Cross River Rail project

Coordinator-General's change report – design refinements and condition changes 2020

July 2020

COORDINATOR-GENERAL

Queensland Government

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Synopsis

The Cross River Rail Project (the project) is a rail link from Dutton Park to Bowen Hills, including a 5.9 km tunnel under the Brisbane River and Central Business District.

On 20 December 2012, the Coordinator-General released the Coordinator-General's evaluation report approving the project's environmental impact statement, subject to conditions. Since then, six project change applications have been approved by the Coordinator-General. Construction of the project commenced on 19 September 2019.

On 21 May 2020, the Cross River Rail Delivery Authority, as the project proponent, applied to the Coordinator-General under section 35C of the *State Development and Public Works Organisation Act 1971* (SDPWO Act) to evaluate a seventh proposed change to the project.

The proponent's request seeks the following changes:

- refinements to the project's approved boundary on land already affected by the project and within existing rail and road corridors, including changes to the project's design along the boundary of Victoria Park
- changes to the Imposed Conditions for the project in relation to the approved hours of work for certain works, surface and groundwater release requirements, refinement of some monitoring requirements and streamlining of conditions.

Coordinator-General's conclusion

I am satisfied that the requirements of Part 4, Section 35E of the SDPWO Act has been met. Along with the application, I must consider the project as evaluated, which includes the approved environmental management framework as set out by the existing Imposed Conditions for the project.

Under this framework, an approved Outline Environmental Management Plan has been established that sets out the environmental outcomes and performance criteria that must be achieved by the proponent throughout construction of the project via detailed Construction Environmental Management Plans and sub plans.

Therefore, in considering the broader context of how the Imposed Conditions regulate the project and how the requested changes operate within the approved framework, I am satisfied that the proposed changes to the project boundary will result in overall acceptable outcomes for the project's delivery and progressive design.

I approve the changes to part of the requested changes to the Imposed Conditions. I have not accepted the entirety of the requested changes to Imposed Condition 10 – Hours of Work, Condition 11 – Noise and Vibration and Condition 17 – Surface Water.

I have therefore made a change to Imposed Condition 10 – Hours of work as the requested change would have sought to remove the construction hour restrictions on project works that occur during extended work hours.

I have changed Imposed Condition 11 to ensure the requested works (that are acceptable) can proceed but with the continuation of appropriate management and mitigation measures.

I have also changed Imposed Condition 17 to clarify that the flood management plan must be endorsed, not just submitted, prior to the commencement of relevant works.

I am satisfied that these changes will ensure overall acceptable outcomes for the project's delivery and progressive design.

Appendix 1 and 2 of this report replaces Appendix 1, 2 and 3 of the change report dated 4 October 2019 and Appendix 1 of the change report dated 7 May 2020.

Appendix 3 of the change report dated 4 October 2019 and Appendix 1 of the change report dated 7 May 2020 have been removed as these matters are no longer relevant to the ongoing management of the project.

In accordance with section 35L of SDPWO Act, this report will lapse on 31 December 2024.

A copy of this report will be provided to the proponent and relevant government agencies and will also be made publicly available at: **www.dsdmip.gld.gov.au/crr**.

Toni Power
Coordinator-General

1. Introduction

This change report has been prepared pursuant to section 35I of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act) and provides an evaluation of the proposed change to the Cross River Rail project (the project) outlined in the project change application received by the Coordinator-General on 21 May 2020 (the May 2020 project change application).

This change report does not re-evaluate the project as a whole. Further, it is not intended to revisit all the matters that were identified and subsequently addressed in the project's environmental impact statement (EIS) assessment process. Rather, this report concentrates on the particular issues identified in the project change application. The change report:

- summarises the change report process, the proponent's proposed changes to the project and the Imposed Conditions and the key issues associated with the proposed changes
- presents an evaluation of the proposed changes, based on information contained in the project change application, submissions received and the proponent's response to the submissions
- provides a set of revised conditions under which the project may proceed.

2. About the project

2.1 The proponent

The proponent for the project is the Cross River Rail Delivery Authority (CRRDA), an independent statutory body established under the *Cross River Rail Delivery Authority Act 2016* to facilitate and manage the delivery of the project. The CRRDA commenced operation on 14 April 2017.

2.2 The project

The project is a 10.2 km north-south rail line connecting Dutton Park to Bowen Hills with 5.9 km of tunnel under the Brisbane River and Central Business District (CBD). The project also includes new underground stations at Boggo Road, Woolloongabba, Albert Street, and Roma Street, with upgrades to the existing Exhibition Railway Station and stations between Fairfield to Salisbury. Further information on the project and changes that have occurred since the project was originally approved in 2012 are detailed in:

- the Coordinator-General's evaluation report (CGER) on the EIS, dated 20 December 2012
- the Coordinator-General's change report (CGCR) dated 9 June 2017
- the CGCR dated 31 August 2018
- the CGCR dated 13 March 2019

- the CGCR dated 26 June 2019
- the CGCR dated 4 October 2019
- the CGCR dated 5 June 2020.

2.2.1 Project environmental management framework

As part of the project, an environmental management framework was established through the existing imposed conditions to manage the project's potential environmental impacts. An outline of the approved environmental management framework has been provided below, to provide additional context for how the current requested changes to the project, and any future changes, will be managed.

The framework has been implemented in accordance with the most recent set of the project's Imposed Conditions since the construction of the project commenced in September 2019.

The framework (refer to Figure 2.1) comprises a number of elements, being:

- the Coordinator-General's Imposed Conditions
- the Outline Environmental Management Plan (OEMP), which is required by the Imposed Conditions
- the Construction Environmental Management Plans (CEMPs) (including sub-plans), which are required for all project works, and in some cases are required to be specifically developed for particular project works (Condition 4).

The environmental management framework is supported by:

- a compliance and reporting regime, as set out in Imposed Conditions 5 and 6, and
- two appointed independent entities required by the Imposed Conditions that provide oversight of the project to increase rigour and transparency for the project. Both entities are required to be independent, appropriately skilled and experienced, and have been approved by the Coordinator-General to provide oversight for the implementation of the Coordinator-General's Imposed Conditions. Those entities are:
  - the Environmental Monitor (Imposed Condition 7), and
  - the Community Relations Monitor (Imposed Condition 8).

In accordance with the Imposed Conditions, the OEMP (approved by the Coordinator-General initially on 18 December 2018 and updated September 2019) establishes the overarching environmental outcomes and performance criteria that must be achieved by the proponent throughout construction. The OEMP includes mitigation measures and monitoring and reporting requirements for each environmental element to achieve the environmental outcomes.

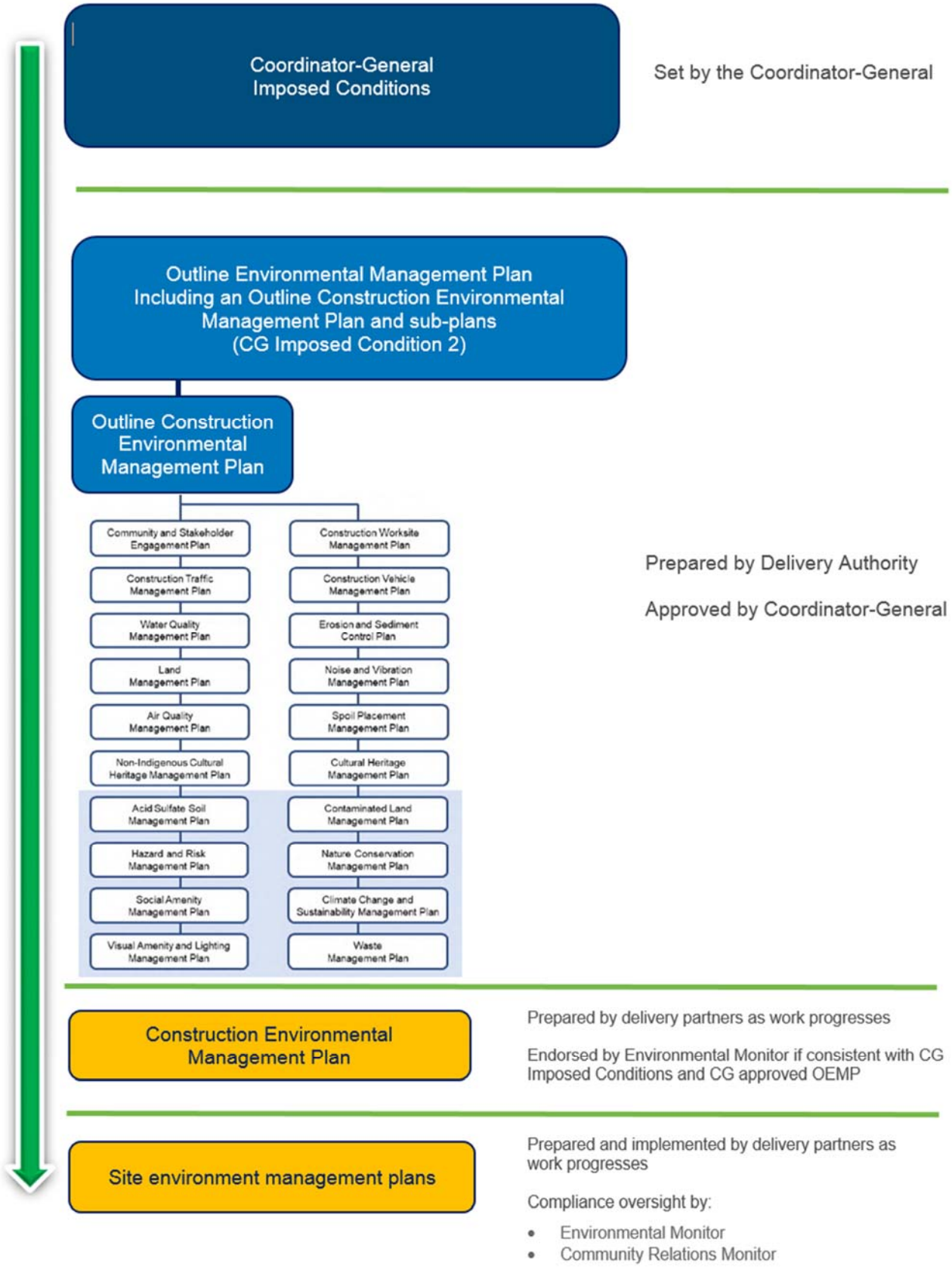

Figure 2.1 Cross River Rail Project approved environmental management framework

Detailed CEMPs, that must be consistent with the approved OEMP, are progressively prepared by the proponent as the detailed design work of the project is progressed for

each section of the project. The CEMP must be endorsed by the Environmental Monitor as being consistent with the OEMP and complying with the Imposed Conditions (construction) prior to commencement of relevant construction works. That endorsement cannot be given where the requirements are not met.

As outlined in the project's approved OEMP, each CEMP and sub-plan required for the project must include each of the following components:

- environmental outcome(s) (for each environmental element; the aspect of project implementation to be managed as it affects environmental values e.g. air quality)
- performance criteria
- mitigation measures
- monitoring requirements
- reporting requirements
- corrective actions

The project's environmental management framework was initially approved as part of the CGER on the EIS for the project, released in 2012. Since that initial approval, the framework has remained unchanged throughout all subsequent changes requested by the proponent. The framework has also been successfully implemented since September 2019, when the project commenced construction. The OEMP has been updated (where required) to reflect each of the changes to the project approved since 2017.

3. Change report process

3.1 Proponent's reason for change and project change details

The reasons and details for the proposed changes to the project is provided in the proponent's change application that is available at: www.dsdmip.gld.gov.au/crr.

3.2 Public Notification

In accordance with section 35G of the SDPWO Act, I decided to require the proponent to publicly notify the proposed change to the project.

The project change application was publicly notified from 4 June 2020 to 25 June 2020, with a total of five submissions received from the:

- Brisbane City Council (BCC)
- Department of Environment and Science (DES)
- Department of Transport and Main Roads (DTMR)
- Queensland Health (Metro North Hospital and Health Service)
- Department of Natural Resources, Mines and Energy (DNRME).

Key issues raised in submissions on the proposed changes to the project included:

- additional noise and vibration impacts resulting from relaxations on rail possession works
- traffic impacts resulting from relaxations on heavy vehicle movements restrictions at some worksites
- noise and vibration impacts (particularly in relation to sleep) resulting from the requested amendments to Imposed Condition 11(c)(iv)
- lack of sufficient impact assessment information and description of the additional mitigation measures proposed
- consistency of the proposed changes with relevant policy and standards/guidelines
- need for additional water quality monitoring and water quality trigger level development based on relevant Water Quality Objectives (WQOs) to support the requested changes
- ensuring that the requested changes are consistent with the object of the *Environmental Protection Act 1994*
- information requirements to demonstrate that the requested changes would not impact receiving water quality and prevent increases in peak discharges.

I note that, in their submissions, the state agencies commented on the limited context provided as part of the change application. Section 2.2.1 provides a summary of the environmental management framework that has be established for the project, including for the proposed changes to the project.

Consultation between the proponent and my office with DES and DTMR in relation to the approved environmental management framework was able to clarify and resolve the issues raised by these agencies in their submissions.

My assessment of the proposed changes, the submissions received in the context of the environmental management framework and my evaluation of the changes, is provided below.

4. Evaluation of the change application

In making the evaluation, the following has been considered in accordance with section 35H of the SDPWO Act:

- the nature of the proposed change and its effects on the project
- the project as currently evaluated under the CGER for the EIS for the project (including the approved environmental management framework for the project detailed in Section 2.2.1) and the material mentioned in former section 35(1) of the SDPWO Act, to the extent it is relevant to the proposed change and its effects on the project
- the environmental effects of the proposed change and its effects on the project.

Section 4.1 of this report provides my assessment of the requested changes to the project's approved project boundary, while Section 4.2 provides my assessment of the requested changes to the Imposed Conditions.

4.1 Assessment of the changes to the project boundary – land requirements

The proponent requested changes to the previously evaluated project boundary as a result of further project detailed design work and associated integration needs with the existing Queensland Rail (QR) network. The proposed changes will have the following increased land impacts due to additional requirements for land adjacent to areas previously evaluated for the project:

- permanent surface impacts of approximately 0.33 hectares (ha) (combined) at the Exhibition, Rocklea and Moolabin Feeder stations to accommodate design refinements
- permanent volumetric impacts of approximately 0.14 ha to accommodate rail corridor widening works and associated design refinements along the project boundary of the Normanby rail yard at Victoria Park and Lanham Street, Bowen Hills
- an increase and relocation of temporary land impacts of approximately 3.81 ha to:
  - manage construction access and temporary worksites at Victoria Park, Exhibition station, Mayne Yard, Moolabin Feeder station and the Fairfield, Yeronga, Yeerongpilly, Moorooka, Rocklea, and Salisbury stations
  - include overhead line and signal upgrades work within the rail corridor at Salisbury station, Tennyson junction, Cleveland Line, Bowen Hills and Albion
- a partial lot permanent surface acquisition impact of approximately 0.1 ha for the property at 109 Elizabeth Street, Brisbane (Lot 1RP612). This change reflects that the lot is being used for both construction purposes and for the protection of the permanent project infrastructure for the Albert Street station. As the changes are limited to updating the approved design drawing to reflect the intended use of 109 Elizabeth Street, with the impacts approved in the CGCR dated 26 June 2019 (the June 2019 CGCR), no further assessment is included in this report. Section 4.2.1 of this report approves the amendment to Condition 1 so that it refers to the updated drawing reflecting this change.

The project change application provided limited information on land tenure arrangements, specifically where the changes had land impact requirements. I note the submission from DNRME advised that the department had been contacted by the proponent regarding changes to tenure requirements, including for state land. I also note that the proponent had provided information on the proposed changes to all residents within the vicinity of the proposed work sites. I expect the proponent will continue to work with DNRME and other affected landholders to finalise tenure matters for the project.

The proposed changes to the project boundary have been evaluated in the context of how the project's environmental management framework applies at each location (refer to sections 4.1.1 to 4.1.7 of this report) to ensure the framework would continue to be appropriate to manage the environmental impacts for each change to the project.

4.1.1 Mayne Yard stormwater outlets

The proponent has requested the project boundary be amended to allow for the change in location and construction worksite of four stormwater outlets on the banks of Breakfast Creek, along the western boundary of Mayne Rail Yard, Lot 1RP892797. Refer to Figure 4.1.

Two of the stormwater outlets are new, one is an extension of an existing stormwater outlet and one is the replacement of an existing stormwater outlet. Construction works at each stormwater outlet is programmed to occur over a period of approximately two-months.

The proposed change in location of the stormwater outlets is to ensure stormwater runoff is discharged from the lowest point of the Mayne Yard catchment. Due to the low-lying topography within Mayne Yard it is not possible to accommodate the stormwater outlets within the existing project boundary.

The requirement and assessment of the stormwater outlets is consistent with the previously evaluated project which included a new drainage system for the east of Mayne Yard East and Mayne Yard North to capture run-off from access roads and carparks for discharge to Breakfast Creek. Therefore, the requested changes are limited to a change in location by amending the approved project boundary to accommodate the temporary construction area (approximately 0.26 ha) for the stormwater outlets.

Additionally, construction impacts for the stormwater outlets will continue to be managed through a site-specific CEMP. As per Imposed Condition 4(c), the CEMP must incorporate the environmental outcomes and performance criteria of the OEMP, demonstrate compliance with the Imposed Conditions and must incorporate mitigation measures to achieve the environmental outcomes where predictive studies indicate impacts beyond those provided for in the performance criteria.

I have considered the proposed changes for the Mayne Yard stormwater outlets and I am satisfied that the project's environmental management framework consisting of the Imposed Conditions, the OEMP and CEMP are sufficient to manage the environmental impacts. I accept the proposed change to location for stormwater outlets at Mayne Yard.

Consistent with the previously evaluated project the proponent will be required to obtain appropriate approvals under the *Planning Act 2016* for the stormwater outlets including, but not limited to:

- a development permit for operational works for the removal, destruction or damage of marine plants
- a development permit for operational works for prescribed tidal works.

I expect that the proponent will obtain these approvals from the relevant regulatory agencies after minimising to the greatest extent practicable potential impacts to mangroves or water quality, with these secondary approvals managing any remaining environmental impacts associated with construction of the stormwater outlets.

