

Rail Operations Centre

Review of Environmental Factors (REF) Submissions Report

October 2016



Document History

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1	Lucia Coletta	25/10/16	Draft submissions report
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Executive Summary

Background

Sydney Trains proposes to construct the Rail Operations Centre (ROC) for and on behalf of Rail Corporation New South Wales (RailCorp) to improve management and delivery of train operations and rail services for Sydney Trains, NSW Trains and their customers (the proposal). The proposal is scheduled for completion by 2018.

REF display

Sydney Trains prepared an REF to assess the environmental impacts of the proposed works. The REF was exhibited between 5 October 2016 and 19 October 2016. The REF was placed on the Transport for NSW website (www.transport.nsw.gov.au/roc) and made available for download. A letterbox drop to around 450 surrounding residents and businesses was used to promote the release of the REF.

A 'drop-in' session was held at the Fire and Rescue NSW State Training College at 189 Wyndham Street, Alexandria (next to the ROC site) on 11 October 2016. This provided the community a chance to ask questions of the project team.

An invitation to comment was sent directly to:

- City of Sydney Council
- Ausgrid
- FRNSW
- NSW EPA
- Sydney Water
- Roads and Maritime Services
- Member for Heffron – Mr Ron Hoenig MP
- Alexandria Residents Action Group
- Sydney Chamber of Commerce
- South Sydney Community Aid
- Green Square School

Feedback received

A total of seven submissions were received in response to the exhibition of the REF, comprising one government agency submission and six submissions from the community. Two individuals provided multiple submissions.

Issues raised

The issues raised in submissions related to:

- Visual impacts (loss of views and loss of sunlight) and landscaping
- Construction and operational noise.

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1 Introduction

1.1 Introduction

Sydney Trains proposes to construct the Rail Operations Centre for and on behalf of Rail Corporation New South Wales (RailCorp) to improve the management and delivery of train operations and rail services for Sydney Trains, NSW Trains and their customers.

The Rail Operations Centre vision supports the strategies of Transport for NSW (TfNSW), RailCorp, Sydney Trains, and NSW Trains, who want to transform the customer experience in line with their vision of “putting the customer at the heart of everything we do.”

Better coordination, communication, and management would be achieved through the Rail Operations Centre centralisation of services and resources to integrate teams and transform the processes, systems and communications of the functions focused on managing the daily operational activities. This integration would include computer based signalling locations, train control, security, customer information, fleet management, asset monitoring and incident response functions.

The Rail Operations Centre would deliver consistent, accurate, timely and up to date information to customers about delays and improve processes and systems allowing faster incident resolution and service recovery. It would provide the operational management of the Sydney Trains network with a highly coordinated customer focus and would support the realisation of benefits from future initiatives including major infrastructure programs, the Rail Futures Strategy and future business model changes.

1.2 Description of proposal

Sydney Trains has selected a site of about 4,097m² in Alexandria on the intersection of Wyndham and Mandible Streets.

The proposed Rail Operations Centre building would have a floor area of about 15,160m² set across four levels (including a mezzanine level) plus a plant room located on the roof, spread vertically over 31.2 metres. The proposed building would house network operations, office accommodation and a control room. The Rail Operations Centre is expected to include computer based signalling locations, train control, security, customer information, fleet management, asset monitoring and incident response functions. The main frontage of the building would be on Wyndham Street which would house the main lobby of the building. Vehicle access would be via the Mandible Street frontage. There would be security fencing with closed-circuit television cameras (CCTV) around the perimeter of the property boundary. The footprint of the proposal is shown in Figure 1.

