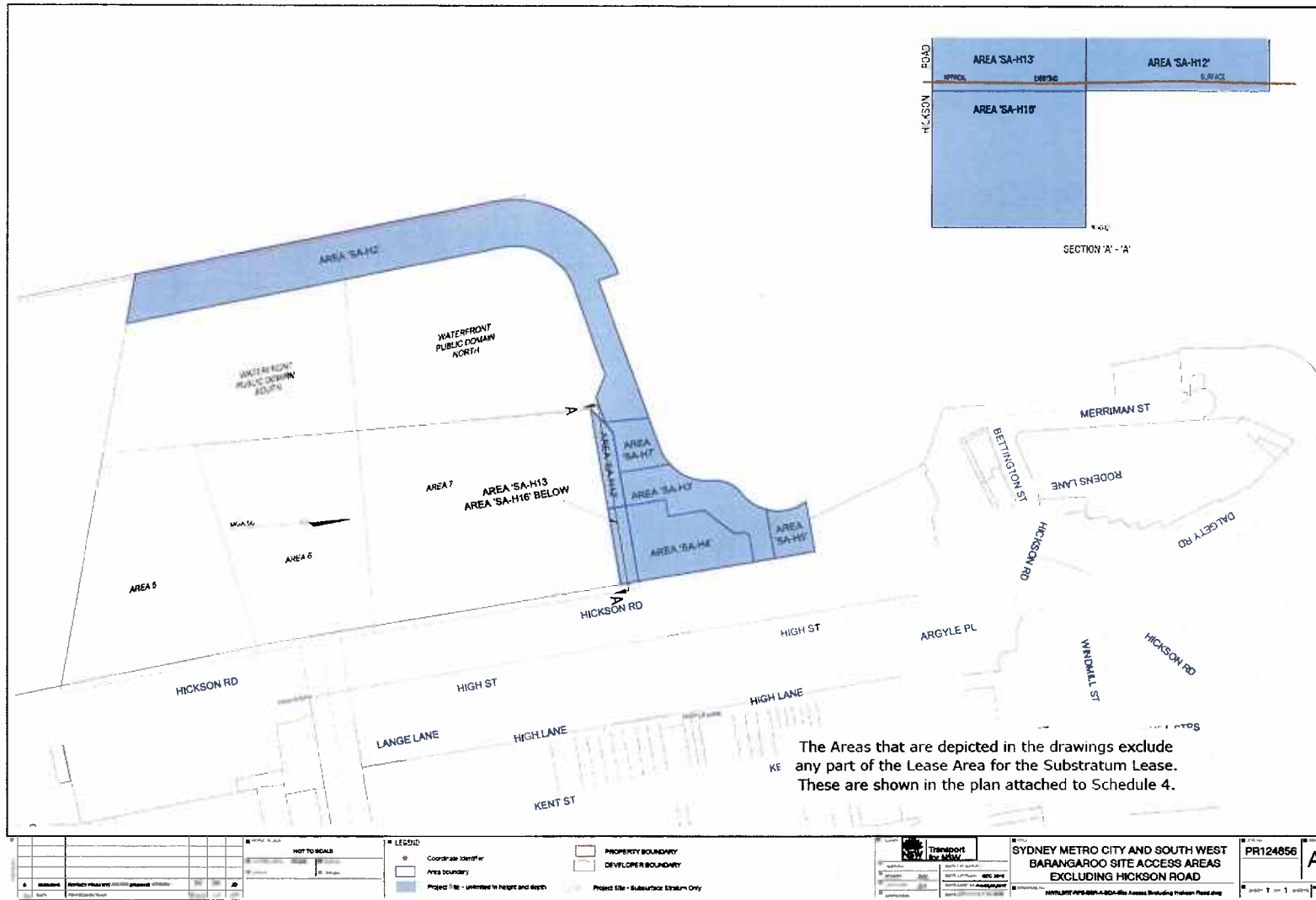


Figure 2: Revised indicative layout of the Barangaroo Station construction site for north entry and barging activities



Timeframe

There is no change to the proposed start date or duration of works at Barangaroo Station. Works at the site are anticipated to commence in late 2017 and be completed by end 2022, followed by testing and commissioning.