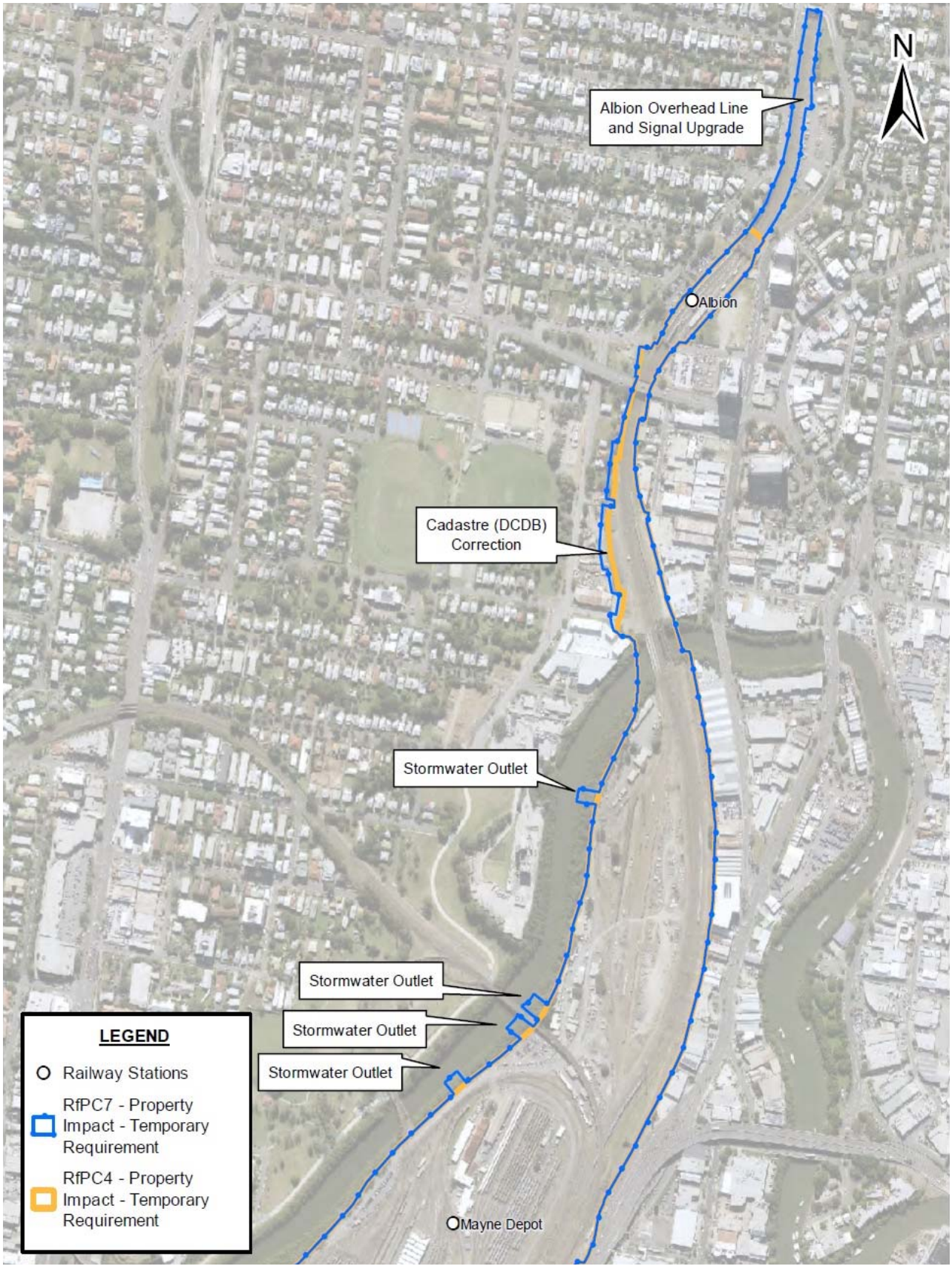

Figure 4.1 Mayne Yard stormwater outlets

I note that in accordance with section 54E of the SDPWO Act that an Imposed Condition for a project prevails to the extent of any inconsistency with a condition of another approval the applies to the project.

I also note that as part of the proponent obtaining the appropriate approvals for the construction of the stormwater outlets, the proponent will be required to obtain owners' consent to undertake the works.

4.1.2 Overhead line and signal upgrades

An extension to the project boundaries has been requested to include temporary land requirements for overhead line and signal upgrade works within the rail corridor at Albion station, Bowen Hills station, Cleveland Line (at Buranda), Tennyson Junction, and at the southern end of the project near Salisbury station. These works are required to enable the Cross River Rail project infrastructure to be successfully integrated with the existing QR network. Refer to Figures 4.2 to 4.6 which show the additional temporary land requirements for the overhead lines and signal upgrade works.

The proponent states the proposed works will include the installation of new rail infrastructure including overhead wiring mast structures, signal posts, buried cable routes and the relocation of existing infrastructure. The works will involve the use of excavators, front end loaders and mobile cranes within the rail corridor at each of the identified locations.

The locations identified in the change application for the additional overhead line and signal upgrade works are on new land within the rail corridor that has not been previously assessed as part of the evaluated project or included in the project boundary. The land use surrounding each of the proposed worksites and potential sensitive receptors for the proposed changes are listed in Table 4.1.

Table 4.1 Surrounding land use for impacted lots of proposed overhead lines and signal upgrade works

Project Location	
North of Albion station, Albion	• Industrial, commercial and residential premises to the east and west of the rail corridor
South of Bowen Hills station, Bowen Hills	• Industrial and commercial premises to the east and west of the rail corridor
Cleveland line, Buranda station, Woolloongabba	• Industrial, commercial and residential premises to the north and south of the rail corridor
Tennyson Junction, Yeerongpilly	• Industrial and commercial premises to the north and south of the rail corridor
South of Salisbury Station, Salisbury	• Industrial and commercial premises to the west of the rail corridor • Residential premises to the east of the rail corridor located behind a rail noise barrier

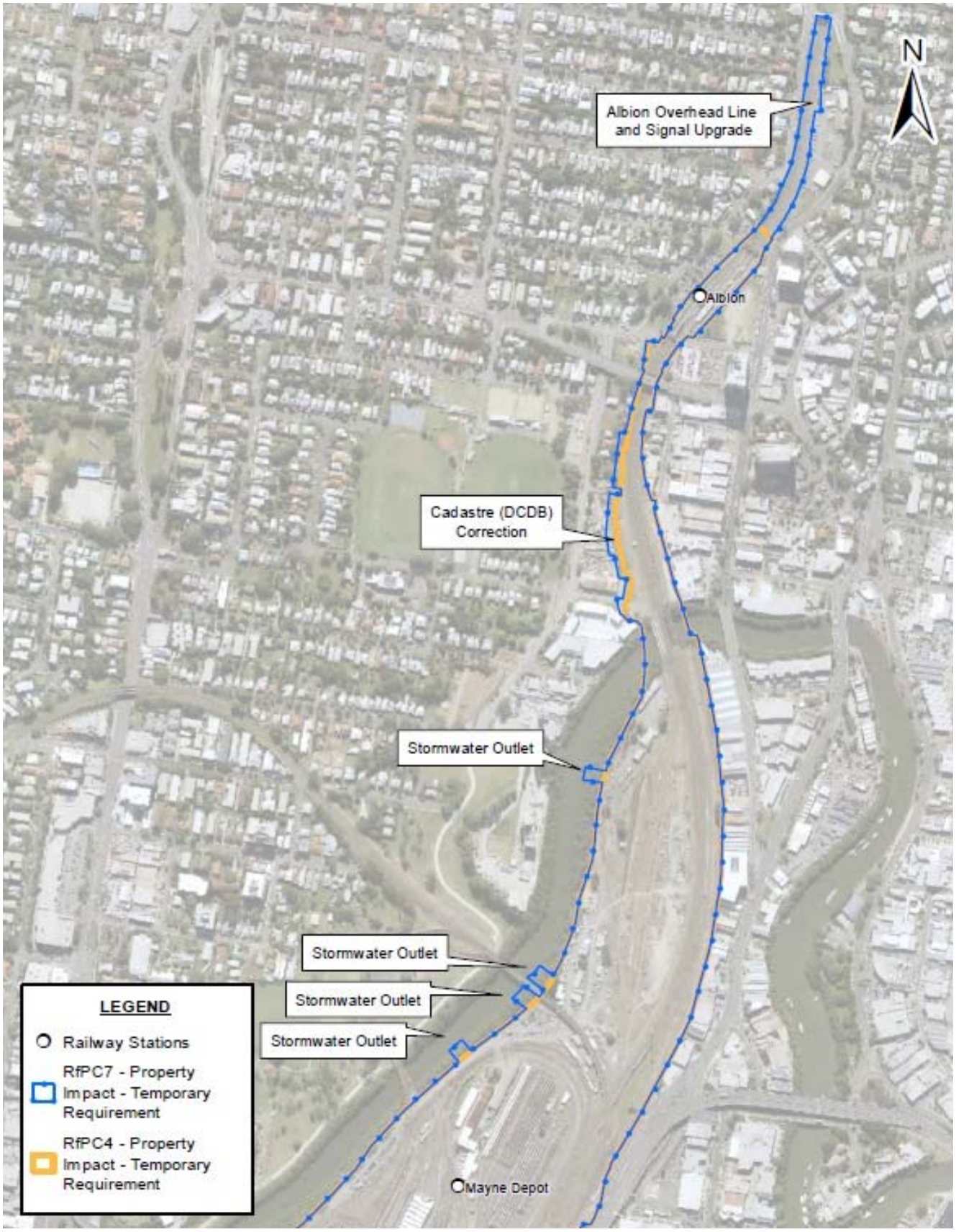

Figure 4.2 Albion overhead lines and signal upgrade worksite (Source: Pre-lodgement Information Sheet 2 of 12)

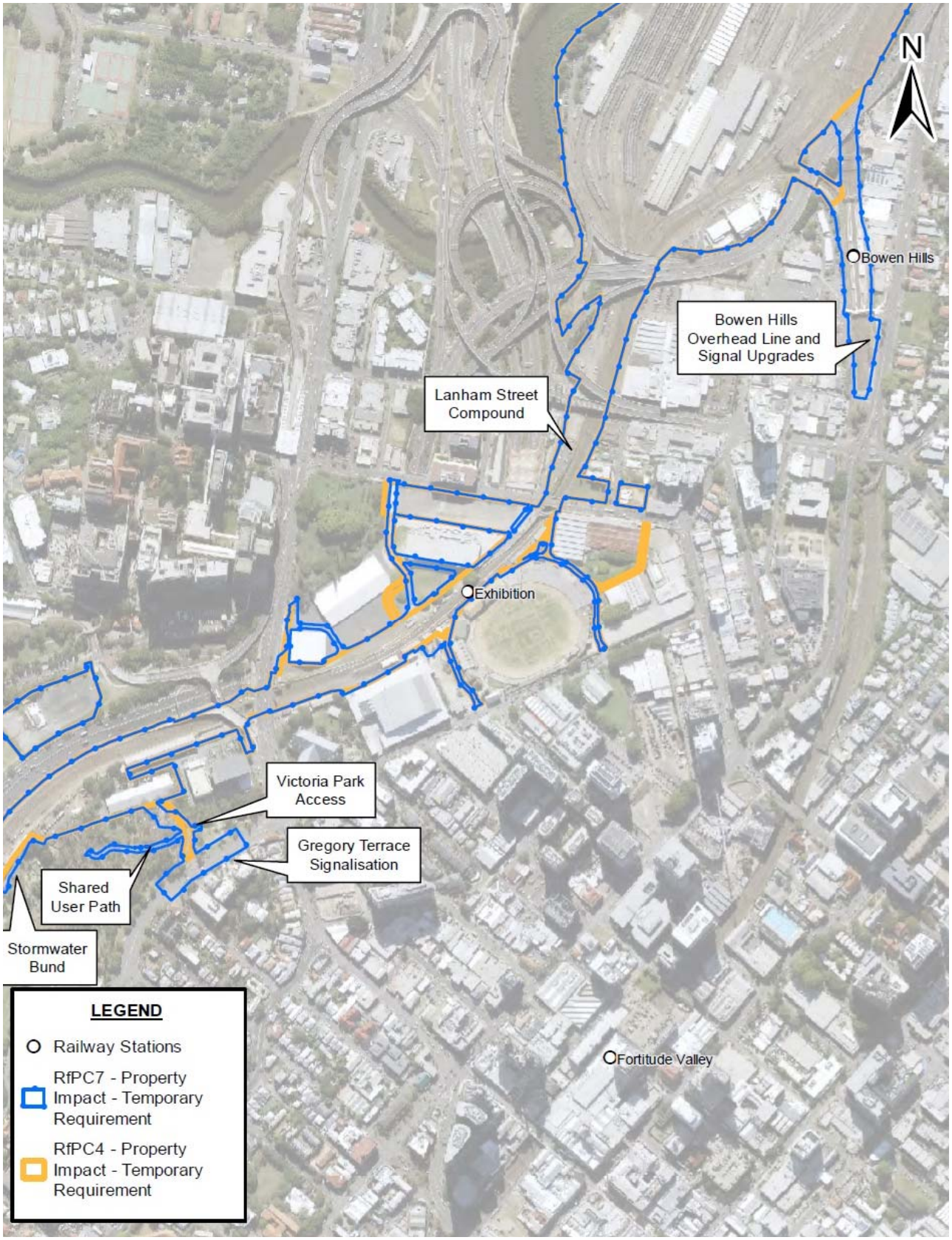

Figure 4.3 **Bowen Hills overhead lines and signal upgrade worksite (Source: Pre-lodgement Information Sheet 3 of 12)**

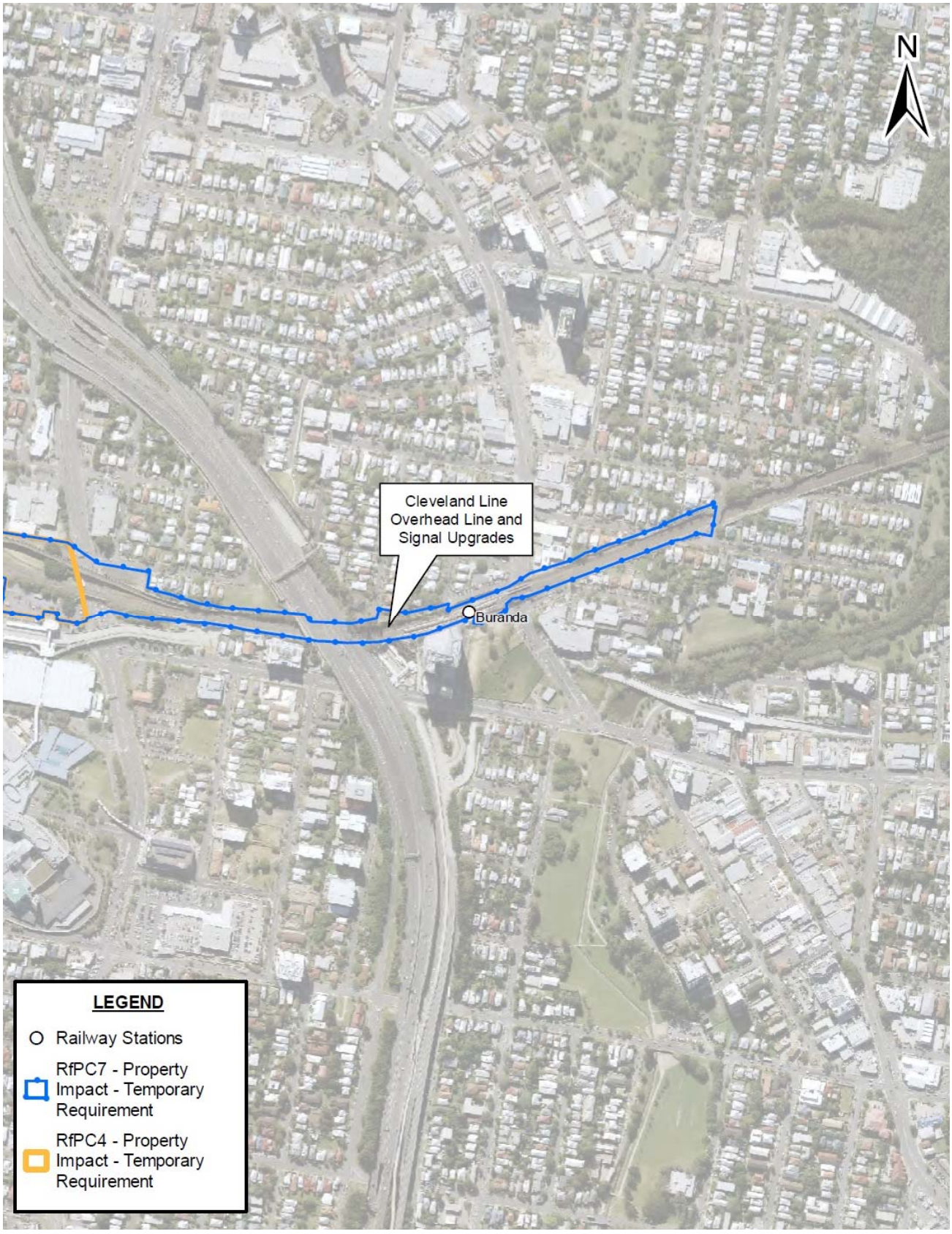

Figure 4.4 **Cleveland Line overhead lines and signal upgrade worksite (Source: Pre-lodgement Information sheet 6 of 12)**

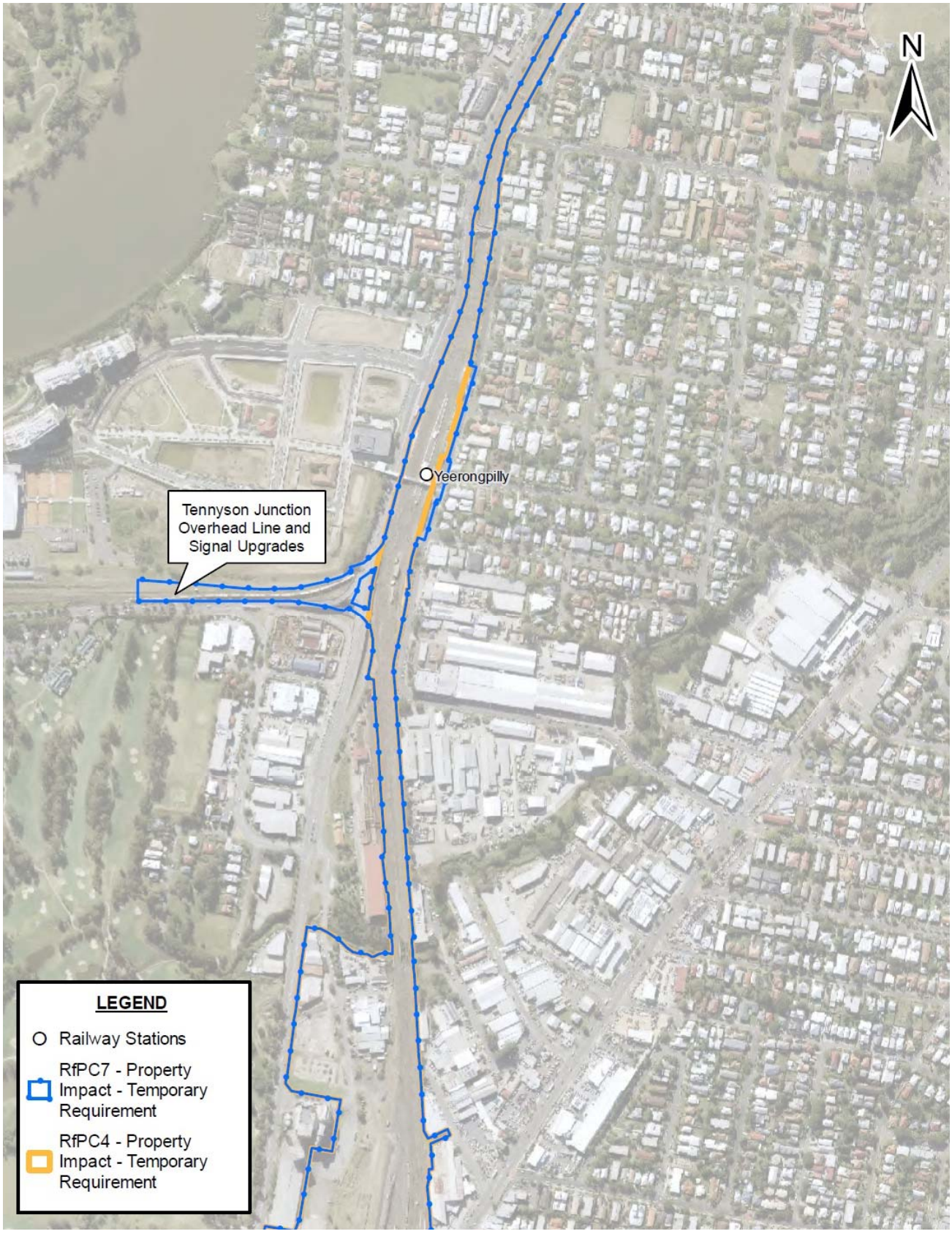

Figure 4.5 **Tennyson Junction overhead lines and signal upgrade worksite (Source: Pre-lodgement Information sheet 9 of 12)**