The key components of the Rail Operations Centre proposal are:

- The Rail Operations Centre is to be built across four levels, plus a plant room located on the roof
- The Rail Operations Centre would be operational 24 hours a day, seven days per week
- Construction and operation of the Rail Operations Centre building on RailCorp owned land
- Provision for a future fire station as a separate tenancy within the ground floor and first floor of the Rail Operations Centre building. Planning assessment and/or approval for this use and fit out would be obtained by FRNSW

- Rail Operations Centre stormwater management system would connect to the City of Sydney’s existing stormwater management system
- Rail Operations Centre sewerage system would connect to Sydney Water’s existing sewerage system
- Construction of a car park within the ground floor of the Rail Operations Centre building with entry and exit via a ramp to be provided from Mandible Street, Alexandria to the ground floor
- A separate entry for the future fire station south of the proposal from Wyndham Street, Alexandria through a future access road. The exit will be from Mandible Street
- Upgrade of existing southern footpath in Mandible Street and western footpath in Wyndham Street adjacent to the proposal
- Solid security barrier with CCTV to be provided around the perimeter of the Rail Operations Centre property boundary.

The key features of each level of the Rail Operations Centre building are provided in Table 1.

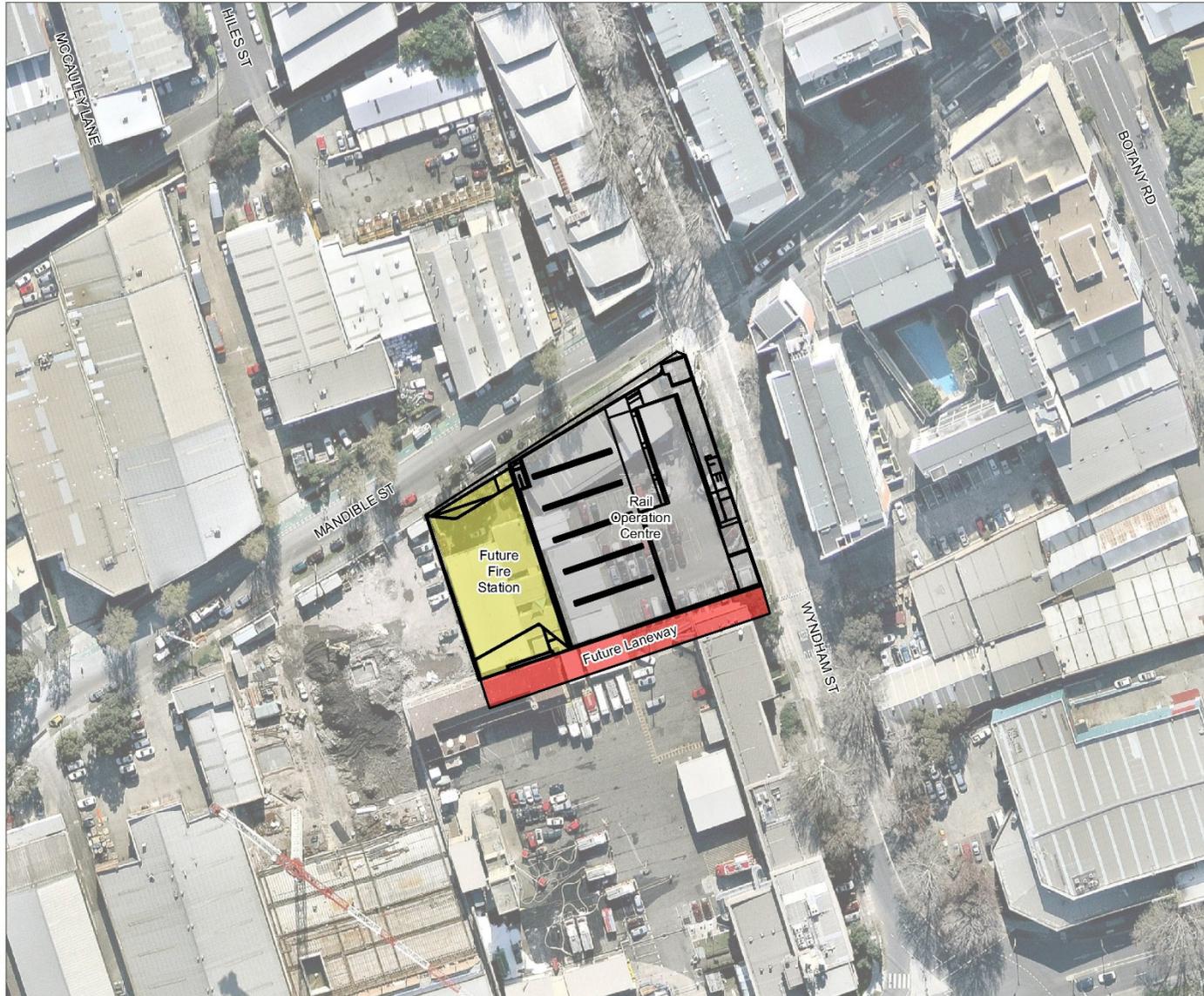
Table 1 Key features for each level of the proposed Rail Operations Centre building