Site description

Provide a description of the site on which the proposed works are to be carried out, including, Lot and Deposited Plan details, where available:

The proposed location of the traction substation and required construction site for Barangaroo Station is located between Hickson Road and Nawi Cove / Sydney Harbour, within the suburb of Barangaroo and to the north of the Central Barangaroo development. The proposed substation and construction footprint would be located on Lot 101, DP 1204946.

Site Environmental Characteristics

The site is located between Barangaroo Reserve and the Central Barangaroo development, to the west of Hickson Road. The site comprises recently landscaped elements associated with the plaza and pavilion that provides a southern entry to Barangaroo Reserve, at Nawi Cove, and parts of the foreshore area of Barangaroo Reserve, referred to as Wulugul Walk, including the foreshore adjacent to Dukes Pier and Rowntree's Dock.

The Barangaroo Central development is located to the south of the proposed construction site and currently comprises construction sites. The Cutaway cultural space is located within Barangaroo Reserve, to the north of the proposed works. Hickson Road is located to the east, at the base of a cliff wall of exposed sandstone rock face and masonry. Residential properties are located to the east of Hickson Road, above the cliff wall. Sydney Harbour and Nawi Cove are located to the west of the proposed site.

Justification for the proposed works

As noted above, the Submissions and Preferred Infrastructure Report noted that TfNSW would work with BDA to ensure that critical station and rail infrastructure is fully integrated within the Central Barangaroo locality and that the final configuration of construction activities within Central Barangaroo would be determined to minimise disruption to construction staging within the precinct.

The provision of an underground traction substation integrated with the northern station entry would provide an improved design and public domain response for the Central Barangaroo locality. There would no longer be any visual or landscape impact associated with the proposed traction substation. The proposed location of the traction substation and associated construction site would also minimise disruption to the construction staging of the Central Barangaroo precinct. The revised construction site location would also enable barging activities to occur with minimal disruption to the construction staging of Central Barangaroo.

Environmental Benefit

The environmental benefits of the proposed works relate to the improvement in the public domain response and visual amenity outcomes for Central Barangaroo and Barangaroo Station.

Control Measures

Will a project and site specific EMP be prepared? Yes

Are appropriate control measures already identified in an existing EMP? No

An EMP for the proposed works at Barangaroo Station has not yet been developed. The proposed change to the location of the traction substation and construction footprint for Barangaroo Station would be addressed in the contractor's EMP when it is prepared, prior to works commencing. This EMP would be approved by DP&E prior to works commencing in accordance with the Conditions of Approval.

Climate Change Impacts

Is the site likely to be adversely affected by the impacts of climate change? If yes, what adaptation/mitigation measures will be incorporated into the design?

A climate change risk assessment was provided in Chapter 25 of the EIS. The climate change risk treatments (mitigation measure SUS4) identified in the EIS will continue to apply to the proposed works at Barangaroo Station.

Impact Assessment – Construction

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Flora and fauna	N/A	N/A	Y	Y	—
Water	N/A	N/A	Y	Y	—
Air quality	The revised location of the traction substation would change the location of excavation works. The location of the haul road and conveyor for the transport of spoil to the barge would also be slightly changed. However, no new receivers would be affected by potential dust generation impacts and no new additional risks to local air quality are anticipated.	The potential air quality impacts associated with the construction works at Barangaroo Station would be managed in accordance with existing mitigation measures and conditions of approval. No additional mitigation measures are required.	Y	Y	—