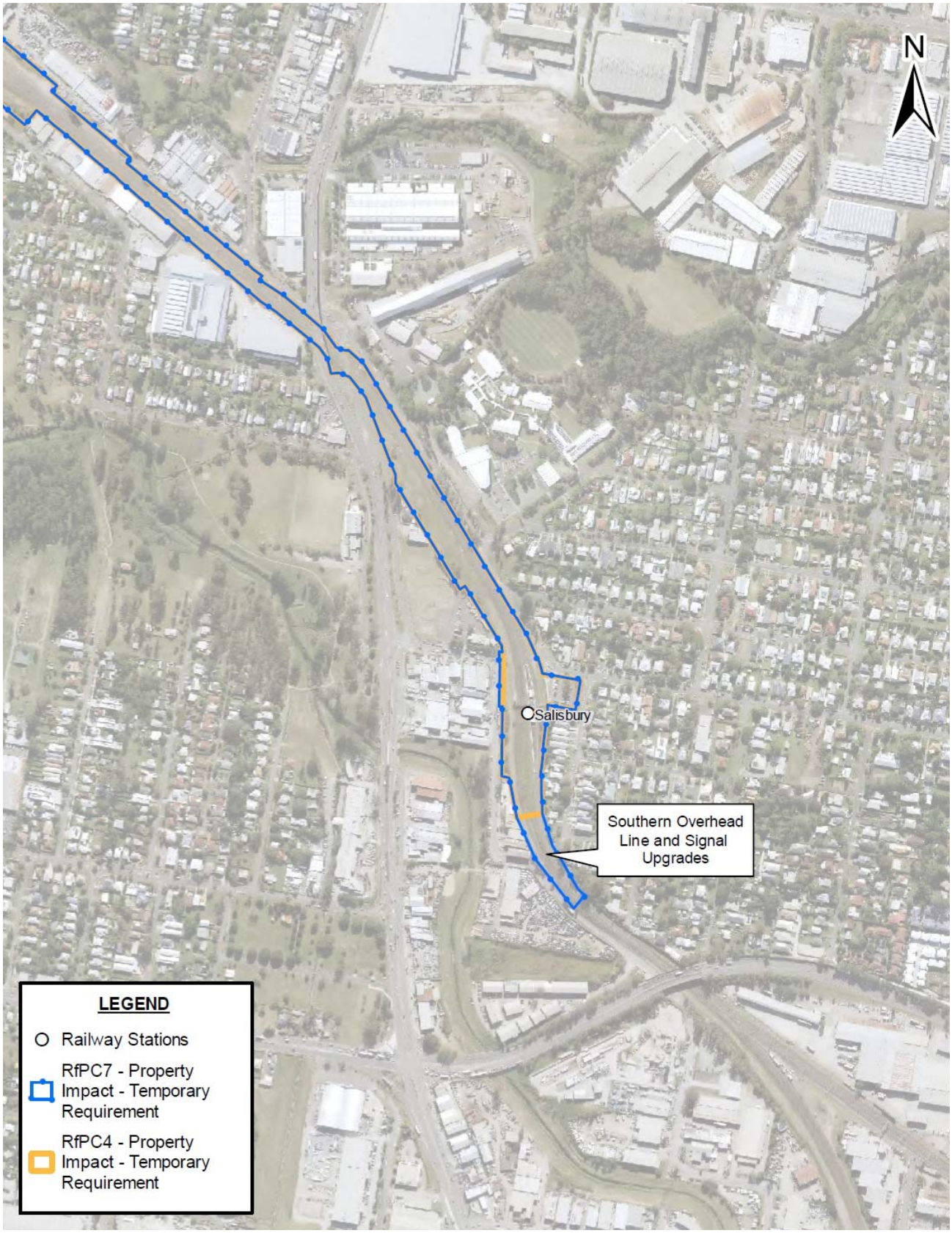

Figure 4.6 Southern end of Salisbury station overhead lines and signal upgrade worksite (Source: Pre-lodgement Information sheet 9 of 12)

Additional information supplied by the proponent on 2 July 2020, includes a noise impact assessment for the proposed overhead line and signal upgrade works at the Salisbury, Buranda and Albion worksites. The assessment is based on a worst-case scenario using the distance to the closest sensitive receptor and typical works and machinery as described in the change application. The accumulated external façade noise level at the closest sensitive receptor is predicted to be 67 A-weighted decibels (dB(A)), without any noise attenuation, and 57.6 dB(A) with a minimum noise barrier of 3m.

The attenuated noise level predicted to be generated by the proposed works would be 6.1 dB(A) above the assessed external noise goal criteria during the night time (under the worst-case scenario, assuming façade attenuation of 7 dB for a Queenslander type construction). This would mean that the proponent would be required to implement further mitigation measures into the CEMP and Noise and Vibration Management Sub-Plan to meet the requirements of the project's Imposed Conditions and the approved OEMP. As required by the Imposed Conditions and the OEMP, the proponent will undertake noise monitoring and reporting of environmental impacts during construction works to demonstrate compliance with the performance criteria.

The site-specific CEMP and relevant sub plans developed for these additional works will incorporate key management and mitigations measures including:

- detailed noise modelling
- a register of all sensitive noise receptors (also defined as Directly Affected Persons – (DAPs), as per Schedule 4 of the Imposed Conditions)
- where high impact DAPs are identified, undertake direct consultation to develop agreed mitigation measures – agreed measures will be recorded on the mitigation register maintained by the Environmental Monitor
- site inductions to include noise specific management measures
- a noise monitoring program to be carried out for the duration of the works and in accordance with the Construction Noise and Vibration Management Plan and any approval and licence conditions
- source controls for noise management, including construction hours and scheduling, respite periods, equipment selection
- path controls for noise management, including enclosing or shielding noise sources or using structures to shield sensitive receptors from noise.

The proponent advises the overhead line and signal upgrade works are planned to occur during QR approved rail possessions, in agreement with QR. However, I note other proposed changes (refer to section 4.2.3 of this report) seek to authorise rail corridor works that may generate noise 20dB(A) above the approved noise goals to occur for unrestricted lengths of time. I expect all impacts for the works (including noise) will be managed under a site-specific CEMP that includes mitigation measures for each worksite. As stated previously, the CEMP is required to be consistent with the approved OEMP, which incorporates the project's environmental outcomes and performance criteria to assist the proponent towards achieving compliance with the Imposed Conditions.

I have considered the proposed changes to include overhead line and signal upgrade works within the rail corridor at Albion station, Bowen Hills station, Cleveland Line (at

Buranda), Tennyson Junction, and at the southern end of the project near Salisbury station. I am satisfied that the project's environmental management framework consisting of the Imposed Conditions, the OEMP and CEMP are sufficient to manage the environmental impacts. I accept the proposed change to temporary land requirements at Albion station, Bowen Hills station, Cleveland Line (at Buranda), Tennyson Junction, and at the southern end of the project near Salisbury station.

4.1.3 Lanham Street

A change to the project's approved land requirements at Lanham Street, Bowen Hills has been requested to accommodate design refinements and change to the construction methodology required for the widening of the rail corridor in this location. The change will result in a permanent requirement for additional surface and volumetric land across multiple lots (see Figure 4.7).

The land requirement is to accommodate soil nails (rock anchors) that are approximately four to six metres in length that will ensure structural stability of the retaining wall (as approved in the previously evaluated project) required to accommodate the widening of the rail corridor. The soil nails will occupy a permanent volumetric area of land.

The proposed land requirements at Lanham Street are on lots currently occupied by BCC maintenance facilities. The proposed change from temporary construction land to permanent land requirements has been agreed to by BCC.

As stated in the proponent's project change application, the rail corridor widening works and the associated impacts for the rock cutting embankment are not new works and have been approved as part of the previously evaluated project. The only change to the project is the volumetric land requirement across multiple lots to accommodate the soil nails into the retaining wall, and the required update to the project's approved boundary.

Consistent with previously evaluated construction impacts for the works at Lanham Street, the rock anchor installation would be managed through a site-specific CEMP incorporating the environmental outcomes and performance criteria of the OEMP. This would include mitigation measures to achieve the environmental outcomes where predictive studies indicate impacts beyond those provided for in the performance criteria.

The proponent has advised that the CEMP developed to address this project change will include a detailed pre-works risk assessment, with predictive assessment and modelling to identify DAPs and requirements for consultation with DAPs and activity specific mitigation measures (as required by the project's environmental management framework). I expect the proponent's CEMP to include mitigation measures for potential nuisance impacts (including, but not limited to, noise, vibration and dust) that may be associated with the works.

I reiterate that the CEMP must be endorsed by the independent Environmental Monitor as aligning with the OEMP prior to the commencement of project works, as per the project's Imposed Conditions.

I have considered the proposed land requirement changes to the Lanham Street corridor widening and I am satisfied that the project's environmental management framework consisting of the Imposed Conditions, the OEMP and CEMP are sufficient to manage the environmental impacts.

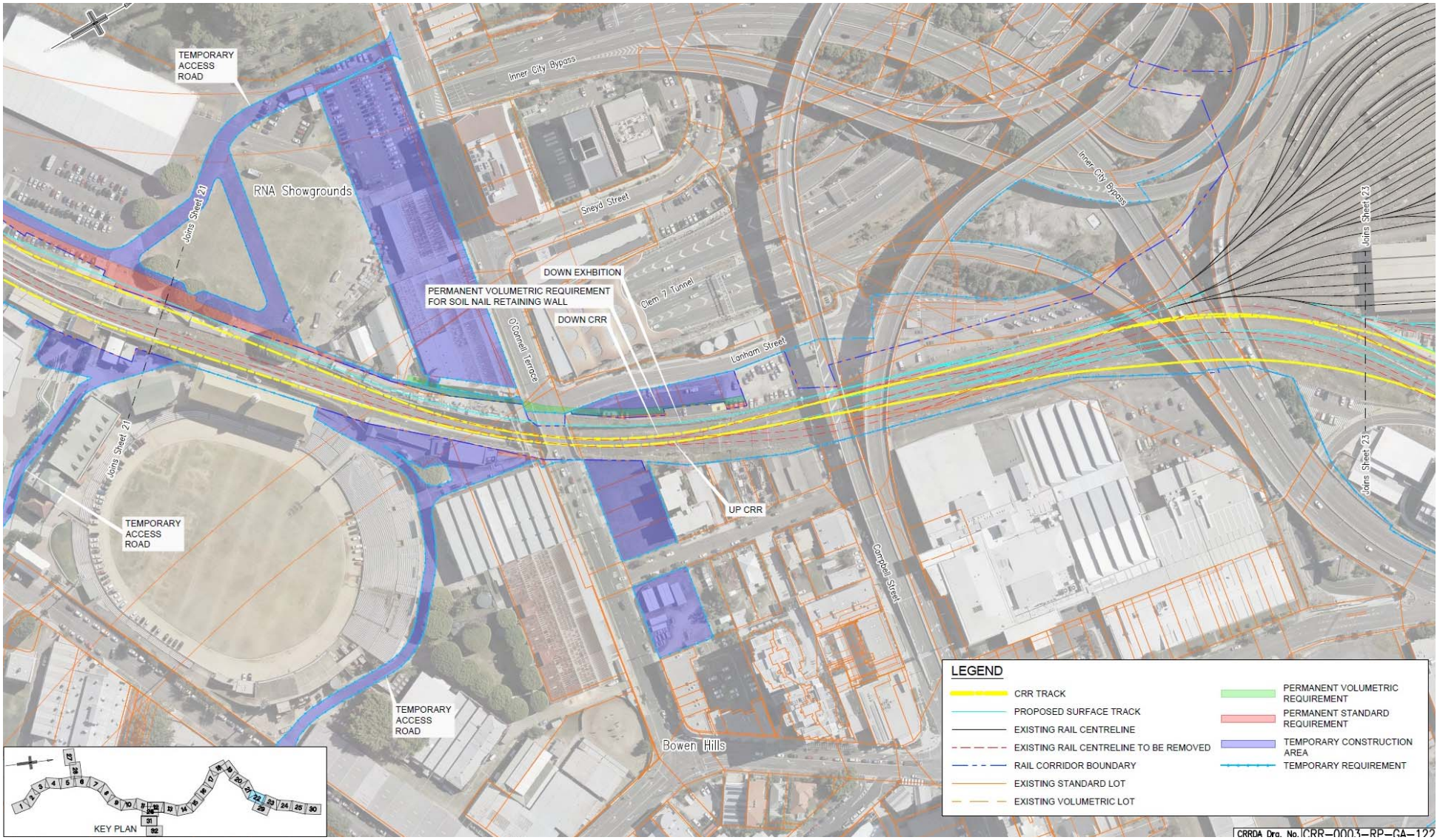

Figure 4.7 Permanent and temporary land requirement at Lanham Street, Bowen Hills and Brisbane Exhibition showgrounds

I approve the proposed change of a partial volumetric and surface requirement across multiple lots at Lanham Street, and I am satisfied that consultation with affected landowners in relation to these proposed works has been undertaken.

4.1.4 Exhibition station

The proponent has requested changes to the temporary land requirements for construction access and worksites at Exhibition station. Increased permanent surface land requirements across multiple lots to accommodate further design refinements have also been requested. Figure 4.7 shows the location of the permanent surface requirements and Figure 4.8 shows the location of changes in temporary land requirements.

As required by the Imposed Conditions for the project, specifically Appendix 1, Schedule 1, Environmental Design Requirement s8(c)(ii) the proponent has negotiated worksite access arrangements at the Brisbane Exhibition Showgrounds to enable construction of the Exhibition station with the trustees of the site, the Royal National Agricultural and Industrial Association of Queensland (RNA). Therefore, the proponent is requesting the changes to the previously evaluated project boundary to reflect what has been agreed to with the RNA.

The proposed changes are to occur on lots owned by the State of Queensland (and trusted to the RNA) already impacted by the (previously evaluated project) with changes to the project boundary within those impacted lots. The impacts of the changes are expected to be generally consistent with the previously approved project.

The Brisbane Exhibition Showgrounds site is listed on the Queensland Heritage Register as being of State Heritage significance for its “historical richness in demonstrating evolution and culture in Queensland’s history, aesthetic, social and associational values” (QHR#601709). Consequently, all development works within the site require approval by the Queensland Heritage Council to ensure proposed works will not diminish the heritage significance.

The proponent states that the nominated changes have been presented to the Heritage Unit at DES and the Queensland Heritage Council as part of a project heritage approval. I am confident that any heritage impacts to the site associated with the project works will be managed through this approval process, requiring the proponent to undertake management and mitigation measures as a condition of the approval.

Further, as with the previously evaluated project, potential impacts will continue to be managed by the project’s environmental management framework. That is, the conditioned site-specific CEMP and associated subplans are required to include mitigation measures to achieve the environmental outcomes and performance criteria set-out in the approved OEMP.

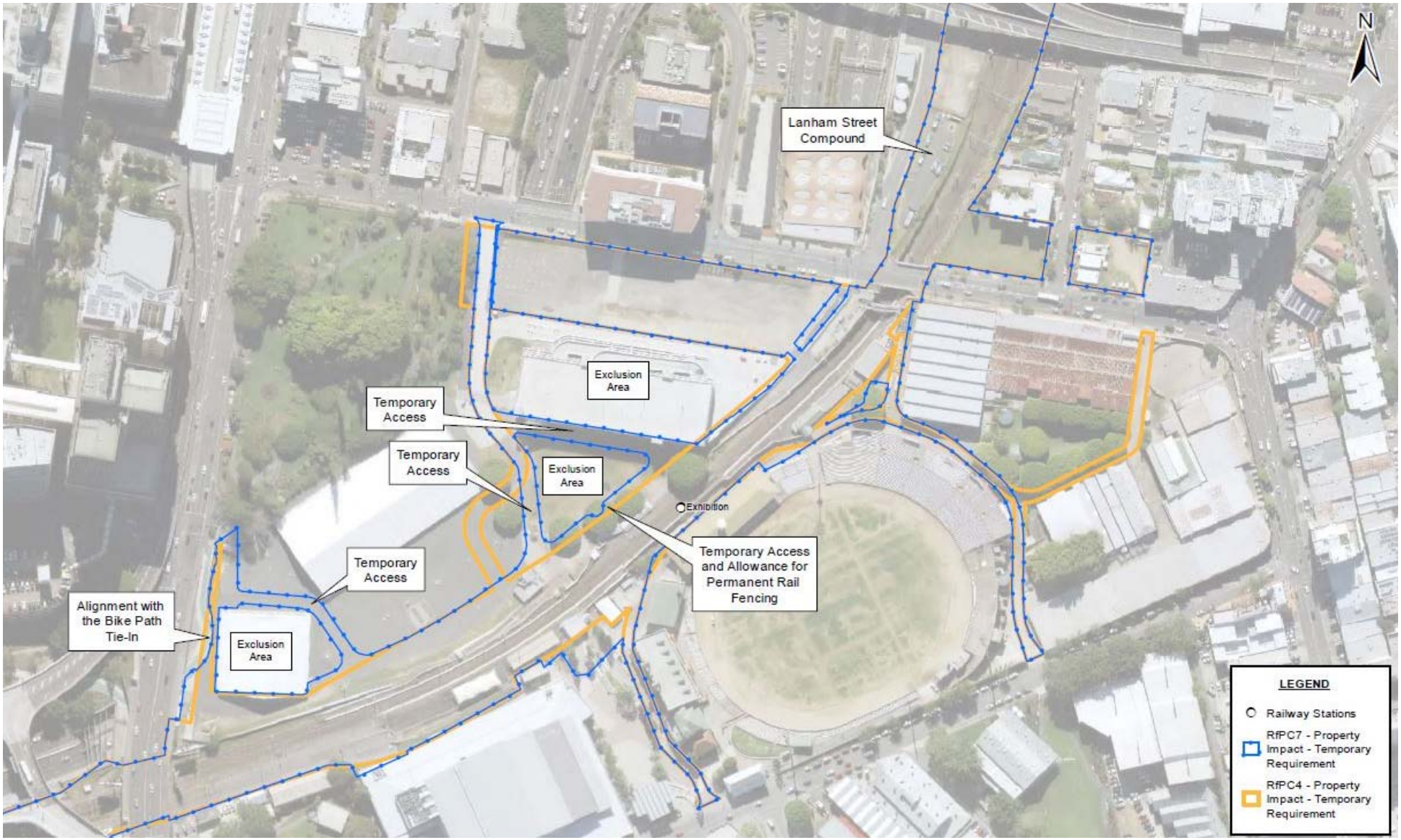

Figure 4.8 Proposed temporary land requirements at Brisbane Exhibition Showground

I have considered the proposed changes for Exhibition station and I am satisfied that the project's environmental management framework consisting of the Imposed Conditions, the OEMP and CEMP are sufficient to manage the environmental impacts. I accept the proposed change to both temporary and permanent land requirements for the construction of Exhibition station.