Level	Features
Ground	The ground level comprises the entry area, main lobby and café area. The ground floor accommodates a total of 54 car parking spaces and various control and storage rooms. There is space for a future fire station. The mezzanine includes bicycle parking and end of journey facilities.
Level 1	Level 1 houses the main generic office spaces as well as a kitchenette, meeting rooms and amenities.
Level 2	Level 2 is the support and services floor, comprising additional office space, computer & UPS rooms, meeting rooms and amenities.
Level 3	Level 3 holds the control room and additional informal break out area.
Level 4	Level 4 is a mezzanine level. It houses support functions to the control room, visitor’s areas and a gym and amenities.
Roof	The roof level houses a plant room.



Legend

- Rail operation centre
- Future fire station
- Future laneway



P:\GIS\Project-3\Project\Rail Operations Centre\ROC Main Works\fig2_Proposal.mxd Date: 09-09-16 Author: rose.ma

Extent map



Source: Nearmap, Aurecon, RailCorp



A3 scale: 1:1,000
0 10 20 40 m

Job No: 247572
Projection: MGA Zone 56

1.1 Purpose of the submissions report

This submissions report relates to the REF prepared for the Rail Operations Centre, and should be read in conjunction with that document.

The REF was placed on public display and submissions relating to the proposal and the REF were received by Sydney Trains. Chapter 2 of this submissions report details the consultation undertaken for the proposal. Chapter 3 summarises the issues raised and provides responses to each issue. The summary of environmental management measures proposed after consideration of community feedback is provided in Chapter 4.

2 Consultation

2.1 Consultation undertaken during REF preparation

Sydney Trains undertook a range of consultation activities during the preparation of the Rail Operations Centre REF. This included consultation required under the State Environmental Planning Policy (Infrastructure) (ISEPP).

Consultation during the preparation of the REF involved meeting with and/or writing to key government stakeholders, nearby businesses and the community, providing information on the proposal and inviting their feedback on issues and/or assessment requirements.

The following agencies and stakeholders were contacted:

- City of Sydney Council
- Ausgrid
- FRNSW
- NSW EPA
- Sydney Water
- Roads and Maritime Services
- Member for Heffron – Mr Ron Hoenig MP
- Alexandria Residents Action Group
- Sydney Chamber of Commerce
- Nearby residents and businesses.

Consultation activities that were undertaken included:

- Meetings with stakeholders
- ISEPP letters
- Letterbox drops of project updates and notifications to surrounding residents and businesses
- Website updates.

The issues raised by these stakeholders were identified and addressed in the Rail Operations Centre REF. They are not discussed further in this report.

2.2 Consultation during REF display

Sydney Trains prepared an REF to assess the environmental impacts of the proposed works. The REF was exhibited between 5 October 2016 and 19 October 2016 and available to download from the Transport for NSW website (www.transport.nsw.gov.au/roc).

A 'drop-in' session was held at the Fire and Rescue NSW State Training College on 189 Wyndham Street, Alexandria (next to the ROC site) on 11 October to provide the community a chance to ask questions of the project team. A letterbox drop to around 450 surrounding

residents and businesses was used to promote the release of the REF and provide details of the community 'drop-in' session.