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Noise and vibration	<p>The construction noise and vibration impacts associated with the revised construction site at the northern end of the station would be consistent with the impacts identified in the EIS. The equipment used and activities expected at this construction site would be the same, however the excavation works would extend to the west but this is located further away from the sensitive receivers.</p> <p>The relocation of the traction substation would result in less construction noise and vibration impacts for receivers located to the south of the station as excavation works in this location would no longer be required.</p> <p>The noise and vibration impacts associated with the barging activities at the revised construction site are expected to continue to be within the noise management levels for all receiver areas.</p>	<p>The potential noise and vibration impacts associated with the construction works at Barangaroo Station would be managed in accordance with existing mitigation measures and conditions of approval.</p> <p>No additional mitigation measures are required.</p>	Y	Y	—

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Indigenous heritage	The EIS identified that the western portion of the Barangaroo Station footprint associated with the original shoreline of Darling Harbour has a moderate to high potential of comprising unrecorded items of Aboriginal heritage significance. The revised location of the traction substation would require excavation works in this area, north of the proposed excavation works for the traction substation identified in the EIS.	The works will be managed in accordance with the requirements of the Aboriginal Cultural Heritage Assessment Report. No additional mitigation measures are required.	Y	Y	—

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Non-indigenous heritage	<p>The proposed change to the construction footprint of Barangaroo Station would not result in any additional impacts on surrounding listed heritage items and areas.</p> <p>The excavation of the revised location of the traction substation may affect archaeological remains associated with Cuthbert's shipyard.</p> <p>The revised location of the traction substation would remove the need for excavation works within an area with potential for archaeological remains associated with 19th century wharf development and occupation.</p>	<p>The works will be managed in accordance with the requirements of the Archaeological Assessment and Research Design.</p> <p>No additional mitigation measures required.</p>	Y	Y	

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				Y/N	Comments
Community	<p>The revised construction footprint for Barangaroo Station would affect a greater extent of Wulugul Walk and additional areas of foreshore land which forms part of Barangaroo Reserve. The temporary occupation of the open space areas would have a minor land use and community impact associated with the removal of foreshore access.</p> <p>Access to Dukes Pier and Rowntree’s Dock may be restricted to support the revised construction footprint, however opportunities to maintain access to these facilities would be investigated as part of construction planning.</p> <p>Wulugul Walk currently terminates around 100 metres south of the proposed barge location and therefore connectivity to other community spaces would not be affected.</p>	<p>Opportunities to provide continued access to Dukes Pier and Rowntree’s Dock will be investigated as part of construction planning.</p>	Y	Y	—

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Traffic	<p>The revised construction footprint would affect a greater extent of Wulugul Walk than the approved project. This walk is currently closed in the vicinity of the proposed barge location to support construction for Central Barangaroo. As such, connectivity of this walkway would not be affected by the proposed construction site footprint.</p> <p>Construction activities within this foreshore land are likely to be completed by end 2022, ahead of the expected completion of Central Barangaroo in 2024. Nevertheless, as identified in the PIR, should the remaining sections of Wulugul Walk within Central Barangaroo be completed while construction of Barangaroo Station is still underway, alternative paths would be made available for north-south movements.</p>	No additional mitigation measures are required.	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Waste	Minor additional spoil is anticipated to be generated by the additional depth of excavation required to support the delivery of a wholly underground traction substation.	The potential waste impacts associated with the construction works at Barangaroo Station would be managed in accordance with existing mitigation measures and conditions of approval. No additional mitigation measures are required.	Y	Y	-
Social	N/A	N/A	Y	Y	-
Economic	N/A	N/A	Y	Y	-

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Visual	<p>The revised construction footprint for Barangaroo Station would affect a greater extent of Wulugul Walk and additional areas of foreshore land which forms part of Barangaroo Reserve. The temporary occupation of the open space areas would have a high adverse landscape impact and additional visual impacts on Barangaroo Reserve, Wulugul Walk and the foreshore areas due to the greater restriction of access to the foreshore and reduced proximity of construction activities to the remaining foreshore areas and reserve. This would reduce the attractiveness of this space. Following completion of construction, the path and landscaping would be reinstated consistent with existing landscaping and with plantings of similar maturity to the surrounding area.</p> <p>The revised location of the traction substation would remove the need for construction activities to the south of the station.</p>	No additional mitigation measures are required.	Y	Y	—