4.1.5 Victoria Park and Normanby Rail Yard

Changes to the project are proposed in the vicinity of the state heritage listed Victoria Park and the adjacent Normanby Rail Yard. These changes have been requested to accommodate an extension to the rail holding road track in Normanby rail yard to improve operational capacity of the rail network and to reflect the amendments to permanent and temporary land requirements for the project in this location.

The proposed changes in the vicinity of Victoria Park include:

- amendments to the project boundary to reflect temporary land requirements for changes approved in the June 2019 CGCR:
  - the widening of the existing construction access road off Gregory Terrace
  - a relocated section of shared bicycle/pedestrian path
  - temporary signalisation works at Gregory Terrace
- an extension of an existing rail holding road within the Normanby rail yard
- new works at the project boundary between the QR corridor and Victoria Park:
  - widening of the rail corridor to the current fence line
  - installation of two shotcrete (spray concrete) retaining walls and sub-surface soil nails
  - a section of rail maintenance access road
  - underground stormwater drainage within the rail corridor
  - a stormwater retention bund and associated drainage
  - some vegetation trimming/removal works necessary under the *Electrical Safety Act 2002* to protect future overhead traction power equipment on the rail corridor.

The location for the proposed changes is shown in Figure 4.9. Details of these changes have been evaluated against the project's environmental management framework to ensure the framework continues to be appropriate to manage potential environmental impacts. This is described for each of the changes to Victoria Park and Normanby rail yard in the subsections below.

Victoria Park Access and Gregory Terrace signalisation

The proponent has requested an update of the project's approved design drawings so that the approved project boundary reflects the temporary land requirements which have been agreed to with BCC. The proposed changes to the project boundary (reflected in the project plans) are not new works but relate to the following works which were previously approved in the June 2019 CGCR:

- the widening of the existing construction access road to allow heavy vehicle access from Gregory Terrace into the rail corridor, via the former Queensland Health Biomedical Technology Services building footprint (building now demolished)

- the construction and operation of a new section of the shared bicycle/pedestrian path, with an upgraded crossing point where the path intersects with the access road off Gregory Terrace
- temporary signalisation works at the intersection of the access road and Gregory Terrace.

The impacts remain generally consistent with the previously evaluated project (approved in the June 2019 CGCR) and as the proposed changes are limited to updating the design drawings to reflect the agreed project boundary, no further assessment has been undertaken.

Normanby rail yard

The proposed changes include new works involving a 407m extension of a previously approved rail holding road within the Normanby rail yard. The works would include installation of the overhead power traction equipment required to support the holding road once constructed. The proposed extension increases the length of the rail holding track from 543m to 950m, which will improve the operational capacity of the rail network once the project is complete. The proposed Normanby rail yard works will also include the installation of underground stormwater drainage within the rail corridor.

I note that the proposed works for the extension of the rail holding road track are within the existing rail corridor and the impacts would be consistent with the previously approved (June 2019 CGCR) section of the rail holding road track.

The proposed extension works and any potential impacts will continue to be managed by the project's environmental management framework. That is, the conditioned site-specific CEMP and associated subplans are required to include mitigation measures to achieve the environmental outcomes and performance criteria set-out in the approved OEMP.

As required by the Imposed Conditions and the OEMP, the proponent would undertake monitoring and reporting of environmental impacts to demonstrate compliance with the performance criteria.

I have considered the proposed changes to the project at the Normanby rail yard and I am satisfied that the project's environmental management framework, consisting of the Imposed Conditions, the OEMP and CEMP, are sufficient to manage the environmental impacts. I accept the proposed change to extend the rail holding road track at Normanby rail yard.

Figure 4.9 Proposed changes at Victoria Park

Victoria Park boundary works

The proponent has also requested changes to the boundary of the QR corridor and the western edge of the state heritage listed Victoria Park to enable the rail corridor widening works at Normanby rail yard to accommodate the rail holding road extension. My analysis of the individual works required to accommodate these changes is as follows.

Rail corridor access and rail maintenance access road

The proponent has requested the inclusion of work associated with the widening of the rail corridor to the current fence line between the QR corridor and Victoria Park. This is required to accommodate an upgrade of the current rail corridor access road, and a section of the rail maintenance access road. This work would be undertaken within areas of Victoria Park that are currently occupied by QR infrastructure, such as the QR carpark for maintenance vehicles.

Retaining walls

The proponent has requested the inclusion of work associated with the construction of two retaining walls along the QR corridor boundary of Victoria Park, either side of the land bridge that spans the rail corridor and the Inner City Bypass.

The retaining wall to the north of the land bridge would extend 200m in length, from 65m south of the BCC maintenance yard to 60m north of the land bridge. The height of the retaining wall would vary from 2.4m to 3.4m, depending on the grade of the existing embankment. Whilst the retaining wall is to be located wholly within the QR rail corridor, a permanent volumetric land acquisition is required to accommodate the soil nails that will form underground anchors used to stabilise the retaining wall; a near vertical structure. These soil nails are proposed to be placed in three rows every 1.5-1.75m along the length of the retaining wall, with a sub-surface intrusion of between 4m and 6m into the land below Victoria Park, and beneath some of the trees that line the property.

The retaining wall to the south of the land bridge would be constructed within the road reserve commencing at the back of the Victoria Park tennis courts, extending west for approximately 240 m along the boundary of the park behind the Brisbane Girls Grammar School. This retaining wall would also require permanent volumetric land acquisition to accommodate soil nails and fixing pins as reinforcing elements for the stability of the retaining wall.

Both proposed retaining walls would have a shotcrete finish and permanent rail corridor fencing to the top of the retaining wall.

Stormwater management

Stormwater management works are proposed along the proposed Normanby rail holding road and QR fence line. The work includes construction of drainage systems to provide appropriate surface water capture for the new infrastructure within the QR corridor.

The proposed changes also include the construction of a stormwater bund within Victoria Park, adjacent the QR boundary south of the BCC maintenance yard. This would capture run-off coming from the park and connect to the existing stormwater drain in the QR corridor through a spillway.

Tree trimming adjoining/in Victoria Park

Trimming to vegetation along the boundary between the QR Corridor and Victoria Park is required to maintain a safe separation distance between the vegetation and the overhead lines. This is now required as project works will be undertaken in the rail corridor closer to the Victoria Park boundary. Tree trimming works must comply with the QR electrical safety requirements and QR obligations under the *Electrical Safety Act 2002*.

The current land use along the QR boundary of Victoria Park is a mixture of mature and immature, native and exotic trees and shrubs. This land is framed by a paved shared pedestrian and cycle path.

The proposed changes to the QR corridor and Victoria Park boundary will have additional temporary surface and permanent volumetric land requirements. I note that the surface impacts to land within Victoria Park are temporary, are only required to enable the construction of the proposed works elements and are generally in areas that presently provide for limited public use. For example, the upgraded access road and rail maintenance access road are proposed within an area of Victoria Park that is presently occupied by an existing QR carpark. Once operational, there will be no change to the rail infrastructure use or level of public access at this location.

As previously noted, Victoria Park is listed on the Queensland Heritage Register as being of State Heritage Significance for its 'historical, rarity, representativeness, aesthetic and social significance' (QHR#602493). The project change application identifies that the proposed changes to the project in this location have the potential to impact on both the heritage and social values of Victoria Park. This includes the vegetation in the area to be impacted by the changes, with the associated strong community attachment to the park.

The proposed changes have the potential to impact trees along the boundary within Victoria Park through the construction works, the tree trimming required to comply with QR safety requirements or through the disturbance of the tree root zone by the subsurface soil nails required for the retaining walls.

The proponent has undertaken investigations to minimise the impact to Victoria Park and ensure that the proposed works will not diminish the heritage significance of the park. Arborist surveys completed by the proponent identified 190 trees within the construction area that could potentially be impacted by the proposed changes. To assess the heritage values of the trees, the proponent's Suitably Qualified Heritage Specialist developed an assessment matrix to grade the significance of the trees, dependent on their age, class and health. The heritage significance was based on the assessment provided in the Queensland Heritage Register entry for Victoria Park which identifies the 'mature figs, shade trees, palms and garden beds' as contributing to the park's aesthetic values. The assessment matrix is explained in section 5.2 volume 3 of the Request for Project Change application. Using the assessment matrix, trees within Victoria Park have been identified as having, no, low, medium or high heritage significance with the intent of the proposed works aiming to avoid impacts to high value heritage significant trees.

To manage the heritage and vegetation impacts of the proposed changes, the proponent proposes to use a construction methodology that prioritises protection of 'high heritage value' significant trees over trees with a 'lesser heritage' significance. Where avoidance of trees with high heritage significance is not possible, the proponent will take measures such as discrete trimming of tree branches to enable the works to be delivered. The

change application states that the removal of trees with a high heritage significance will only be adopted in the event that no other delivery solution is available.

Of the 190 trees potentially impacted by the proposed changes, 22 trees have been identified as requiring removal and six trees may require removal, making a total of 28 trees potentially being removed due to the project changes. A further 62 trees have been identified as requiring trimming. The proponent's impact assessment included determining the relative impact that the proposed tree removals would have on the heritage significance of Victoria Park. The heritage impact of the majority of the tree removals is described as being 'negligible' or 'no change', with only one tree removal having a moderate impact (resulting from the removal of a historical camphor laurel tree of 'exceptional significance').

I note that the proponent has advised that since the lodgement of the project change application, the heritage impact of the removal and trimming of these trees has been assessed under section 74 of the *Queensland Heritage Act 1992* and the proponent has obtained a Queensland Heritage Exemption Certificate (202005-10289EC) for the proposed works.

Under the approved environmental management framework, mitigations measures in the relevant CEMP subplans must include:

- undertaking a heritage assessment, including an assessment of the heritage value of the vegetation in accordance with the Non-Indigenous Cultural Heritage Management Plan
- minimising disturbance to significant vegetation and habitat during construction through installation of No-Go zones around protected and/or significant vegetation
- installation of tree protection zones for trees protected by BCC Natural Assets Local Laws.

Finally, to mitigate the removal of trees the proponent has committed to developing a revegetation plan that provides guidance on offsetting potential impacts to trees through replanting. The change application identifies that the proposed changes provide opportunities to enhance sections of Victoria Park, where replanting with native species will have a beneficial impact of improving the ecological values of the park. The proponent is of the opinion that this management approach is expected to be supported by BCC and other key stakeholders, such as the Spring Hill Community Group.

I am confident that any heritage impacts to the site associated with the project works will be managed and offset by implementing the conditions of approval under the Heritage Exemption Certificate. Impacts would also be managed through the implementation of the management and mitigation measures detailed in the relevant Nature Conservation and Non-Indigenous Heritage Management sub-plans of the CEMP.

In its submission, DTMR raised concerns regarding the potential for impacts on the pedestrian and cyclist pathway that runs adjacent the proposed Victoria Park boundary works. The proponent subsequently advised that through consultation with the Brisbane Boys Grammar and Brisbane Girls Grammar School, changes to the construction methodology have been developed to allow the pedestrian and cyclist pathway to remain open at a reduced width during construction.

As with the previously evaluated project, environmental impacts will continue to be managed by the project's environmental management framework, specifically the site-specific CEMP. Under Imposed Condition 4(c), the CEMP must incorporate the environmental outcomes and performance criteria of the OEMP. The CEMP must also demonstrate compliance with the Imposed Conditions, and incorporate mitigation measures to achieve the environmental outcomes where predictive studies indicate impacts beyond those provided for in the performance criteria.

I expect management and mitigation measures for pedestrian and cyclist traffic to be included in the site-specific Construction Traffic Management Plan (CTMP), delivered under the CEMP, and in line with the requirements of the OEMP.

I have considered the proposed changes for the Victoria Park and QR boundary works and I am satisfied that the project's environmental management framework consisting of the Imposed Conditions, the OEMP and CEMP are sufficient to manage the environmental impacts. I accept the proposed changes to the Normanby rail yard and Victoria Park boundary.

4.1.6 Fairfield to Salisbury station worksites

Amendments and additions to the temporary land requirements have been requested for the construction areas at the Fairfield to Salisbury station worksites, and a new permanent land requirement within an existing road parcel directly adjacent to the rail corridor at Rocklea Station. The proposed land requirements for the Fairfield to Salisbury station worksites are detailed in the Property Impact Plans Sheets 1, 3, 4, 6, 7 and 9 of Volume 2 (dated 21 May 2020) of the proponent's project change application.

The proponent states that the reason for the proposed changes is to address space limitations at the construction worksites. For example, design refinements (such as the repositioning of the proposed footbridge at Fairfield station) has meant that current temporary land requirements associated with the setup for the crane pads to be used during construction are required to be relocated. In addition, the proponent states the current temporary construction areas (as approved in the previously evaluated project) at the Fairfield to Salisbury station worksites would not provide for the safe execution of critical construction activities such as crane lifting operations.

I note that the proposed changes to the temporary construction area for each worksite, in particular at Fairfield, Yeeronga and Yeerongpilly, would have temporary impacts within the adjacent local road corridors. The proponent states that the works within the local corridors are consistent with the previously evaluated project and will comply with the project's Imposed Condition 14 – Traffic and Transport.

The proposed works will be managed under the requirements of the site-specific CEMP, in particular the CTMP, a sub-plan of the CEMP. The CTMP (as required by the Imposed Condition 14(h)) must include local traffic management measures developed in consultation with key stakeholders including BCC and QR, as well as a process to provide advanced notice to DAPs and local communities within the vicinity of worksites of the proposed works.

I note that the proponent has advised that consultation with local residents that would be affected by these works will occur in accordance with the CTMP. Additionally, existing Imposed Condition 9 requires the proponent to develop a Community Engagement Plan (CEP) that provides for consultation with DAPs and local communities being kept

informed on the project construction impacts and mitigation measures. The CEP will assist in ensuring appropriate management of potential impacts for surrounding sensitive receptors at each of the Fairfield to Salisbury stations.

Consistent with the previously evaluated project, the construction impacts for the Fairfield to Salisbury station upgrades would continue to be managed by the project's environmental management framework. This includes the implementation of a site-specific CEMP and associated sub-plans. The CEMP is required to incorporate the environmental outcomes and performance criteria of the OEMP. The CEMP must also demonstrate compliance with the Imposed Conditions, and include mitigation measures to achieve the environmental outcomes where predictive studies indicate impacts beyond those provided for in the performance criteria.

I have considered the proposed changes for the temporary construction areas at the Fairfield to Salisbury station worksites and I am satisfied that the project's environmental management framework consisting of the Imposed Conditions, the OEMP and CEMP are sufficient to manage the environmental impacts. I accept the proposed change to temporary land requirements at the Fairfield to Salisbury station worksites.

4.1.7 Moolabin feeder station

A change in the land requirements at the Moolabin Feeder station has also been requested by the proponent. The change seeks a previously approved partial temporary land requirement to be changed to a permanent surface requirement within Lot 8SP275008.

The proposed change would accommodate the installation of electrical traction power equipment to power the overhead lines for the project.

Consequently, the environmental impacts as a result of the proposed change (beyond the land tenure requirements) are expected to remain generally consistent with the previously evaluated project.

I accept the proposed change in land requirement from temporary to permanent at the Moolabin feeder station.

4.2 Assessment of the changes to the Imposed Conditions

4.2.1 Condition 1: General conditions

The proponent has requested changes to Imposed Condition 1 (including the design drawings) to reflect the boundary changes discussed in Section 4.1, and delete reference to the June 2019 design drawings, as depicted below:

Table 4.2 Requested changes to Imposed Condition 1

Requested changes to the condition
Condition 1. General conditions (a) The project must be carried out generally in accordance with: (i) the Cross River Rail Request for Project Change dated May 2020 (ii) the drawings provided at Volume 2, Cross River Rail Request for Project Change dated May 2020; ~~amended or new drawings provided at Appendix 2, Response to Submissions Report, June 2019, including:~~ ~~(A) CRR-0003-AL-GA-100 – Drawing Index and Locality Plans – 1~~ ~~(B) CRR-0003-AL-GA-201 – General Arrangement – 4~~ ~~(C) CRR-0003-AL-GA-211 – General Arrangement – 11~~ ~~(D) CRR-0003-CD-GA-110 – Construction Site Plans Moorooka Station~~ ~~(E) CRR-0003-DUT-GA-101 – Dutton Park Station~~ ~~(F) CRR-0003-RP-GA-111 – Property Impact Plans – 11~~ ~~(G) CRR-0003-RP-GA-124 – Property Impact Plans – 24~~ (iii) amendments to the Project identified in the Cross River Rail Request for Project Change dated June 2018; (iv) amendments to the Project identified in the Cross River Rail Request for Project Change dated November 2018; (v) the Cross River Rail Request for Project Change dated April 2019. (b) The proponent must notify the Coordinator-General and all nominated entities in Schedule 2 in writing of the commencement of Project Works and the commencement of the commissioning and operational phases of each 'construction site' at least 20 business days prior to the relevant commencement date. (c) The temporary coach terminal works must be carried out in accordance with the conditions imposed at Appendix 3.

I am satisfied that the changes will ensure that the project is constructed in accordance with the most recent documentation and design drawings reflecting the updated project boundary. As the change to the condition relates only to referencing the correct documentation for the project, no changes to the previously assessed environmental impacts are expected.

I approve the proposed changes to Imposed Condition 1.

4.2.2 Condition 10: Hours of work

4.2.2.1 Condition 10(a)

The proponent requested the following changes to Imposed Condition 10(a), Table 1:

- remove the limitation of 80 hours of continuous work for approved rail possessions by replacing the words "80 hours continuous work" with "for the duration of the possession" at the following worksites:
  - Fairfield, Yeronga, Yeerongpilly, Rocklea and Salisbury Stations

- Moorooka Station
- Northern Portal
- Exhibition Railway Station
- Mayne Railway Yard

- change the spoil haulage and materials/equipment delivery hours for Moorooka and for Fairfield, Yeronga, Yeerongpilly, Rocklea and Salisbury Stations to Monday to Saturday, 6:30am to 6:30pm
- amend the spoil haulage and materials/equipment delivery lock out periods to exclude gazetted school holiday periods for Boggo Road Railway Station.