An invitation to comment was sent directly to several stakeholders. These were:

- City of Sydney Council
- Ausgrid
- FRNSW
- NSW EPA
- Sydney Water
- Roads and Maritime Services
- Member for Heffron – Mr Ron Hoenig MP
- Alexandria Residents Action Group
- Sydney Chamber of Commerce
- South Sydney Community Aid
- Green Square School.

3 Responses to feedback

Sydney Trains received seven submissions during the public display of the REF. Table 2 lists the respondents alongside an allocated submission number. The table also indicates where the issues from each submission have been addressed in Chapter 3 of this report.

Table 2: Respondents

<i>Respondent</i>	<i>Submission No.</i>	<i>Section number where issues are addressed</i>
Individual	01	3.2
Individual	02	3.2
Individual	03	3.2
Individual	04	3.4
Individual	05	3.2
Individual (drop-in session)	06	3.2, 3.3, 3.4
Environment Protection Authority	07	3.4

3.1 Overview of feedback

A total of seven submissions were received in response to the exhibition of the REF, comprising one government agency and six submissions from the community. Two individuals provided multiple submissions.

Each submission has been examined individually to understand the issues being raised. The issues raised in each submission have been extracted and collated, and corresponding responses to the issues have been provided. Where similar issues have been raised in different submissions, only one response has been provided. The issues raised and Sydney Trains' response to these issues forms the basis of this chapter.

3.2 Visual impact and landscaping

3.2.1 *Submission number(s)*

01, 02, 03, 05, 06.

3.2.2 *Issue description*

1. Loss of sunlight due to the ROC building
2. Building will block views to the west
3. Requests replanting of trees and lawn on Mandible Street.

3.2.3 Response

1. As part of the REF, the overshadowing potential of the building was considered. Shadow diagrams have been produced, showing the mid-winter shadowing effects of the Rail Operations Centre building on surrounding land. Mid-winter shadowing produces the longest shadow profile of the building. These diagrams are shown in section 5.9.2 of the REF. These show that at 9am, 12pm and 3pm in mid-winter, there would be no shadowing effect on the neighbouring residential apartments on Mandible Street.

Some shadowing would occur on the neighbouring residential apartments on Mandible Street (particularly on the lower levels) during the late evening in both winter and summer.

2. It is noted the construction of the Rail Operations Centre building would result in loss of some westerly views for neighbouring residents in apartments on Mandible Street. Street planting will be provided along Mandible Street (see response to item 3) to mitigate the view of the building.
3. As part of the early works for the Rail Operations Centre, two street trees on Wyndham Street and three street trees on Mandible Street were removed.

Sydney Trains has developed a draft landscaping plan for the Rail Operations Centre which includes the planting of street trees. This plan considers City of Sydney Council's requirements and the landscape plan of the adjoining Dangrove development.

This landscape plan includes the planting of around six trees along Wyndham Street and another four along Mandible Street in a grassed garden bed. Trees to be planted would be an approximate size between 200L and 400L. This landscape plan is in draft form and is being finalised in consultation with City of Sydney Council.

3.3 Construction noise

3.3.1 Submission number(s)

06

3.3.2 Issue description

1. Concern around construction hours and potential noise impacts.

3.3.3 Response

1. During construction, works will be undertaken during standard working hours (Monday to Friday 7am to 6pm) and on Saturday 8am to 1pm where possible. Deliveries in Mandible Street and Wyndham Street may involve oversize vehicles. Due to Roads and Maritime Services restrictions, these may sometimes need to be delivered outside of standard working hours to minimise impact on motorists.

To avoid disruption to services during working hours, some utility connections (power, communications water and sewer) may need to be undertaken outside of standard working hours.

To minimise construction noise leaving the site and adversely impacting surrounding residents, 'B' class hoarding will be erected around the site.

As the building is constructed, the facade would also provide additional noise screening for internal construction activities, minimising noise impacts to neighbouring properties.