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Urban design	N/A	N/A	Y	Y	-
Geotechnical	N/A	N/A	Y	Y	-
Land use	The revised construction footprint for Barangaroo Station would affect a greater extent of Wulugul Walk and additional areas of foreshore land which forms part of Barangaroo Reserve. The temporary occupation of the open space areas would have a minor land use impact associated with the removal of foreshore access.	No additional mitigation measures are required.	Y	Y	-
Climate Change	N/A	N/A	Y	Y	-
Risk	N/A	N/A	Y	Y	-
Other	N/A	N/A	Y	Y	-
Management and mitigation measures	N/A	N/A	Y	Y	-

Impact Assessment – Operation

Aspect	Nature and extent of impacts (negative and positive) during operation (if control measures implemented) of the proposed activity/works, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Flora and fauna	N/A	N/A	Y	Y	—
Water	<p>As the revised location of the traction substation is now wholly underground, a cooling system would be required. The details of this cooling system would be identified as part of the detailed design process, although an option exists to connect the substation to cooling system infrastructure to be delivered by BDA.</p> <p>The BDA cooling system has been designed in accordance with guidelines suggested by OEH to manage water flow velocity, temperature, filtration and biofouling aspects, Therefore, connection to the BDA cooling system would not result in any water impacts.</p>	The detailed design of the cooling system for the underground traction substation would be reviewed to identify any potential impacts and an assessment of consistency with the approved project undertaken.	Y	Y	—
Air quality	N/A	N/A	Y		

Aspect	Nature and extent of impacts (negative and positive) during operation (if control measures implemented) of the proposed activity/works, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Noise vibration	The proposed location of the underground traction substation is not anticipated to have any operational noise or vibration impacts. The traction substation would be designed to meet the applicable noise criteria from the Industrial Noise Policy.	No additional mitigation measures are required.	Y	Y	-
Indigenous heritage	N/A	N/A	Y	Y	-
Non-indigenous heritage	The revised underground location of the traction substation would remove the provision of this aboveground services infrastructure, removing the any impact of this element on the views and vistas of surrounding heritage items, such as the Millers Point and Dawes Point village precinct.	N/A	Y	Y	-
Community	N/A	N/A	Y	Y	-
Traffic	N/A	N/A	Y	Y	-
Waste	N/A	N/A	Y	Y	-

Aspect	Nature and extent of impacts (negative and positive) during operation (if control measures implemented) of the proposed activity/works, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Social	N/A	N/A	Y	Y	—
Economic	N/A	N/A	Y	Y	—
Visual	The revised underground location of the traction substation would remove the provision of this aboveground services infrastructure, removing the visual impact of this element.	N/A	Y	Y	—
Urban design	The revised underground location of the traction substation would remove the provision of this aboveground services infrastructure, providing an improved public domain and urban design response and not impact on the parkland within Barangaroo.	The proposed relocated substation shall be designed to be wholly underground to ensure a high quality public domain area can be provided above.	Y	Y	—
Geotechnical	N/A	N/A	Y	Y	—
Land use	The revised underground location of the traction substation would remove the provision of this aboveground services infrastructure, providing an improved public domain and land use response.	N/A	Y	Y	—


Aspect	Nature and extent of impacts (negative and positive) during operation (if control measures implemented) of the proposed activity/works, relative to the Approved Project	Proposed Control Measures	Minimal Impact Y/N	Endorsed [for Planning and Environment use only]	
				Y/N	Comments
Climate Change	No additional climate change risks to those identified in the EIS are anticipated. The revised location of the infrastructure would be designed to be resilient to the impacts of climate change.	No additional mitigation measures are required.	Y	Y	—
Risk	N/A	N/A	Y	Y	—
Other	N/A	N/A	Y	Y	—
Management and mitigation measures	N/A	N/A	Y	Y	—