The requested changes are depicted below:

Table 4.3 Requested changes to Imposed Condition 10(a)

Table 1. Construction hours

Worksite	Surface works — standard hours	Extended work hours	Managed Work	Spoil haulage and materials/ equipment delivery
Fairfield, Yeronga, Yeerongpilly, Rocklea and Salisbury stations	Monday to Saturday: 6:30am-6:30pm	For approved rail possession~~—80 hrs continuous work~~ for the duration of the possession (Other extended work) Monday to Friday: 6:30pm - 10:00pm	24 hours, 7 days	Monday to Saturday: 6:30am –6:30pm ~~Monday to Friday: 6.30am - 7.30am 9.00am - 2.30pm 4.30pm - 6.30pm Saturday 6.30am - 6.30pm~~
Moorooka~~/ Clapham Yard~~	Monday to Saturday: 6:30am-6:30pm	For approved rail possession~~—80 hrs continuous work~~ for the duration of the possession (Other extended work) Monday to Friday: 6:30pm - 10:00pm	24 hours, 7 days	Monday to Saturday: 6:30am –6:30pm ~~Monday to Friday: 6.30am - 7.30am 9.00am - 2.30pm 4.30pm - 6.30pm Saturday 6.30am - 6.30pm~~
Clapham Yard	Monday to Saturday: 6:30am-6:30pm	For approved rail possession—80 hrs continuous work (Other extended work) Monday to Friday: 6:30pm - 10:00pm	24 hours, 7 days	Monday to Friday: 6:30am –7:30am 9:00am –2:30pm 4:30pm –6:30pm Saturday: 6:30am – 6:30pm
Southern portal	Monday to Saturday: 6:30am-6:30pm	For approved rail possession—80 hrs continuous work (Other extended work)	24 hours, 7 days	24 hours, 7 days

Worksite	Surface works — standard hours	Extended work hours	Managed Work	Spoil haulage and materials/ equipment delivery
		Monday to Friday: 6:30pm - 10:00pm		
Boggo Road Railway station	Monday to Saturday: 6:30am-6:30pm	For approved rail possession—80 hrs continuous work (Other extended work) Monday to Friday: 6:30pm - 10:00pm	24 hours, 7 days	Monday to Friday: 6:30am –7:30am 9:00am –2:30pm 4:30pm –6:30pm Saturday: 6:30am - 6.30pm Additional hours during gazetted school holidays: Monday to Friday: 7:30am - 9:00am 2:30pm - 4:30pm
Dutton Park Railway station	Monday to Saturday: 6:30am-6:30pm	For approved rail possession—80 hrs continuous work	n/a	24 hours, 7 days, except for: Monday to Friday: 7:00am - 9:00am 4:30pm - 6:30pm
Woolloongabba Railway station	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm - 10:00pm	24 hours, 7 days	24 hours, 7 days, except for: Monday to Friday: 7:00am - 9:00am 4:30pm - 6:30pm
Albert Street Railway station	Monday to Saturday: 6:30am – 6:30pm	Monday to Friday: 6.30pm - 10.00pm	24 hours, 7 days	Monday to Friday: 6:30am –10:00pm Saturday: 6:30am - 6:30pm
Roma Street Railway station	Monday to Saturday: 6.30am - 6.30pm	Monday to Friday: 6:30 pm -10:00pm	24 hours, 7 days	Monday to Friday: 6:30am –7:30am 9:00am –4:30pm 6:30pm– 10:00pm Saturday: 6:30am – 6:30pm
Northern portal	Monday to Saturday: 6:30am-6:30pm	For approved rail possession—~~80 hrs continuous work~~ for the duration of the possession (Other extended work)	24 hours, 7 days	Monday to Friday: 6:30am - 10.00pm Saturday 6:30am - 6:30pm

Worksite	Surface works — standard hours	Extended work hours	Managed Work	Spoil haulage and materials/ equipment delivery
		Monday to Friday: 6:30pm - 10:00pm		
Exhibition Railway station	Monday to Saturday: 6:30am-6:30pm	For approved rail possession~~—80 hrs continuous work~~ for the duration of the possession (Other extended work) Monday to Friday: 6:30pm - 10:00pm	24 hours, 7 days	Monday to Saturday: 6:30am - 6:30pm
Mayne Railway Yard	Monday to Saturday: 6.30am-6.30pm	For approved rail possession~~—80 hrs continuous work~~ for the duration of the possession (Other extended work) Monday to Friday: 6:30pm - 10:00pm	24 hours, 7 days	24 hours, 7 days

Removal of 80 hours continuous work restriction for rail possessions

The removal of the restriction of 80 hours continuous works for rail possessions at certain project construction worksites would allow rail possession works to continue for periods of time longer than 80 hours in duration without any specific continuous time limitations.

The duration of the works would however be limited to the timeframes specified by QR under the QR rail possession permit process, which QR manages to minimise disruptions to the rail network. While no specific assessment has been undertaken of the expected length of these rail possessions, such possessions will be limited, due to the need for the continued functionality of the rail network.

Current out of hours noise management implications for rail possessions

This requested change to Imposed Condition 10(a), Table 1 (construction hours) to facilitate longer duration rail possessions relates to Condition 11 (noise and vibration) and requires subsequent changes to Condition 11.

As currently worded, Imposed Condition 11 only permits project construction works generating noise 20 dB(A) above the relevant noise goal from occurring between 7:00am and 6:00pm from Monday to Friday, and also requires:

- nearby DAPs to be consulted about the works prior to their commencement
- a respite period between 12:00 noon and 2:00pm each day.

Currently, when the current Imposed Condition 10(a) is read in conjunction with the current Imposed Condition 11, project work that can only be undertaken after 6:30pm

that will generate noise 20dB(A) above the noise goals will be prevented from being delivered.

The proponent has identified in Sections 1.3.4 to 1.3.6, Volume 3 of the project change application a number of work packages that fit these criteria. This includes work that must be undertaken within the rail corridor during a rail possession period.

The proponent has stated that rail possession works currently take place within the rail corridor outside of the peak daily commuter traffic periods, generally at night (after 6:30pm) or across weekends. This is because access to stations and the rail corridor during standard construction hours (6:30am to 6:30pm) is limited due to safety concerns for both construction workers and the public. Rail possessions are also only permitted to be undertaken within specified limited timeframes, agreed ahead of time with QR.

The current requirements of Imposed Condition 10(a) and Imposed Condition 11 mean that additional and more frequent rail possessions are required to complete the construction work required for the project. This means greater impacts to the passenger network and QR (through more frequent rail line closures) and nearby DAPs through more frequent noisy works being undertaken in the rail corridor, typically across weekends and through the night.

Effect of the requested changes

The requested removal of 80 hours continuous work restrictions for rail possessions would change the previously evaluated and approved impacts associated with these works. However, QR would will continue to control the duration of the rail possession works through their established rail possession permit process.

There is the potential for an increase in the duration of noise and vibration impacts at nearby sensitive receptors (located adjacent to the rail corridor) during these unrestricted rail possessions. The proponent has also recognised that the sensitive receptors adjacent to the relevant construction worksites are mostly multi-level residential buildings (apartment blocks) and commercial properties, which may be impacted by noisy construction work that occurs after 6:30pm. The proponent noted that temporary site hoarding and full acoustic enclosures would be unlikely to adequately mitigate the noise impacts for work undertaken within the rail corridor as they would:

- not break the line of sight (between the works and the residential buildings) for the majority of the nearby residential buildings
- not reduce the noise levels by 20 dB(A) to avoid the requirements of Condition 11(c)
- potentially increase community exposure to noisy construction works (through the additional noise associated with the construction of the acoustic enclosures).

The proponent states that although the requested change to Condition 10(a) would increase the magnitude and duration of noise impacts (compared to rail possessions limited to up to 80 hours in continuous duration), the overall noise and vibration impact would be reduced as less rail possessions would be required to construct the project. Such activities would still be managed in accordance with the relevant Imposed Conditions for noise and vibration. Additionally, project construction work is not expected to occur continuously during rail possessions of greater than 80 hours construction.

A longer period of construction would allow the proponent to schedule more works compared with just 80 hours of rail possession. This would also provide greater flexibility

to the program works so that higher impact works have the opportunity to be scheduled for the daytime period (6:30am to 6:30pm), where practical.

The proponent has stated that, based on the current QR rail possession schedule, the maximum (QR approved) possession period would likely be seven (7) days. I note that QR did not provide a submission on the project change application. The proponent has advised that consultation occurs with QR in relation to the proposed changes to the project on a regular basis.

Impact mitigation and management

As part of the response to submissions, the proponent stated that the project's OEMP, including the Noise and Vibration Sub-Plan, defines performance criteria and environmental outcomes that are to be achieved for the project, including for noise at night. A CEMP, consistent with the OEMP, is required to be prepared for relevant project works and endorsed by the independent Environmental Monitor prior to commencing works. The endorsed CEMP must be implemented for the duration of Relevant Project Work in accordance with the existing Imposed Condition 4(d).

As discussed in Section 2.2.1, the CEMP sets a framework for detailed risk assessment to be undertaken during each stage of construction planning. Potential impacts associated with noise and vibration during construction, including for rail possession works, are assessed as part of the predictive assessment undertaken during the risk assessment against the performance criteria of the Imposed Conditions and the OEMP.

The purpose of the risk management approach is to minimise the disruption and disturbance to the community from a significant infrastructure project within a highly urbanised area. The type and extent of noise mitigation controls to be implemented on site will be based on the results of the risk assessment. A further detailed noise assessment/model will be completed prior to each works program. During the development of this model, the construction methodology will be further refined to ensure the proposed scope of work aims to achieve the requirements of Imposed Condition 11, Table 2 (noise goals for project works).

Where an exceedance of the relevant goals is identified by the proponent during risk assessment analysis and impact modelling, alternate construction methodologies and additional mitigation measures are to be investigated and prepared to reduce potential impacts. All identified mitigation measures will then be included in the site-specific Site Environmental Plan developed for the scope of works, which is the reviewed by the independent Environmental Monitor. In the event noise impacts are still modelled to exceed 20 dB(A) above the relevant goal, specific DAP engagement is required to occur. Once compiled, this detailed assessment is also reviewed and approved by the independent Environmental Monitor prior to the commencement of works, to confirm the proposed management arrangements are consistent with the condition requirements and the OEMP.

The proponent's CEMPs (August 2019) currently include requirements for keeping the community informed regarding the project schedule and potential impacts, particularly in relation to unavoidable weekend and night works. This includes phone calls, emails and/or written notification for DAPs prior to the event.

Project notifications are also to be provided in areas adjacent to project works, regardless of whether residents or business are predicted to be affected. The notification are

required to include sufficient information to enable the community to understand the likely nature, extent and duration of noise and vibration impacts during various construction activities. A minimum notification period at least 14 days has been implemented. Notifications are to detail:

- the reason for the activity
- the types of equipment required
- expected hours of operation, including permitted site preparation works to occur outside standard hours
- likely duration and impact of the operation and any requirement for subsequent additional works
- contact details further information and complaints (including the project's 1800 number).

Evaluation of the requested changes

I have considered the information contained within the proponent's project change application, submissions received, the proponent's responses to submissions and the potential impacts associated with the proposed changes. I am satisfied that, in the context of the project's environmental management framework:

- there is sufficient justification to warrant the requested changes to Imposed Condition 10(a) to support rail possession works longer than 80 hours duration
- the number of possessions required to exceed 80 hours will be limited, mostly confined to existing extended possessions undertaken by QR, such as Easter and Christmas
- extended possessions generally only apply to a discrete section of the QR network i.e. generally will not be occurring across multiple sites of the network at the same time
- as outlined in the project change application, the proponent will undertake construction works within the standard construction hours (6:30am to 6:30pm, Monday to Saturday) as far as practicable. This would ensure that any work undertaken between 6:30pm to 6:30am, including for rail possessions greater than 80 hours in duration, would be limited to work that cannot be undertaken safely and efficiently during standard construction hours
- the proponent will continue to undertake advance consultation with DAP's prior to the commencement of works where noise 20 dB(A) or greater above the relevant noise goals are predicted, including for rail possession works greater than 80 hours in duration. This will include notifying owners, tenants and adjoining owners within a 250m radius of the proposed rail possession works
- in the event that a complaint is received during rail possessions, a member of the project's Community and Stakeholder Engagement Team will work with the complainant and site manager/supervisor to respond to and resolve the complaint in a timely manner

- the proponent will demonstrate all reasonable and practicable mitigation measures are being implemented for the works through the preparation of specific CEMPs which are to be approved by the Environmental Monitor
- the CEMPs prepared to manage rail possession works will include detailed management and mitigation processes for works predicted or monitored to exceed noise goals and detailed community engagement procedures for all work types, including night works and rail possession work
- the currently approved OEMP will be updated to reflect the changes to the project and will be re-submitted to the Coordinator-General 20 business days prior to the commencement of Relevant Works. The OEMP will be updated with additional measures to address the increased duration rail possession works, including for potential noise and vibration impacts. Each site-specific CEMP must then be endorsed by the independent Environmental Monitor to be consistent with the updated OEMP.

I approve the proposed change to Condition 10(a), Table 1 relating to the continuous work restrictions for rail possessions.

Changes to spoil haulage and materials/equipment delivery hours

The proponent has requested changes to the spoil haulage and materials/equipment delivery hours at several sites. The changes have been requested due to operational aspects associated with these sites and to maximise the efficiency of project works.

Current hours of work management implications for spoil haulage and materials/equipment delivery

The proponent noted that the current heavy vehicle restrictions for the project have been imposed primarily to reduce traffic impacts during school pick up and drop off times. However, in recognition of the current restrictions on heavy vehicle movements, the proponent states that accommodating all required heavy vehicle deliveries within the restricted delivery windows pose potential traffic management and safety issues at each work site, therefore negating the current intent of the conditions.

I note that the heavy vehicle haulage volumes and proposed construction worksite access routes outlined in Section 4.2.3 and 4.2.4, Volume 3 of the project change application are generally consistent with those previously evaluated and approved for the project. Furthermore, the restrictions detailed in the Imposed Conditions apply to spoil haulage and materials/equipment deliveries occurring at the sites; not on vehicle movements along the transport routes.

Impact mitigation and management

The proponent stated that it has committed to ongoing regular engagement to make sure all impacted schools are kept informed of upcoming project works in their locality. The project's stakeholder team provides formal 14-day advance written notification of any works that might impact schools, prior to works being undertaken, as well as offering a briefing, if required. The proponent indicated that it has met regularly with relevant schools in relation to this current change application.

Furthermore, the proponent has advised that the project's overall CTMP describes the processes that will be followed to ensure how all road users will be accommodated

throughout the duration of the works. Site-specific CTMP sub-plans will be developed for each construction work area where relevant. The sub-plans are to detail management strategies and mitigation measures associated with road traffic, pedestrians, cyclists and public transport operations. Through this process, the foreseeable risks are identified and impacts on all transport network users are to be assessed and mitigated. The CTMP will be supported by the CEP, where traffic communications and an approach to managing communication activities associated with traffic changes for the project is described. The change application states that the proponent is committed to a proactive consultation process that informs stakeholders of changes to the network, including traffic, pedestrians and cyclists and any changes to public transport.

Additionally, as part of the CEP, consultation with all relevant stakeholders, including schools, BCC and DTMR on the use of haulage routes for relevant worksite will occur prior to the commencement of works. This will inform any updates required on the relevant CTMP and sub plans and the Haulage Management Plan (HMP) to ensure site-specific management measures are covered. Updated HMPs for major haul routes should be submitted to BCC and DTMR for comment prior to commencement of works. The proponent advised that, although not required by the conditions, the proponent has sought and obtained endorsement by BCC and DTMR of the current CTMP.

Evaluation of the requested changes

I note that the heavy vehicle haulage routes associated with the Moorooka, Fairfield, Yeronga, Yeerongpilly, Rocklea and Salisbury Stations worksites are mapped in the vicinity of nearby schools. Section 4.2.3, Volume 3 of the project change application indicates that for most of the Fairfield to Salisbury worksites, proposed heavy vehicle haulage routes would not directly pass the schools located closest to these worksites (with the exception of the Salisbury worksite haulage routes). Therefore, for the majority of the worksites, potential impacts associated with relaxed restrictions on heavy vehicle movements are not expected to have significant traffic impacts during the peak commuter traffic periods (including school pick-up and drop-off hours). For the Salisbury worksite, the proposed haulage route would share one of the main access roads for the Brisbane Christian College (located off Fairlie Terrace).

The intent of the condition is not to regulate the timing of vehicle movements generally on the transport routes, only at the work sites themselves. I note that heavy vehicle movements are already able to occur during these times outside of the Brisbane CBD and that the management and associated mitigation of road usage and impacts on other road users is managed through the CTMP and associated HMP (sub-plan).

I have considered the information contained within the project change application and the potential impacts associated with the proposed changes. I am satisfied that:

- the changes would ensure that the proponent can maximise the efficiency of work undertaken during limited road and rail possessions. The changes would also ensure that the required equipment deliveries can support those works, noting that possessions typically occur outside of peak periods and school pick up and drop off times
- greater flexibility is required for delivery and continuity of works where the worksites are restricted by the size of storage areas at the Fairfield to Salisbury sites

- overall, the changes would support less intense heavy vehicle numbers during permitted hours, less potential for queuing of heavy vehicles accessing worksites that are constrained spatially; and improved efficiency for road and rail possessions, which will occur outside of peak traffic and school pick-up and drop-off periods
- the proponent will continue to undertake ongoing regular engagement to make sure all impacted schools are kept informed of upcoming project works in their locality
- the CEMP, CTMP, HMP and CEP will provide a framework for managing the potential impacts associated with less restricted heavy vehicle movements, particularly where haulage routes are proposed in the vicinity of schools.

I approve the proposed change to Condition 10(a), Table 1 relating to spoil haulage and material/equipment delivery hours.

4.2.2.2 Condition 10(d)

The proponent has requested to delete the words "during Extended Work Hours as set out in Table 1" from Imposed Condition 10(d) so that spoil haulage and materials/equipment delivery hours do not restrict the ability to carry out the works in Imposed Condition 10(d).

Table 4.4 Requested changes to Imposed Condition 10(d)

Requested changes to the condition
(d) The following work may be undertaken ~~during Extended Work Hours as set out in Table 1.~~ subject to compliance with a specific Construction Environmental Management Plan sub-plan in accordance with Condition 4: (i) Project Works within rail corridor land; (ii) Project Works within a road reserve or busway that cannot be undertaken reasonably nor practicably during standard hours due to potential disruptions to peak traffic flows or bus operations; (iii) Project Works involving the transport, assembly or decommissioning of oversized plant, equipment, components or structures; (iv) delivery of "in time" materials such as concrete, hazardous materials, large components and machinery; (v) Project Works that require continuous construction support, such as continuous concrete pours, pipe-jacking or other forms of ground support necessary to avoid a failure or construction incident.

Works to be undertaken during ‘extended hours’ are typically undertaken after 6:30pm to avoid impacts on peak commuter road and rail traffic and for safety and efficiency reasons. This often includes works requiring heavy vehicle support or deliveries of oversize loads, such as station bridge beams.