A Construction Noise and Vibration Management Plan will be prepared as part of the Construction Environmental Management Plan. This will comply with DECC Interim

Construction Noise Guidelines (ICNG, 2015) and Sydney Trains Construction and Maintenance Noise and Vibration Management 2014 (Sydney Trains, 2014). Refer to Noise and Vibration in Table 3 of this report.

3.4 Operational noise

3.4.1 Submission number(s)

04, 06, 07

3.4.2 Issue description

1. The rooftop plant room will be located directly across from bedrooms and balconies. Requests that the location of the plant room be altered to the western end of the building to minimise operational noise impacts.
2. Request to clarify that the operational noise control measures have been implemented into the design of the Rail Operations Centre building.

3.4.3 Response

1. The functional configuration of the Rail Operations Centre building requires the plant room to be situated as shown in the plans, near the Mandible Street side of the building. The design has been modified to move some of the plant equipment to a separate plant room on the western side of the building (future fire station). This plant room is lower than the height of the Rail Operations Centre building, meaning that it would be shielded from the neighbouring residential apartments on Mandible Street.

An operational noise assessment has been undertaken as part of the REF to consider noise impacts from the plant room. The report identified a range of noise mitigation measures which include noise shielding and screening facades for the eastern, northern and southern sides of the plant room. These measures have been included in the design. Further design development has meant that there is no generator required in the rooftop plant room. With the inclusion of these measures and removal of the generator, operational noise levels of the plant room would be within the relevant noise guidelines.

2. The operational noise assessment identified a range of noise mitigation measures including noise shielding and screening facades for the eastern, northern and southern sides of the plant room. These measures have been included in the design. Further design development has meant that there is no generator required in the rooftop plant room. With the inclusion of these measures and removal of the generator, operational noise levels of the plant room would be within the relevant noise guidelines.

4 Environmental management measures

4.1 Summary of control measures

The following control measures have been identified in the REF. No further control measures have been implemented as a result of community and stakeholder feedback.

The control measures are summarised in Table 3.

Table 3 Summary of control measures

Aspect	Potential Impact Tick relevant aspects	Control measures Typical measures included below
Landforms, Geology and Soils	<input checked="" type="checkbox"/> Soil Erosion / Stability <input checked="" type="checkbox"/> Site Rehabilitation <input checked="" type="checkbox"/> Acid Sulfate Soils	<p>During construction:</p> <ul style="list-style-type: none"> • An Erosion and Sedimentation Control Plan will be developed and maintained for the proposal in accordance with Managing Urban Stormwater, Soils and Construction Guidelines (Landcom, 2004) (the Blue Book). • Appropriate stockpiling of materials will take place away (at least 5 m) from drainage lines, waterways and drains. • Spill kits and a temporary refuelling bund will be installed and used onsite. • An Acid Sulfate Soil Management Plan (ASSMP) will be prepared to accompany the Construction Environmental Management Plan (CEMP). • Spoil removed from site will be disposed of in accordance with the EPA's Waste Classification Guidelines (EPA, 2014). • Site rehabilitation of disturbed areas will be undertaken progressively as activities are completed during the proposal. • Adequate drainage measures will be provided to control entry of groundwater and prevent ingress of surface water runoff to open excavation trenches. • Excavation during periods of heavy rainfall will be avoided.