Consistency with the Approved Project

<p>Based on a review and understanding of the existing Approved Project and the proposed modifications, is there is a transformation of the Project?</p>	<p>No. The proposed change to the location of the traction substation and construction site footprint at Barangaroo Station would not transform the project. The project would continue to provide a new metro rail line between Chatswood and Sydenham.</p>
<p>Is the project as modified consistent with the objectives and functions of the Approved Project as a whole?</p>	<p>Yes. The proposed change to the location of the traction substation and construction site footprint at Barangaroo Station would be consistent with the objectives and functions of the approved project.</p>
<p>Is the project as modified consistent with the objectives and functions of elements of the Approved Project?</p>	<p>Yes. The proposed change to the location of the traction substation and construction site footprint at Barangaroo Station would be consistent with the objectives and functions of the approved Barangaroo Station.</p>
<p>Are there any new environmental impacts as a result of the proposed works/modifications?</p>	<p>No new environmental impacts are anticipated as a result of location of the traction substation and construction site footprint at Barangaroo Station.</p> <p>At this stage, it is proposed that the revised location of the traction substation would connect to cooling system infrastructure being delivered by BDA. However, this is subject to detailed design and agreement with BDA. Therefore, the potential impacts of the cooling system for the revised location of the traction substation will be confirmed as part of the detailed design process and an assessment undertaken to determine consistency with the approved project.</p>
<p>Is the project as modified consistent with the conditions of approval?</p>	<p>Yes. The proposed works at Barangaroo Station would be consistent with the conditions of approval.</p>
<p>Are the impacts of the proposed activity/works known and understood?</p>	<p>Yes. The impacts of the revised location of the traction substation and construction footprint at Barangaroo Station are understood. The impacts of the cooling system for the traction substation will be confirmed as part of the detailed design process.</p>
<p>Are the impacts of the proposed activity/works able to be managed so as not to have an adverse impact?</p>	<p>Yes. The impacts of the proposed works at Barangaroo Station can be managed so as to avoid an adverse impact. The proposed relocated substation shall be designed to be wholly underground to ensure a high quality public domain area can be provided above and not impact on the parkland within Barangaroo.</p>


I certify that to the best of my knowledge this Consistency Checklist:

- examines and takes into account to the fullest extent possible all matters affecting or likely to affect the environment as a result of activities associated with the project; and
- examines the consistency of the proposed activity/modification with the Approved Project;
- is accurate in all material respects and does not omit any material information.

Name	Yvette Buchli	Signature 	Date 8/5/17
Title	Manager, Planning Approvals		

To be signed by person preparing checklist

THIS SECTION FOR PLANNING & ENVIRONMENT USE ONLY

Application supported and submitted by:			
Name	Carolyn Riley	Signature 	Date 9/5/17
Title	Senior Manager, Planning		

Project Approvals

Planning Approvals

Based on the above assessment, are the impacts and scope of the proposed activity/modification consistent with the existing Approved Project?

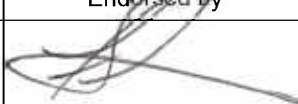
- Yes The proposed activity/works can be endorsed by the Principal Manager Sustainability, Environment & Planning.
- No The proposed works/activity is not consistent with the Approved Project. A modification or a new activity approval/development consent is required. Advise Project Manager of appropriate alternative planning approvals pathway to be undertaken.

Environmental Approvals

Identify all other approvals required for the project:

Tick appropriate box

No further assessment required.		Further Assessment is required	
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Comments	Endorsed by	Date	* Conditions of endorsement
—	 FIL CERONE Principal Manager, Sustainability, Environment & Planning	9/5/17	—