The current restrictions on equipment deliveries (imposed by the project’s conditions) prevents certain activities from occurring during extended work hours. For works requiring heavy vehicle movements associated with equipment deliveries, needing to be undertaken after 6:30pm due to safety reasons, the current requirements of the Imposed Condition’s prevent those works from being completed as efficiently and as safely as possible.

At the Fairfield to Salisbury station worksites, the proponent has identified that this issue is compounded by a lack of sufficient storage and laydown space adjacent to the station worksite areas. This further limits the successful delivery and removal of materials (where required) from each site.

The proponent states that the following Project Works are not be able to be undertaken due to current restrictions on heavy vehicle movement hours:

- out of hours and weekend deliveries (materials, plant and equipment) essential for the numerous weekend and extended possession works
- delivery of plant and equipment required to construct works that need to be delivered outside of the project's standard working hours due to DTMR restrictions (e.g. earthworks machinery, cranes)
- delivery and installation of new infrastructure outside of the standard working hours (e.g. station overpass structures and prefabricated buildings).

Effect of the requested changes

The proposed amendment to Imposed Condition 10(d) would remove the ability for the following Project Works to occur during the extended work hours periods currently identified in Table 1, by subjecting the works to the other construction hour restrictions detailed in Table 1:

- road and busway corridor works
- Project Works involving the transport or oversized plant, equipment, components or structures
- delivery of "in time" materials, such as concrete
- Project Works that require continuous construction support.

I note that in its submission, DTMR recommended that instead of the proponent's proposed changes to Imposed Condition 10(d), the changes to Imposed Condition 10(d) should be replaced with: '*The following work may be undertaken outside the hours set out in Table 1, subject to compliance with a specific Construction Environmental Management Plan sub-plan in accordance with Condition 4*'.

I have considered the information contained within the proponent's project change application and the potential impacts associated with the proposed changes. However, the requested change does not address the matter that the proponent has detailed in the project change application supporting information. I acknowledged that there is the potential for uncertainty in the current wording of Imposed Condition 10(a) and 10(d). Furthermore, that the intent was for equipment deliveries associated with the Project Works detailed in Imposed Condition 10(d) to be authorised under Imposed Condition 10.

I am satisfied that the intent of the proposed change detailed in the notified application is to ensure clarity within Imposed Condition 10 and that this change is acceptable. Therefore, I have amended the condition as required to accurately address this intent.

During my evaluation of this change application, the proponent was required to undertake a continuous concrete pour t at a worksite. Pausing the works mid pour was

determined to be unfeasible when considering the quality and safety factors relating to the integrity of the completed crane pad.

This is an example of how the current Imposed Condition set is required to be amended. Evidently the current Imposed Conditions may—under certain circumstances—impede the completion of the work in a situation where the project needs to undertake a continuous activity (such as those listed in Imposed Condition 10(d)) but outside the extended or normal operating hours, whilst also ensuring impacts are appropriately managed.

This example characterises the intent behind the recommendation by DTMR, but I am not satisfied that adequate information has been provided to support the changes recommended by DTMR at this time, and that there is the potential for unintended consequences to occur without adequate review.

I consider it prudent that the proponent investigates this matter further for consideration as part of a future project change application. However, as an interim position in consideration of the concrete pour example, I have approved an alternative change to Imposed Condition 10 via a new subsection (e) that will allow works to be considered on a case by case basis.

My alternative change allows the proponent to conduct the works listed in Condition 10(d) at any time subject to obtaining written consent from the entity with jurisdiction for the condition and subject to compliance with a site specific CEMP endorsed by the Environmental Monitor prior to the works commencement.

As outlined above in relation to the requested changes to the hours of work for rail possession works, the environmental management framework that has been previously approved will also apply for works authorised to occur under the amended Imposed Condition 10. Specific CEMPs are required to be prepared to manage the works authorised under Imposed Condition 10(e), and these CEMPs must be reviewed and endorsed by the independent Environmental Monitor as being consistent with the OEMP prior to the commencement of works.

4.2.3 Condition 11: Noise and vibration

The proponent has requested to change Imposed Condition 11 to:

- clarify that the noise and vibration goals apply to a Sensitive Place, as defined in the Coordinator-General's Imposed Conditions
- move the 130dB Linear Peak for blasting to apply to intermittent rather than continuous noise impacts
- add a table note to Table 2
- add the words “unless authorised by Condition 10(d)” to recognise that the works outlined under Condition 10(d) are permitted to occur outside of the approved extended work hours (6:30pm-10:00pm) provided those works are managed by a specific CEMP
- amend Imposed Condition 11(c)(iv) and 11(f)(i) to confirm that the respite period requirements in the condition only apply to a Sensitive Place that is occupied, as the respite period is for human comfort

- update the descriptor for noise to be consistent with amendments to Table 2.

The requested changes are depicted below:

Table 4.5 Requested changes to Imposed Condition 11

Requested changes to the condition

Condition 11. Construction Noise and Vibration

(a) Project Works must aim to achieve the project noise goals for human health and wellbeing presented in Table 2 at a Sensitive Place.

Table 2. Noise goals (internal for Project Works)

	Monday – Saturday 6.30am – 6.30pm	Monday – Friday 6.30pm – 10.00pm (Gabba, CBD only)	Monday – Saturday 6.30pm – 6.30am Sundays, Public Holidays	For Blasting Monday – Saturday 7.30 am – 4:30 pm only
Continuous ($LA_{eq\ adj}$)(1hr)	AS 2017 Maximum design level	40dBA $LA_{eq\ adj}$ (1 hr)	35dBA $LA_{eq\ adj}$ (1hr)	~~130dB Linear Peak~~
Intermittent ($LA_{10\ adj}$) (15 min)	AS 2107 Maximum design level + 10 dBA	50 dBA $LA_{10\ adj}$	42 dBA $LA_{10\ adj}$	130dB Linear Peak

Notes

1. All goals are internal noise levels for human health and well-being outcomes.

2. Where internal noise levels are unable to be measured or monitored, the typical noise reductions presented in the relevant State guideline, such as the Guideline Planning for Noise Control, Ecoaccess, DEHP, January 2017 (currently under review).

3. Adjustments (adj) will be applied as outlined in the Department of Environment Science Noise Measurement Manual Version 4 August 2013.

(b) During construction monitor and report on noise and vibration in accordance with the Noise and Vibration Management Plan, a sub-plan of the Construction Environmental Management Plan.

(c) Unless authorised by Condition 10(d), Project Works predicted to or monitored as generating noise levels more than 20dBA (LA $_{10\ adj\ (15\ min)}$~~eq 10min, adj~~) above the relevant goal in Table 2. are authorised to occur in a locality only:

(i) when advance notification and consultation has been undertaken with Directly Affected Persons or potentially Directly Affected Persons about the particular predicted impacts and the approach to mitigation of such impacts;

(ii) where mitigation measures addressing the particular predicted or measured impacts have been developed on a 'case by case' basis in consultation with Directly Affected Persons;

(iii) where the mitigation measures are incorporated in a mitigation register and implemented prior to undertaking the Project Works;

Requested changes to the condition
(iv) between the hours 7:00am to 6:00pm Monday to Friday, with a respite period between 12:00noon and 2:00pm each day with the respite only applying where generating noise levels more than 20 dBA $LA_{10\ adj\ (15\ min)}$ at a Sensitive Place that is occupied;
Condition 11. Construction Noise and Vibration (f) Project Works predicted to or monitored as generating vibration levels more than 2mm/s for continuous vibration and 10mm/s for transient vibration may occur only: (i) between the hours 7:00am to 6:00pm Monday to Friday, with a respite period between 12:00noon and 2:00pm each day with the respite only applying where generating vibration levels more than those levels nominated in Table 3 (Human Comfort) at a Sensitive Place that is occupied; or (ii) in accordance with the mitigation measures developed in consultation with and agreed by Directly Affected Persons that are incorporated in the Mitigation Register.

Evaluation of the requested changes

In relation to the requested changes to Imposed Condition 11(c)(iv), I note that DES and DTMR raised concerns in submissions regarding the proposed changes to only require that respite periods apply where generating noise levels more than 20 dBA $LA_{10\ adj\ (15\ min)}$ at a Sensitive Place that is occupied. DES and DTMR also requested further details of the proposed additional mitigation measures and consultation that would be undertaken to address potential impacts resulting from the requested changes.

In addition, DES advised that it did not support the changes to the condition as it is in direct conflict with environmental protection legislation namely “ability to sleep” which is an important environmental value stated in the Environmental Protection (Noise) Policy 2019. However, the change has addressed this by only applying to Sensitive Places that are not occupied (i.e. no one requiring sleep being in attendance).

The proponent responded that the change application identifies specific night work activities that can only be progressed outside of Monday to Friday, 7:00am to 6:00pm as a result of road or rail asset manager possession approvals that mandate when access to the infrastructure can occur (i.e. outside of the hours of heavy usage to minimise disruption to road/rail users). Furthermore, the environmental management framework that has been previously approved would apply for Imposed Condition 11(c); specific CEMPs would be prepared to manage the works authorised under Imposed Condition 10(d). The CEMPs must be reviewed and endorsed by the independent Environmental Monitor as consistent with the OEMP, prior to the commencement of works. DES have advised that the application this framework will provide appropriate mitigation and management measures to address the concerns raised in their submission.

I have considered the information contained within the proponent’s project change application and the potential impacts associated with the proposed changes. I am satisfied that:

- the requested change to Imposed Condition 11(a) and 11(f)(i) is to provide clarity for when noise limits and vibration respite periods apply, depending on the occupancy of structures/buildings surrounding project worksites. The change would prevent more

stringent restrictions being placed on works that would impact unoccupied buildings/structures, thus allowing works to proceed in the most efficient manner possible with commensurate mitigation and management measures in place

- the requested changes to the notes under Imposed Condition 11, Table 2 will ensure that the condition aligns with current widely implemented Queensland best practice guidelines
- in relation to the changes requested for Imposed Condition 11, Table 2, blasting undertaken for the project would not be continuous. Therefore, it is more appropriate for blasting limits to apply for intermittent noise levels (which rise and fall quickly), rather than continuous, ongoing noise levels.

I am not satisfied that the requested changes for Imposed Condition 11(c) to add the words "unless authorised by Condition 10(d)" is appropriate as the intent of the requested change (based on the supporting information) was to remove the requirement of allowing a respite period (under Imposed Condition 11(c)(iv)) from the Project Works authorised by Imposed Condition 10(d).

By inserting the requested wording, this would then also have removed the requirement for the mitigating measures detailed in Imposed Condition 11(c)(i) to (iii) from the Project Works authorised under Imposed Condition10(d).

Imposed Condition 11(c) relates to Project Work that has been predicted or monitored as generating noise levels more than 20 dB(A) $_{(LA\ 10\ adj(15min)}$ above the relevant noise goals in Table 2. The removal of the requirement for these mitigation measures without alternatives for these extreme works other than 'the works would be managed in accordance with a specific CEMP' cannot be justified.

I am satisfied however that the intent of the proposed change (based on the supporting information) is acceptable, with the requirement for a respite period at an unoccupied Sensitive Place associated with Project Work authorised under Imposed Condition 10(d) to be removed.

The works authorised under Imposed Condition 10(d) are to be managed in accordance with a specific CEMP (consistent with the OEMP) that must be endorsed by the Environmental Monitor and—where noise levels are expected to be more than 20 dB(A) $_{(LA\ 10\ adj(15min)}$ above the relevant noise goals in Table 2—subject to the mitigation measures in Imposed Condition 11(c)(i)-(iii). This process allows for these specific works to proceed as expeditiously as possible with an environmental management regime in place for the works, while addressing those instances when exceedances of 20 dB(A) or greater of the noise goals are predicted.

I approve the intent of the proposed change to Imposed Condition 11(c), however have amended the condition as required to accurately address this intent. I have inserted a new condition 11(d) which states "The works authorised by Condition 10(d) are not subject to the requirements of Condition 11(c)(iv)". This would ensure that the works authorised under Condition 10(d) can occur outside of the hours of Monday to Friday, 7:00am to 6:00pm.

I also approve the other proposed changes to Imposed Condition 11.

4.2.4 Condition 13: Air quality

The proponent has requested change to Condition 13, Table 4 to delete the footnote references in the text of the table and inserting new notes for the table to clarify that AS 3580 is the appropriate standard for sampling. The requested changes are depicted below:

Table 4.6 Requested changes to Imposed Condition 13

Requested changes to the condition

Condition 13 Air quality

(a) Project Works must aim to achieve the goals in Table 4.

Table 4. Air quality criteria and goals

Criterion	Air quality indicator	Goal	Averaging period
Human Health	Total Suspended Particulates (TSP)	90 µg/m^3	1 year
	Particulate matter ((PM$_{10}$)~~1~~	50 µg/m^3	24 hours
		25 µg/m^3	1 year
Nuisance	TSP~~2~~	80 µg/m^3	24 hours
	Deposited dust~~3~~	120 mg/m^2/day	30 days

Notes:

1. When monitored in accordance with the most recent version of AS3580.9.6 Determination of suspended particulate matter – PM10 high volume sampler with size-selective inlet – Gravimetric method. OR AS/NZS 3580.9.9: 2017 Methods for sampling and analysis of ambient air Determination of suspended particulate matter - PM10 low volume sampler - Gravimetric method.
2. When monitored in accordance with the most recent version of AS/NZS 3580.9.3:2003 Determination of suspended particulate matter - Total suspended particulate matter (TSP) - High volume sampler gravimetric method or (TSP) low volume sampler – Gravimetric method.
3. When monitored in accordance with the most recent version of AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method

I have considered the information contained within the proponent's project change application and the potential impacts associated with the proposed changes. I am satisfied that:

- the proposed changes have been requested to correct a clerical error, and will also clarify that air quality monitoring, sampling and analysis will be undertaken in accordance with applicable Australian standards
- this change is supported by DES
- no changes to the impacts of the project are expected as a result of this change.

I approve the proposed change to Imposed Condition 13, Table 4.

4.2.5 Condition 15: Water quality

The proponent has requested the following changes to Imposed Condition 15(a):

- amend Imposed Condition 15(a) to confirm that the requirements of the condition apply only to groundwater ingress

- add reference to Basin 143 – lowland freshwater environmental values (EVs) and objectives. Surface water runoff and dewatering activities from sediment basins and surface excavations associated with construction works is managed in accordance with Imposed Condition 18.

The proposed changes are depicted below:

Table 4.7 Requested changes to Imposed Condition 15

Requested changes to the condition
Condition 15 Water quality (a) Discharge of ~~surface water and~~ groundwater from Project Works must comply with: (i) the Brisbane River Estuary environmental values and water quality objectives (Basin no. 143 - mid-estuary) in the Environmental Protection (Water) Policy 2009; (ii) in the vicinity of Moolabin Creek, Yeerongpilly – Oxley Creek – Lowland freshwater environmental values and water quality objectives (Basin no. 143 (part) – including all tributaries of the creek) in the Environmental Protection (Water) Policy 2009. Note that surface water runoff and dewatering activities from sediment basins and surface excavations associated with surface construction works is managed in accordance with Imposed Condition 18. (b) During construction monitor and report on water quality in accordance with the Water Quality Management Plan, a sub-plan of the Construction Environmental Management Plan.

Currently, Imposed Condition 15(a) requires discharges of surface and groundwater from the project to meet the Brisbane River Estuary EVs and WQOs (Basin no. 143 - mid-estuary) in the Environmental Protection (Water) Policy (EPP) 2009. WQOs are long term objectives to protect and enhance Queensland Waters and are intended to inform and assess compliance of the chronic (long term) health of the receiving water.

In Section 2, Volume 3 of the project change application, the proponent has advised that water quality measurements collected from all surface waters that lie within and adjacent to the study area consistently exceeded or did not meet their respective WQOs. These results are consistent with other independent monitoring programs undertaken within the lower Brisbane River catchment. Additionally, not all of the waterway systems in the vicinity of the project are 'mid-estuarine' environments, therefore it is not appropriate to apply mid-estuarine EVs to all watercourses intersected by or located in the vicinity of the project.

Whilst it is critical that the EVs of waters be protected as per the intent of the EPP, the proponent states that it is not reasonable nor practicable to impose the EPP WQOs for surface water releases during the project's construction phase. The nature of the project's potential impacts to the receiving environment from water releases during construction would constitute short-term/acute (a few days) impacts, resulting in short-term non-compliance with of the EPP WQOs. Short term exceedances of a guideline value that is designed to provide protection from chronic effects may not necessarily cause significant impacts on the ecosystem, and therefore the construction of the project is not likely to result in chronic stress on the receiving environment.

I note that DTMR requested that the proponent outline site-specific discharge criteria and investigation triggers, based on background monitoring results, for the management of surface water discharges from the project. In its submission, DES requested that the

proponent clarify that releases from sediment basins would meet stormwater limits, and releases of groundwaters and monitoring in receiving environments must meet the relevant WQOs.

The proponent responded that routine water quality monitoring at upstream and downstream of watercourses along the project is undertaken as part of the currently endorsed CEMPs for the project. Dewatering on site is also managed through dewatering permit process as described in the endorsed CEMP (including through the Waterways and Water Quality Sub-Plan) which includes water quality monitoring prior to discharge to ensure discharges meet relevant WQOs or release criteria. In its response to submissions, the proponent confirmed that if WQOs are not being met for dewatering, management and mitigation measures would be modified to ensure compliance.

I have considered the information contained within the proponent's project change application (Section 2, Volume 3) and the potential impacts associated with the proposed changes. I am satisfied that:

- not all of the waterway systems in the vicinity of the project are 'mid-estuarine' environments. Therefore, I accept that it is not appropriate to apply mid-estuarine EVs to all watercourses intersected by or located in the vicinity of the project, and that the condition requires amendment to allow recognition of the correct EVs, dependant on the location
- the requested changes to the condition would ensure that more appropriate (freshwater) EVs for groundwater ingress in the vicinity of Moolabin Creek, Yeerongpilly apply to the project
- groundwater releases for the project will continue to be subject to the requirements of Imposed Condition 18, in relation to meeting the relevant WQOs under the EPP (Water) Policy
- it is more appropriate that the quality of surface water releases be managed in accordance with Imposed Condition 18 – Erosion and Sediment Control, to ensure appropriate management measures are in place to avoid adverse impacts. The capture and retention of sediment on site using the best practice management principles outlined by the International Erosion Control Association (2008) would decrease the potential for a range of other pollutants to enter into and degrade the receiving environment from any surface water releases from the project
- site specific CEMPs and Erosion and Sediment Control Plan (ESCPs) combined with the Waterways and Water Quality, Contaminated Land and Acid Sulfate Soils management sub-plans would continue to be implemented to adequately manage toxicant releases during dewatering and discharges for the project
- there would be no changes to the potential environmental impacts already assessed due to a change in the conditions that regulate construction surface water releases.

I approve the proposed change to Imposed Condition 15(a).

4.2.6 Condition 17: Surface water

The proponent has requested amendments Imposed Condition 17 to include the requirement for a flood management plan and to provide greater clarity around the flood

management requirements for the project at specific worksites that will be impacted by flooding events.