Aspect	Potential Impact <i>Tick relevant aspects</i>	Control measures <i>Typical measures included below</i>
Water Quality and Hydrology	<input checked="" type="checkbox"/> Pollution <input checked="" type="checkbox"/> Sedimentation <input type="checkbox"/> Oil Spills	<p>During construction:</p> <ul style="list-style-type: none"> • A flood and evacuation management plan will be developed for the proposal. • Drainage will be installed to carry stormwater collected into the existing council stormwater infrastructure. • The installed drainage system will include a water harvesting tank that prevents water volumes from exceeding City of Sydney council requirements for maximum discharge rates into the existing stormwater system. • Construction water will be tested and treated prior to being discharged off site or released to the nearest local stormwater infrastructure in accordance with legislative requirements. All controls will be outlined in the CEMP. • Install a concrete wash down area on site that meets the NSW EPA Environmental Best Management Practice Guideline for Concreting Contractors (NSW EPA 2002). • All chemicals and oils will be stored in accordance with the manufacturer's specification within a bunded area protected from rain. • The effectiveness of erosion and sediment controls will be regularly reviewed by the Sydney Trains environmental representative and adjusted or maintained if necessary. • Erosion and sediment controls are only to be removed once the area they are protecting has been stabilised. • An Acid Sulfate Soil Management Plan (ASSMP) will be prepared to accompany the Construction Environmental Management Plan (CEMP).
Air Quality	<input checked="" type="checkbox"/> Dust <input checked="" type="checkbox"/> Odour & Fumes <input checked="" type="checkbox"/> Greenhouse Gases	<p>During construction:</p> <ul style="list-style-type: none"> • Dust suppression will be carried out on site, using either water (in compliance with water restrictions) or ground cover. • Machinery and plant kept on site will be serviced according to manufactures specifications. • Any machines or plant that is producing excessive visual exhaust will be repaired or removed from site. • Plant or machinery will not be left idling. • Stockpiles will be maintained and contained to minimise dust. • Trucks transporting spoil and other waste materials from site will be covered.

Aspect	Potential Impact Tick relevant aspects	Control measures Typical measures included below
Biodiversity	<input type="checkbox"/> Trimming and removal of trees <input checked="" type="checkbox"/> Noxious weeds <input type="checkbox"/> Native vegetation <input type="checkbox"/> Habitat <input type="checkbox"/> Threatened species <input type="checkbox"/> Sensitive areas	<ul style="list-style-type: none"> • Disturbed areas will be rehabilitated as soon as practicable. <p>During construction:</p> <ul style="list-style-type: none"> • The offset of clearing impacts will be undertaken in accordance with Sydney Trains Biodiversity Offset Strategy. • If any fauna species is identified on site, Wildlife Information, Rescue and Education Service (WIRES) will be contacted to relocate it offsite to a suitable habitat area. • Site inductions will include discussion and photographs of threatened species in the area and the procedure to be followed if threatened species are encountered. • Noxious weeds will be managed in accordance with the requirements of the <i>Noxious Weeds Act 1993</i>, including disposal off-site in sealed bags to a licenced waste disposal facility.
Noise and Vibration	<input checked="" type="checkbox"/> Noise <input checked="" type="checkbox"/> Vibration <input checked="" type="checkbox"/> Adjoining landowners	<p>During construction:</p> <ul style="list-style-type: none"> • A Construction Noise and Vibration Management Plan (CNVMP) would be prepared as part of the Construction Environmental Management Plan. Measures documented in the CNVMP would be consistent with the mitigation measures outlined in Appendix E and the Interim Construction Noise Guideline where practicable. These measures may include (but would not be limited to): <ul style="list-style-type: none"> ○ Sydney Trains 24-hour complaints hotline to the community. ○ Letter box drops, individual briefings, respite periods, or where highly intrusive noise levels are anticipated, alternative accommodation for specific construction activities ○ Use of localised acoustic hoarding around significant noise generating items of plant ○ Briefing of the work team in order to create awareness of the locality of sensitive noise receivers and the importance of minimising noise emissions ○ Planning the higher-noise activities and work near residential noise receivers to be undertaken predominantly during less sensitive periods ○ Ensuring spoil is placed and not dropped into awaiting trucks ○ Use of less noise-intensive equipment ○ Noise monitoring