The requested change is depicted below:

Table 4.8 Requested changes to Imposed Condition 17

Requested changes to the condition
Condition 17 Surface water (a) For underground tunnels and stations - Project Works, and worksites, must be designed and implemented to avoid inundation from stormwater due to a 2 year (6hr) ARI rainfall event and flood waters due to a 5 year ARI rainfall event. (b) A Flood Management Plan that applies to all worksites affected by tributary or creek flooding (in a 5 year ARI flood event and stormwater during a 2 year ARI rainfall event) must be submitted prior to the commencement of Relevant Project Work. A Flood Management Plan is not relevant to flooding of the Brisbane River (main channel). (c) The Flood Management Plan must include, as a minimum: (i) general description of the Relevant Project Works (ii) flood assessment (iii) specific flood management measures, including: (A) appropriate storage of materials and equipment (B) early warning indicators (C) risk management for predicted rainfall events (D) risk management for predicted tidal flooding events for works in the tidal zone (E) risk management for unpredicted flood events (iv) Tidal works management for works in the tidal zone, including: (A) barge and marine equipment details (B) barge mooring plan (C) vessel traffic management plan (D) marking of navigational hazards. (d) Project works must be designed and implemented to avoid afflux or cause the redirection of uncontrolled surface water flows, including stormwater flows, outside of worksites.

In the project change application, the proponent has stated that:

- works to construct the Breakfast Creek and Moolabin Creek bridges would not be able to proceed with any elements located within the creek channels
- it is not appropriate to set a condition to avoid inundation from stormwater due to a two year (6 hour) annual recurrence interval rainfall (ARI) event, as this means that surface worksites would need to be designed to cater for up to 76.2 mm of rain over a 6-hour period without becoming inundated. This would require bunding of worksites in the floodplain to prevent inundation, potentially resulting in an increased flooding impact upstream of these worksites

- the installation and management of inundation prevention infrastructure and the requirement to provide effective access to these sites is unworkable and limits the ability to effectively undertake project works at locations where Condition 17 would apply
- the design criteria for temporary drainage control would require flood immunity and afflux assessment. The assessment is typically determined using modelling and given the associated timeframes and cost, this is impractical for temporary erosion and sediment control structures such as diversion bunds.

Therefore, for the management of project construction works and worksites with respect to avoiding inundation from flood waters due to a 5 year ARI rainfall event, the proponent has sought to demonstrate that it is not appropriate for this requirement to be applied to works within Breakfast Creek and Moolabin Creek, where temporary impacts during 5 year ARI rainfall events will be likely. In order to manage potential flood impacts within Breakfast Creek and Moolabin Creek, the proponent is proposing to develop and implement site specific Flood Management Plans.

DES requested that the project ensure that no contaminants are released to waters and appropriate mitigation and prevention practices are adopted. The proponent responded that the proposed amendment to condition 17 to include a Flood Management Plan for those worksites affected by tributary or creek flooding (for identified flood or rainfall events) includes a measure to address release of contaminants.

I have considered the information contained within the proponent's project change application and the potential impacts associated with the proposed changes. I am satisfied that:

- the revised conditions will allow for the construction of the Breakfast Creek and Moolabin Creek bridges using standard construction techniques by providing a plan for effective management of potential flooding events that may occur during the works
- Flood Management Plans will provide certainty that the works can be effectively managed in the event of a flood without causing adverse impacts to third parties. However, to ensure clarity within the Imposed Condition, I will require the Flood Management Plans to be reviewed and endorsed by the independent Environmental Monitor prior to the commencement of the relevant works
- the revised conditions would also be a consistent with Imposed Condition 18 relating to erosion and sediment control
- site specific CEMPs and ESCPs, combined with the Waterways and Water Quality management sub-plans, would continue to be implemented to adequately manage flooding impacts during construction
- no changes to the impacts of the project are expected as a result of this change.

I approve the proposed change to Imposed Condition 17 with minor amendments to require the Flood Management Plans to be reviewed and endorsed by the independent Environmental Monitor prior to the commencement of the relevant work.

4.2.7 Environmental Design Requirement 5: Hydrology

The proponent has requested the following changes to Environmental Design Requirement 5:

- include an additional Environmental Design Requirement which distinguishes the requirement for project surface works and new underground works
- replace Environmental Design Requirement 5(i) with the following:

  (i) The Project design achieves the water quality objectives stated for the Brisbane River Estuary environmental values and water quality objectives (Basin No. 143 mid-estuary) referred to in the Environmental Protection (Water) Policy 2009 for water, including groundwater, released from the tunnels and underground stations to surface waters

  (j) The Project design achieves no increase in pollutant loads for water, including groundwater, released from the surface works to surface waters.
- re-number the balance of Environment Design Requirement 5.

The requested changes are depicted below:

Table 4.9 Requested changes to Environmental Design Requirement 5

Requested changes to the condition
Environmental Design Requirement 5: Hydrology
(i) The Project design achieves the water quality objectives stated for the Brisbane River Estuary environmental values and water quality objectives (Basin No. 143 mid-estuary) referred to in the Environmental Protection (Water) Policy 2009 for ~~any~~ water, including groundwater, released from ~~Project infrastructure~~ the tunnels and underground stations to surface waters.
(j) The project design achieves no increase in pollutant loads for water, including groundwater, released from the surface works to surface waters.
(k) The Project design is based on current flooding information to achieve flood immunity to the tunnel infrastructure and underground stations in a 1 in 10,000 year annual exceedance probability (AEP) regional flood event, and a 1 in 100 AEP overland flow event.
(l) The Project design will not cause property damage from flood impacts to third parties for events up to and including the 1 in 100 AEP flood event.
(m) Project Works in Mayne Rail Yard must be designed on the basis of detailed flood modelling.

The proponent has indicated that the requested changes would provide separate water quality objectives for discharges to surface water between water from the new infrastructure (tunnels and underground stations) and surface works constrained by existing adjacent surface infrastructure. The change is sought to recognise that existing surface infrastructure constrains the ability for the project to treat surface water discharged from the new surface project infrastructure to achieve the relevant WQOs.

The proponent is proposing that an appropriate standard for the surface works is a "no worsening" outcome, with the environmental design requirement being for no increase in pollutant loads for discharges (including stormwater runoff) from new project surface infrastructure.

Water quality measurements collected from all surface water that lies within or adjacent to the project footprint consistently exceeded or did not meet their respective WQOs. The nomination of set WQOs and the use of the EPP mid-estuary WQOs EPPs for all water releases is not appropriate for the surface works. Additionally, the proponent states that WQOs are concentration targets that are applicable to discharges during ambient or baseline conditions (dry-weather flows) and not for runoff associated with rain events. The proponent also states that WQOs may be appropriate for the release of groundwater or process water discharges during dry weather but should not be applied to stormwater runoff.

The area proposed for surface development is currently highly impervious, with land uses typically comprising rail ballast, bitumen roads, and car parking, buildings and hardstand. The proponent stated that there are limited opportunities to install treatment drains adjacent to new project surface infrastructure, which would therefore require additional land to be acquired where it is not available.

Any pollutants generated by the operation of the project are likely to be deposited from project infrastructure to the ground. Therefore, targeting removal of sediments from stormwater runoff would assist in removing any pollutants bound to sediment mobilised by stormwater. Pollutant transport during operations will vary depending on the type of surface the stormwater falls on (e.g. rail surface, crew facilities/roads/carparks), and therefore the management response would need to be tailored to the particular surface.

I note that a number of stormwater treatment facilities have been identified to manage operational surface water quality (through the capture and retention of gross pollutants, litter, grit, sediments and associated oils etc.). In Section 3.1.4.2 Volume 3 of the project change application, the proponent has indicated that pollutant control will be implemented as such:

- for surface rail infrastructure: as the likelihood of an increase of pollutant loads in the rail corridor from the project is minimal, the proponent considers that ongoing compliance with AS-7637 for selected rail drainage solutions is suitable
- for crew facilities, roads, and car parks: each potential pollutant control device needs to be assessed to determine if it is suitable for the site conditions. The final selection of potential pollutant control devices should be made by comparing all potential treatments with the required water quality design criteria.

In its submission, DES requested the proponent provide further information to demonstrate “no worsening” outcome could be achieved for the project. DES also indicated that there is a need to consider high efficiency sediment basins that require less space to achieve improvements in water quality.

The proponent responded that site specific ESCPs need to be developed in accordance with the International Erosion Control Association Guidelines. These guidelines require the use of high sediment basins. Additionally, water quality modelling of the proposed development will be undertaken using MUSIC (Model for Urban Stormwater Improvement Conceptualisation) modelling. This model will assess the treatment

performance of the design scenario and compare this to the existing scenario to ensure achievement of a "no worsening" outcome. The proponent stated that this process has been performed for Mayne Yard water quality where the proposed treatment systems are expected to make a substantial contribution to improvements in water quality for runoff from the site.

I have considered the information contained within the proponent's project change application and the potential impacts associated with the proposed changes. I am satisfied that:

- defining appropriate WQOs for surface stormwater releases is required. The WQOs should be specific to the new stormwater infrastructure to be constructed as part of the surface works and be based on pertinent, recognised and relevant guidelines
- it is not feasible nor practical for the operation of the project to achieve the operational design objectives for stormwater quality as set out in the Queensland Water Quality Guidelines based on the information presented in Section 3.1.3, Volume 3 of the project change application. This is due to space limitations (preventing installation of appropriately sized stormwater treatment devices) within the existing rail corridor
- the proponent has advocated that gross pollution traps are one of the only options available where drainage is confined to stormwater pipes and no space for surface treatment is available. The devices will assist in filtering runoff from catchments prior to discharging treated flows to the Brisbane River, and are considered by the proponent likely to fulfil the requirements of the DTMR Road Drainage Manual, which is the technical reference required for all aspects of hydraulic, road drainage, erosion, environmental and sediment control throughout Queensland
- the operation of the project continues to be managed in accordance with relevant standards, including implementation of gross pollution traps to treat the stormwater runoff. The proponent reported that gross pollutant traps currently used at Mayne Yard are successfully managing the treatment of stormwater runoff. Based on the modelling undertaken by the proponent for internal roads, car parks and crew facilities areas, the quality of stormwater runoff from the site is likely to be improved in comparison to the existing condition following the implementation of gross pollutant traps
- the requested change to this condition is required to ensure consistency with the requested changes Imposed Condition 15
- the requested changes would not alter the desired environmental outcomes in relation to the management of surface and groundwater captured and released by the project once operational.

I approve the proposed change to Environmental Design Requirement 5.

4.2.8 Coordinator-General's conclusion: condition changes

I have considered the proponent's information justifying the changes to the Imposed Conditions in the project change application and I am satisfied that the changes are reasonable and warranted to assist with facilitating the delivery of the project in a timely manner and adequately manage the potential impacts of the project.

I am satisfied that the proposed changes to the project's Imposed Conditions are consistent with the operation of the existing environmental management framework (outlined in Section 2.2.1). Under this framework, the project's environmental outcomes and performance criteria must be achieved by the proponent throughout construction via detailed CEMPs and sub plans that are required to be endorsed by the independent Environmental Monitor against the OEMP.

The construction works authorised to occur under the changed Imposed Conditions will be managed through the preparation of site-specific CEMPs, which will include detail of the works to be undertaken and predictive modelling of the potential environmental impacts associated with those works. Specific mitigation measures will also be included in the CEMPs, which will aim to address the predicted impacts, and where relevant, additional consultation with DAPs will be undertaken.

5. Conclusion

This report concludes my evaluation of the proposed project change pursuant to section 35I of the SDPWO Act.

I am satisfied that the requirements of the SDPWO Act have been met and that sufficient information has been provided to enable the evaluation of the proposed changes to the conditions of approval.

I consider that the proposed changes to the project boundary are required to enable the delivery of the project and that the changes to the project's Imposed Conditions would result in acceptable overall outcomes.

Accordingly, I approve the changes to the Cross River Rail project as outlined in this report, subject to the conditions in Appendix 1.

In accordance with section 35K of the SDPWO Act, the Coordinator-General's report on the EIS for the project, and the Coordinator-General's change report, both have effect for the project. However, if the reports conflict, this Coordinator-General's change report prevails to the extent of the inconsistency with earlier reports. The proponent must implement all conditions in this report.

Appendix 1 and 2 of this report replaces Appendix 1, 2 and 3 of the change report dated 4 October 2019 and Appendix 1 of the change report dated 7 May 2020.

In accordance with section 35 of SDPWO Act, this report will lapse on 31 December 2024.

A copy of this report will be issued to the proponent.

A copy of this report and all relevant EIS assessment documentation are available on the Department of State Development's website at **www.dsdmip.qld.gov.au/crr**

Appendix 1. Project-wide Imposed Conditions

Part A. Imposed Conditions (General)

Condition 1. General conditions

(a) The project must be carried out generally in accordance with:

(i) the Cross River Rail Request for Project Change dated May 2020;

(ii) the drawings provided at Volume 2, Cross River Rail Request for Project Change dated May 2020;

(iii) amendments to the Project identified in the Cross River Rail Request for Project Change dated June 2018;

(iv) amendments to the Project identified in the Cross River Rail Request for Project Change dated November 2018;

(v) the Cross River Rail Request for Project Change dated April 2019

(b) The proponent must notify the Coordinator-General and all nominated entities in Schedule 3 in writing of the commencement of Project Works and the commencement of the commissioning and operational phases of each 'construction site' at least 20 business days prior to the relevant commencement date.

(c) The temporary coach terminal works must be carried out in accordance with the conditions imposed at Appendix 3.

Condition 2. Outline Environmental Management Plan

(a) Two months prior to the commencement of Project Work submit a final Outline Environmental Management Plan to the Coordinator-General for approval.

(b) The Outline Environmental Management Plan must:

(i) Include the environment outcomes and performance criteria for each environmental element from the draft outline EMP except as amended by these conditions;

(ii) include possible mitigation measures, monitoring and reporting for each environmental element to achieve the environmental outcomes;

(iii) include an outline of:

(A) the Construction Environmental Management Plan

(B) the Commissioning Environmental Management Plan

(iv) be consistent with the Environmental Design Requirements in Schedule 1

(v) include the following sub-plans:

(A) Community and Stakeholder Engagement Plan

(B) Construction Worksite Management Plan

(C) Construction Traffic Management Plan (CTMP)

(D) Construction Vehicle Management Plan

(E) Water Quality Monitoring Plan

(F) Erosion and Sediment Control Plan

(G) Spoil Placement Management Plan

(H) Noise and Vibration Management Plan

(I) Air Quality Management Plan

(J) Settlement Management Plan

(K) Non-Indigenous Cultural Heritage Management Plan

(L) Indigenous Cultural Heritage Management Plan

(vi) Be made available on the proponent's website once approved by the Coordinator-General and for the duration of the construction of the project and for a period of five years from commencement of operation.

(c) Any further amendments to the Coordinator-General approved Outline Environmental Management Plan will be issued to the Coordinator-General 20 business days prior to the commencement of Relevant Project Works.

Part B. Imposed Conditions (Design)

Condition 3. Design

(a) The project must achieve the Environmental Design Requirements in Schedule 2.

Part C. Imposed Conditions (Construction)

Condition 4. Construction Environmental Management Plan

(a) Prior to the commencement of Project Work, a Construction Environmental Management Plan for those works (Relevant Project Work) must be developed by the Proponent and endorsed by the Environmental Monitor as being consistent with the Outline EMP and these imposed conditions.

(b) The endorsed Construction Environmental Management Plan must be submitted to the Coordinator General at least 20 business days prior to the commencement of Relevant Project Works.

(c) The Construction Environmental Management Plan must:

(i) describe the Relevant Project Work;

(ii) be based on predictive studies and assessments of construction impacts which have regard to the scale, intensity, location and duration of construction works, and location of Directly Affected Persons;

(iii) be generally consistent with the Outline EMP and incorporate its environmental outcomes and performance criteria;

(iv) incorporate and respond to the Imposed Conditions (Construction);

(v) demonstrate that the Imposed Conditions (Construction) will be complied with during Relevant Project Work;

(vi) incorporate the community engagement plan, including the complaints management process, in accordance with Condition 9;

(vii) where predictive studies indicate impacts beyond those provided for in the performance criteria, incorporate mitigation measures to achieve the environmental outcomes;

(viii) establish specific mitigation measures and processes for consultation with Directly Affected Persons for Project Works under Conditions 9(c), 11(c), and 11(e);

(ix) contain a program and procedures for ongoing monitoring to identify the effectiveness of mitigation measures in achieving the Imposed Conditions (Construction) and the environmental outcomes in (iii)

(x) include a process for regular review and if required updating of the Construction Environmental Management Plan, including a process to review and implement additional or different mitigation measures in response to monitoring results;

(xi) incorporate the EMP sub-plans required by the Imposed Conditions or as required by the approved Outline EMP.

(d) The Construction Environmental Management Plan must be implemented for the duration of Relevant Project Work.

(e) Relevant Project Work is authorised if it is undertaken in accordance with the Construction Environmental Management Plan.

(f) The Construction Environmental Management Plan must be publicly available on the project website for the duration of the construction phase.

(g) The Construction Environmental Management Plan may be updated.

(i) updates to the Construction Environmental Management Plan that include new or additional Relevant Project Work must be endorsed by the Environmental Monitor as being consistent with condition 2 before Relevant Project Work may proceed.

(h) Updates to the Construction Environmental Management Plan that are limited to new or different mitigation measures for Managed Work may be endorsed by the Environmental Monitor.

Condition 5. Compliance

(a) The proponent must notify the Environmental Monitor and the Coordinator-General in writing, within 48 hours after becoming aware of a Non-Compliance Event.

(b) The notification must include:

(i) a description of the Non-Compliance Event, including details of the location, date and time of the Non-Compliance Event;

(ii) the name and contact details of a designated contact person;

(iii) an outline of actions that have been or will be taken to respond to the Non-Compliance Event.

(c) Within 14 days following the notification of a Non-Compliance Event, written advice detailing the following information must be provided to the Environmental Monitor and the Coordinator-General:

(i) a description of the Non-Compliance Event, including details of the location, date and time of the Non-Compliance Event;

(ii) the name and contact details of a designated contact person;

(iii) the circumstances in which the Non-Compliance Event occurred;

(iv) details of any complaint in relation to the Non-Compliance Event;

(v) the cause of the Non-Compliance Event;

(vi) a description of the environmental effects of the Non-Compliance Event;

(vii) the results of any sampling or monitoring performed in relation to the Non-Compliance Event;

(viii) actions taken to mitigate the environmental effects of the Non-Compliance Event;

(ix) proposed actions to prevent a recurrence of the Non-Compliance Event, including timing and responsibility for implementation.

(d) The Non-Compliance Event report must be made available on the project website and remain available for the duration of the construction phase for the project.

Condition 6. Reporting

(a) The Proponent must prepare a Monthly Report that summarises compliance and monitoring results for the duration of construction works.

(b) The Monthly Report must include:

(i) monitoring data required by the imposed conditions or Construction Environmental Management Plan undertaken for the period and, where required, an interpretation of the results;

(ii) details of any Non-Compliance Event, including a description of the incident, resulting effects, corrective actions, revised construction practices to prevent a recurrence, responsibility and timing;

(iii) reporting of complaints, including the number of complaints, description of issues, responses and corrective actions.