Aspect	Potential Impact Tick relevant aspects	Control measures Typical measures included below
		<ul style="list-style-type: none"> ○ All construction plant and vehicles would be fitted with non-tonal reversing alarms <p>During operation:</p> <ul style="list-style-type: none"> • Provide attenuators/acoustic louvres on air intakes/discharges within the fire pump room. In addition ensure that the fire pump room external door is acoustically rated. Ensure there are mufflers on all engine exhausts within the fire pump room. • Ensure attenuators, acoustic louvres and lined ducting on air intakes/discharges in the level 3 mechanical plant room. • Select a silenced packaged generator with sound power level not exceeding 95 dB(A) for the level 5 generator room. • Ensure there are attenuators, acoustic louvres and lined ducting on air intakes/discharges for the roof level mechanical plant room. • Enclose the cooling and heating plant located on the roof to screen the plant from the residential receivers. • Acoustically treat roof level cooling and heating plant using lined ducting, attenuators or acoustic louvres as required to meet the noise criteria. • Undertake a detailed Assessment of Operational Noise Emissions report once plant selections are made and plant noise emission levels are known.
Heritage	<input type="checkbox"/> Aboriginal Heritage <input type="checkbox"/> Non Aboriginal Heritage <input type="checkbox"/> Conservation area <input type="checkbox"/> Archaeological potential	<p>During construction:</p> <ul style="list-style-type: none"> • Should an unexpected historic relic or Aboriginal object be identified during construction, work in the immediate vicinity of the find is to stop and the area must be fenced off with suitable markers (star pickets, flagging or barrier mesh). The Sydney Trains Project Manager and Environment Division are to be notified. All Sydney Trains Policies and procedures are to be followed should there be an unexpected find. Engage an archaeologist to determine the significance of the find, and if required, determine the notification, consultation, and approval requirements. Works must not recommence until Sydney Trains has provided written approval to do so.
Waste Management	<input checked="" type="checkbox"/> Spoil <input checked="" type="checkbox"/> Litter <input checked="" type="checkbox"/> Chemicals	<p>During construction:</p> <ul style="list-style-type: none"> • A waste management plan (WMP) will form part of the CEMP that details the process for treatment of waste materials generated onsite and details measures to mitigate waste material impacts.

Aspect	Potential Impact <i>Tick relevant aspects</i>	Control measures <i>Typical measures included below</i>
	<input checked="" type="checkbox"/> Hazardous, Liquid or Special Waste <input checked="" type="checkbox"/> Solid waste	<ul style="list-style-type: none"> • All waste will be classified prior to disposal as per the <i>EPA's Waste Classification Guidelines (EPA, 2014)</i>. • Ensure at least 95 per cent of construction and demolition waste (by weight) is diverted from landfill, and either recycled or reused.
Contaminated Land and Hazardous Materials	<input checked="" type="checkbox"/> Soil Contamination <input checked="" type="checkbox"/> Hazardous spills	<p>During construction:</p> <ul style="list-style-type: none"> • Additional soil testing is recommended within the existing building footprints following demolition of the buildings. Target analytes should include metals, TPH, PAH, asbestos and PFCs • If the existing buildings contain hazardous building materials, a clearance certificate would be required following demolition. Any clearance certificates must be conducted by a hygienist independent of the demolition contractor; • Visual confirmation (as appropriate) of the spoil excavated from the limited areas of excavation against the preliminary waste classification provided in DP (2016). • Ex-situ waste classifications of spoil generated from: <ul style="list-style-type: none"> ○ The excavation of the OSD tank noting the larger volume expected and source depths of approximately 2 m. ○ Excavations undertaken in the vicinity of BH7A (~ 1.5 m bgl) which is preliminarily classified as Restricted Solid Waste and at BH6A (~ 3 m bgl) which is classified as Special Waste (asbestos). • The adoption of an unexpected finds protocol (UFP) as part of the Construction Management Plan to manage unexpected contamination which may include asbestos encountered during the redevelopment works. • An Acid Sulfate Soil Management Plan (ASSMP) is developed and implemented to inform construction works. • Spill kits and a temporary refuelling bund will be installed and used on site.
Visual Aesthetics and Urban Design	<input checked="" type="checkbox"/> Visual <input type="checkbox"/> Views and vistas <input checked="" type="checkbox"/> Overshadowing	<p>During operation:</p> <ul style="list-style-type: none"> • Lighting will be designed, operated and installed in accordance with Australian/New Zealand Standard (AS/NZS) 1680.1 – 2006. • A detailed Public Domain Plan.

Aspect	Potential Impact Tick relevant aspects	Control measures Typical measures included below
	<input checked="" type="checkbox"/> Light spill	
Land Use, Zoning and Socio-Economic Effects	<input type="checkbox"/> Land Use <input checked="" type="checkbox"/> Property Effects <input type="checkbox"/> Economic Effects <input checked="" type="checkbox"/> Other community impacts	During construction: <ul style="list-style-type: none"> • Consultation with City of Sydney Council and any other relevant stakeholders regarding other developments will be undertaken on an ongoing basis through construction. • Consultation with Ausgrid will be undertaken two weeks prior to any excavation works.
Transport	<input checked="" type="checkbox"/> Traffic and access <input type="checkbox"/> Transport	During construction: <ul style="list-style-type: none"> • The traffic management plan will be developed in consultation with the relevant authorities and implemented. • Roads and Maritime Services approvals and permits will be obtained prior to construction commencing in this area. • Vehicles should avoid using the intersection of Mandible Street and Wyndham Street to access the site during peak periods, as it is currently operating close to capacity. • Construction vehicles, materials and equipment will be scheduled for deliveries to minimise coinciding with the road network peak periods. • Traffic management and signage will be established at the site entrance and exit to minimise risks to workers, motorists, cyclists and pedestrians. • Pedestrian/vehicle management personnel to be provided at all access points of entry/exit to the proposal during construction of the proposal. • A condition report for Wyndham Street, Mandible Street and Bourke Road will be completed prior to construction commencing and at the conclusion of construction. • All pavement and road surfaces damaged during construction will be restored when work is finished. During operation: <ul style="list-style-type: none"> • Request City of Sydney approval to remove the existing on-street parking (about 40 metres or 6 car spaces) and install no parking signs on the southern side of Mandible Street (north of the Rail Operations Centre site).

Aspect	Potential Impact Tick relevant aspects	Control measures Typical measures included below
Climate change	<input checked="" type="checkbox"/> Climate change	<p>During operation:</p> <ul style="list-style-type: none"> • The HVAC system will be designed with sufficient design redundancy, to maintain the operation of critical electrical components during consecutive extremely hot days. • Back-up power has been included in the concept design to ensure system operations in the event of power failure. • Ensure there are heat refuges placed in and around the Rail Operations Centre facilities. • Provide access to water bubblers. • Specify storm resilient materials in design of new buildings and associated infrastructure.
Greenhouse gas emissions	<input checked="" type="checkbox"/> Greenhouse gas emissions	<p>During construction:</p> <ul style="list-style-type: none"> • Use of construction material containing recycled content, such as recycled aggregates in bricks, or recycled steel, where reasonable and feasible. • Use more energy efficient equipment during construction. • Project planning will be undertaken to ensure that vehicle movements and construction activities have been planned efficiently and to minimise double handling of materials and waste, haulage distances and fuel use. Small construction site which is accessible via Green Square Station, as such alternative fuels not considered necessary. Alternative fuels will be used where it is feasible. • Use modular and replaceable finishing elements. • Planning and scheduling can be done by pull scheduling using the Last Planner System™ (LPS), or an equivalent system, to achieve efficiencies in project delivery (such as reduced program times). At a minimum the system must include a milestone schedule, collaboratively created phase schedules, make-ready look ahead plans, weekly work plans, and a method for measuring. Refer to the Lean Construction Institute website for free online resources. • Using 'just in time' methods of equipment and supply delivery; reducing overall storage requirements and potential for waste materials/equipment.

5 Next Steps

The next steps for the proposal are:

- Now that the feedback from the community and stakeholders has been considered, Sydney Trains will determine the REF.
- Construction of the Rail Operations Centre will begin. Sydney Trains will keep nearby residents and businesses informed throughout the construction period.