(c) The Monthly Report must be provided to the Coordinator-General and the Environmental Monitor, and made available on the project website within six weeks of the end of the month to which the report relates, and continue to be available on the project website until commissioning is complete.

(d) The Proponent must provide annual reports to the Coordinator-General and the Environmental Monitor (Annual Report) no later than 31 July in any year during the construction phase about compliance with the imposed conditions.

(e) The Annual Report must include:

(i) a compliance evaluation table detailing the relevant imposed condition, whether compliance with the condition was achieved and how compliance was evaluated;

(ii) an evaluation of compliance in relation to the CEMP and its sub-plans;

(iii) a summary of any Non-Compliance Events during the reporting period;

(iv) a summary of any Non-Compliance Events during the previous reporting period, with details of site remediation activities, corrective actions taken or to be taken and revised practices implemented or to be implemented (as relevant).

Condition 7. Environmental Monitor

(a) The Proponent must engage an independent, appropriately skilled and experienced entity, approved by the Coordinator-General, as the Environmental Monitor for the duration of construction.

(b) The Proponent must ensure that the Environmental Monitor has reasonable site access and access to all information required to perform its function, including, without limitation:

(i) all approvals;

(ii) the Construction Environmental Management Plan;

(iii) results of all monitoring required under the Imposed Conditions (Construction) including through the Construction Environmental Management Plan;

(iv) all information relating to complaints, including access to the complaints database.

(c) The Environmental Monitor must:

(i) monitor compliance with the imposed conditions during the construction of the project;

(ii) monitor compliance with the Construction Environmental Management Plan and sub-plans;

(iii) maintain a register of mitigation measures agreed between the Proponent and Directly Affected Persons (Mitigation Register);

(iv) review the compliance reports required by Condition 5, and the monthly reports and annual reports required by Condition 6, and provide advice to the Coordinator-General and the Proponent on the contents and adequacy of those reports;

(v) review the results of monitoring, which may be verified by the Environmental Monitor including by independent monitoring;

(vi) provide advice to the Proponent about compliance with the Imposed Conditions for construction, including by providing the results of independent monitoring where required;

(vii) provide advice to the Proponent about issues raised in complaints and the response to complaints, including advice from the Community Relations Monitor;

(viii) endorse the Construction Environmental Management Plan as consistent with the Outline EMP and complying with the Imposed Conditions (Construction);

Condition 8. Community Relations Monitor

(a) The proponent must engage an independent, appropriately skilled and experienced entity, approved by the Coordinator-General, as the Community Relations Monitor for the duration of construction.

(b) The Community Relations Monitor must:

(i) review and provide advice to the Environmental Monitor on the community engagement plan required by Condition 9;

(ii) receive monthly reports from the proponent on complaints;

(iii) attend each meeting between the Proponent and a Directly Affected Person to consult on mitigation measures, including providing input on standard responses for similar impacts;

(iv) provide advice to the Environmental Monitor in relation to complaints, community engagement and consultation on mitigation measures;

(v) be available to members of the community in accordance with Condition 9(f)(vi).

Condition 9. Community engagement plan

(a) The Proponent must develop a community engagement plan as part of the Construction Environmental Management Plan consistent with the Outline EMP's Community and Stakeholder Engagement Plan.

(b) The community engagement plan must be given to the Community Relations Monitor for advice at least 10 business days prior to the Construction Environmental Management Plan being provided to the Environmental Monitor.

(c) The community engagement plan must provide for:

(i) Directly Affected Persons to be consulted prior to commencement of Project Works and ongoing thereafter about Project Works, predicted impacts and mitigation measures;

(ii) Directly Affected Persons to be consulted about possible mitigation measures;

(iii) local communities near Project Works to be informed about the nature of construction, including the timing, duration and predicted impacts of the works in advance of their commencement;

(iv) information to be provided to public transport, road users, pedestrians and cyclists about the predicted effects of Project Works on road, rail and pedestrian and cycle network operations, in advance of their commencement;

(v) specific community consultation plans for identified key stakeholders;

(vi) implementation of an Indigenous employment policy, providing for Indigenous training and employment opportunities;

(vii) a process for advance notification to local communities of Project Works, including the timing, duration, predicted impacts and mitigation measures, which is available on the project website and through other media.

(d) The community engagement plan must incorporate a complaints management system developed specifically for the Project, which is established prior to the commencement of Project Works.

(e) The complaints management system must deliver a prompt response to community concerns with relevant information, action where required, and reporting of incidents.

(f) As a minimum, the complaints management system must include the following elements:

(i) a procedure for receiving complaints on a 24 hour, seven days a week basis, during Project Works;

(ii) a mechanism for notifying the community of the complaints procedure and how it may be accessed;

(iii) a process for registering and handling complaints received, including a database for tracking of complaints and actions taken in response;

(iv) a procedure for verifying complaints through monitoring and detailed investigation, and escalating and resolving verified complaints;

(v) a procedure for complaints to be notified to the Community Relations Monitor, including information about the complaint and its resolution;

(vi) access by the community to the Community Relations Monitor; and

(vii) regular reporting via the monthly environmental report, to the community of complaints and corrective actions, maintaining appropriate confidentiality.

(g) All information regarding complaints, including the information collected in Condition 9(f)(iii) must be made available to the Community Relations Monitor.

Condition 10. Hours of work

(a) Surface works for the Project are authorised to be undertaken within the hours of work set out in Table 1.

Table 1. Construction hours

Worksite	Surface works—standard hours	Extended work hours	Managed Work	Spoil haulage and materials/ equipment delivery
Fairfield, Yeronga, Yeerongpilly, Rocklea and Salisbury stations	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm – 10:00pm For approved rail possession—for the duration of the possession	24 hours, 7 days	Monday to Saturday: 6:30am – 6:30pm
Moorooka	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm - 10:00pm For approved rail possession—for the duration of the possession	24 hours, 7 days	Monday to Saturday: 6:30am – 6:30pm

Worksite	Surface works—standard hours	Extended work hours	Managed Work	Spoil haulage and materials/ equipment delivery
Clapham Yard	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm – 10:00pm For approved rail possession—80 hours continuous work	24 hours, 7 days	Monday to Friday: 6:30am – 7:30am, 9:00am – 2:30pm, 4:30pm – 6:30pm Saturday: 6:30am – 6:30pm
Southern portal	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm – 10:00pm For approved rail possession—80 hrs continuous work	24 hours, 7 days	24 hours, 7 days
Boggo Road Railway station	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm – 10:00pm For approved rail possession—80 hrs continuous work	24 hours, 7 days	Monday to Friday: 6:30am – 7:30am, 9:00am – 2:30pm, 4:30pm – 6:30pm Saturday: 6:30am – 6:30pm Additional hours during gazetted school holidays: Monday to Friday: 7:30am – 9:00am, 2:30pm – 4:30pm
Dutton Park Railway station	Monday to Saturday: 6:30am-6:30pm	For approved rail possession—80 hrs continuous work	n/a	24 hours, 7 days, except for: Monday to Friday: 7:00am – 9:00am, 4:30pm – 6:30pm
Woolloongabba Railway station	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm – 10:00pm	24 hours, 7 days	24 hours, 7 days, except for: Monday to Friday: 7:00am – 9:00am, 4:30pm – 6:30pm

Worksite	Surface works—standard hours	Extended work hours	Managed Work	Spoil haulage and materials/ equipment delivery
Albert Street Railway station	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm – 10:00pm	24 hours, 7 days	Monday to Friday: 6:30am – 10:00pm Saturday: 6:30am – 6:30pm
Roma Street Railway station	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm – 10:00pm	24 hours, 7 days	Monday to Friday: 6:30am – 7:30am, 9:00am – 4:30pm, 6:30pm – 10:00pm Saturday: 6:30am – 6:30pm
Northern portal	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm – 10:00pm For approved rail possession—for the duration of the possession	24 hours, 7 days	Monday to Friday: 6:30am – 10:00pm Saturday: 6:30 am – 6:30pm
Exhibition Railway station	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm – 10:00pm For approved rail possession—for the duration of the possession	24 hours, 7 days	Monday to Saturday: 6:30am – 6:30pm
Mayne Railway Yard	Monday to Saturday: 6:30am-6:30pm	Monday to Friday: 6:30pm – 10:00pm For approved rail possession—for the duration of the possession	24 hours, 7 days	24 hours, 7 days

(b) Project Works that are underground, or in a ventilated acoustic enclosure, may be undertaken at any time provided the environmental outcomes are achieved.

(c) Works carried out because of an emergency that:

(i) is endangering the life or health of a person; or

(ii) is endangering the structural safety of a building; or

(iii) is endangering the operation or safety of community infrastructure that is not a building; or

(iv) is required to prevent environmental harm, may be undertaken outside the hours set out in Table 1.

(d) The following work may be undertaken during Extended Work Hours as set out in Table 1 (despite any separate restrictions on equipment delivery hours listed in Table 1), subject

to compliance with a specific Construction Environmental Management Plan sub-plan in accordance with Condition 4:

(i) Project Works within rail corridor land;

(ii) Project Works within a road reserve or busway that cannot be undertaken reasonably nor practicably during standard hours due to potential disruptions to peak traffic flows or bus operations;

(iii) Project Works involving the transport, assembly or decommissioning of oversized plant, equipment, components or structures;

(iv) delivery of "in time" materials such as concrete, hazardous materials, large components and machinery;

(v) Project Works that require continuous construction support, such as continuous concrete pours, pipe-jacking or other forms of ground support necessary to avoid a failure or construction incident.

(e) The works detailed in 10(d) may also be undertaken outside the hours set out in Table 1, only where written confirmation has been obtained from the entity with jurisdiction for Condition 10 prior to commencement of the specific works and subject to compliance with an updated and endorsed site-specific Construction Environmental Management Plan sub-plan in accordance with Condition 4.

(f) Blasting must not occur on public holidays, and is only authorised to occur during the hours of 7:30am to 4:30pm Monday to Saturday, and not on Sundays or public holidays.

(g) Prior to blasting events, at least 48 hours' notice must be provided to persons who may be adversely affected.

Condition 11. Construction Noise and Vibration

(a) Project Works must aim to achieve the project noise goals for human health and well-being presented in Table 2 at a Sensitive Place.

Table 2. Noise goals (internal) for Project Works

	Monday – Saturday 6.30am – 6.30pm	Monday – Friday 6.30pm – 10.00pm (Gabba, CBD only)	Monday – Saturday 6.30pm – 6.30am Sundays, Public Holidays	For Blasting Monday – Saturday 7.30 am – 4:30 pm only
Continuous ($LA_{eq\ adj}$)(1hr)	AS 2107 Maximum design level	40 dBA $LA_{eq\ adj\ (1hr)}$	35 dBA $LA_{eq\ adj\ (1hr)}$	
Intermittent ($LA_{10\ adj}$)(15min)	AS 2107 Maximum design level + 10 dBA	50 dBA $LA_{10,\ adj}$	42 dBA $LA_{10\ adj}$	130 dB Linear Peak

Notes

1. All goals are internal noise levels for human health and well-being outcomes.
2. Where internal noise levels are unable to be measured or monitored, the typical noise reductions presented in the relevant State guideline, such as the Guideline Planning for Noise Control, Ecoaccess, DEHP, January 2017 (currently under review).
3. Adjustments (adj) will be applied as outlined in the Department of Environment and Science Noise Measurement Manual Version 4 August 2013.

(b) During construction monitor and report on noise and vibration in accordance with the Noise and Vibration Management Plan, a sub-plan of the Construction Environmental Management Plan.

(c) Project Works predicted to or monitored as generating noise levels more than 20dBA ($L_{A\ 10\ adj\ (15\ min)}$) above the relevant goal in Table 2. are authorised to occur in a locality only:

  (i) when advance notification and consultation has been undertaken with Directly Affected Persons or potentially Directly Affected Persons about the particular predicted impacts and the approach to mitigation of such impacts;

  (ii) where mitigation measures addressing the particular predicted or measured impacts have been developed on a 'case by case' basis in consultation with Directly Affected Persons;

  (iii) where the mitigation measures are incorporated in a mitigation register and implemented prior to undertaking the Project Works;

  (iv) between the hours 7:00am to 6:00pm Monday to Friday, with a respite period between 12:00noon and 2:00pm each day with the respite only applying where generating noise levels more than 20dBA $LA_{10\ adj\ (15\ min)}$ at a Sensitive Place that is occupied;

(d) The works authorised by Condition 10(d) are not subject to the requirements of Condition 11(c)(iv)

(e) Project Works must aim to achieve the construction vibration goals in Table 3.

Table 3. The construction vibration goals

Receiver type	Cosmetic Damage			Human comfort (mm/s PPV)		Sensitive building contents (mms/PPV)
	Continuous vibration (mm/s PPV)	**Transient vibration (mm/s PPV)**	**Blasting vibration (mm/s PPV)**	**Day**	**Night**	
Residential	According to BS7385 reduced by 50%[4]	According to BS7385	50[1]	According to AS2670	0.5[2]	
Commercial	According to BS7385 reduced by 50%[4]	According to BS7385	50	According to AS2670	-	0.5[3]
Heritage structures	2	-	10	-	-	

Notes:

1. All residential receivers in the vicinity of the Project blasting sites are regarded as reinforced or framed structures (i.e. BS7385)
2. Residential sleep disturbance
3. Equipment specific vibration criteria are required for highly sensitive equipment (i.e. electron microscopes, MRI systems or similar), as part of future site-specific detailed investigations
4. If resonance is present, or if investigation to detect resonance were not able to be undertaken due to a lack of access

(f) Where vibration protection criteria are available for sensitive building contents, predictive modelling must take into account the manufacturer's specifications for tolerance to vibration. To the extent reasonable and practicable, those specifications apply in lieu of the construction vibration goals in Table 3. Where predictive modelling indicates the specified criteria would not be achieved by the Project Works, such works may proceed only in accordance with specific mitigation measures agreed with the potentially Directly Affected Persons.

(g) Project Works predicted to or monitored as generating vibration levels more than 2mm/s for continuous vibration and 10mm/s for transient vibration may occur only:

(i) between the hours 7:00am to 6:00pm Monday to Friday, with a respite period between 12:00noon and 2:00pm each day with the respite only applying where generating vibration levels more than those levels nominated in Table 3 (Human Comfort) at a Sensitive Place that is occupied; or

(ii) in accordance with the mitigation measures developed in consultation with and agreed by Directly Affected Persons that are incorporated in the Mitigation Register.

Condition 12. Property Damage

(a) Prior to the commencement of Project Works, predictive modelling must be undertaken of potential ground movement that may be caused by the Project Works. Such predictive modelling must ascertain the potential for damage due to ground movement being caused to property by Project Works.

(b) Where predictive modelling indicates the Project Works would lead to impacts above the vibration goals for cosmetic damage in Table 3. the proponent must prepare and submit a property damage sub-plan, prior to the commencement of such works, as part of the Construction Environmental Management Plan. The property damage sub-plan must set out the procedure for:

(i) advance communication with potentially Directly Affected Persons;

(ii) procedures for building condition surveys both in advance of and following Project Works, including provision for consultation with property owners and occupants;

(iii) monitoring to be undertaken for potential impacts to property; and

(iv) mitigation measures.

(c) Where a post-construction building condition survey identifies that property damage has occurred as a consequence of the Project Works, such damage must be repaired as soon as practicable by the Proponent at no cost to the property owners. Such repairs must be undertaken in consultation with the property owners and occupants and must return the premises at least to the condition existing prior to commencement of Project Works. The Proponent must agree the timing, method and extent of works required with the affected landowner and must gain permission to undertake such reparation works prior to their commencement.

Condition 13. Air quality

(a) Project Works must aim to achieve the goals in Table 4.

Table 4. Air quality criteria and goals

Criterion	Air quality indicator	Goal	Averaging period
Human Health	Total Suspended Particulates (TSP)	90 µg/m^3	1 year

Criterion	Air quality indicator	Goal	Averaging period
	Particulate matter ((PM$_{10}$)	50 µg/m^3	24 hours
		25 µg/m^3	1 year
Nuisance	TSP	80 µg/m^3	24 hours
	Deposited dust	120 mg/m^2/day	30 days

Notes:

1. When monitored in accordance with the most recent version of AS3580.9.6 Determination of suspended particulate matter – PM10 high volume sampler with size-selective inlet – Gravimetric method. OR AS/NZS 3580.9.9: 2017 Methods for sampling and analysis of ambient air Determination of suspended particulate matter - PM10 low volume sampler - Gravimetric method.
2. When monitored in accordance with the most recent version of AS/NZS 3580.9.3:2003 Determination of suspended particulate matter - Total suspended particulate matter (TSP) - High volume sampler gravimetric method or (TSP) low volume sampler – Gravimetric method.
3. When monitored in accordance with the most recent version of AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method

(b) During construction monitor and report on air quality in accordance with the Air Quality Management Plan, a sub-plan of the Construction Environmental Management Plan.

Condition 14. Traffic and transport

(a) Project construction traffic must be managed to avoid or minimise adverse impacts on road safety and traffic flow, public transport, freight rail movements, pedestrian and cyclist safety, and property access.

(b) During construction workforce car parking must be provided and managed to avoid workforce parking on local streets.

(c) Access for emergency services to project worksites and adjoining properties must be maintained throughout the construction phase.

(d) Practicable access is maintained to adjacent properties throughout the construction phase.

(e) Heavy construction vehicles use only designated routes for spoil haulage and deliveries of major plant, equipment and materials, in accordance with the Construction Environmental Management Plan. The designated haulage routes for each worksite must follow major or arterial roads to the extent practicable and be developed in consultation with the Department of Transport and Main Roads and the Brisbane City Council in preparation of the Construction Environmental Management Plan.

(f) The Construction Traffic Management Plan must be supported by a road safety assessment for the spoil haulage route.

(g) Construction traffic must operate within the requirements of a construction traffic management sub-plan (Construction Traffic Management Plan) incorporated within the Construction Environmental Management Plan.

(h) The Construction Traffic Management Plan must include:

  (i) the proposed access to worksites, with local or minor roads only used where unavoidable to access a project worksite;

  (ii) a process for advance notice to Directly Affected Persons and local communities within the vicinity of the spoil haulage routes and worksite accesses;

  (iii) local traffic management measures developed in consultation with Brisbane City Council for key intersections:

    (A) in Bowen Hills including Bowen Bridge Road, College Road and O'Connell Terrace;

(B) in the CBD including Albert Street, Charlotte Street, Elizabeth Street and Roma Street;

(C) at Woolloongabba including Leopard Street, Stanley Street, Vulture Street and Main Street;

(D) at Dutton Park including Annerley Road, Peter Doherty Street, Joe Baker Street and Boggo Road, as well as Kent Street, Cornwall Street and Ipswich Road;

(E) in the area of the Fairfield to Salisbury stations and Clapham Yard works.

(iv) specific traffic management measures developed in consultation with other key stakeholders, including:

(A) the department administering the *Economic Development Act 2012* with regards traffic management in the Queens Wharf Brisbane priority development area;

(B) Queensland Rail about maintaining access to railway stations; and

(C) the department administering the *Transport Infrastructure Act 1994* and the Brisbane City Council about maintaining operations for bus services along streets affected by the Project Works.

(i) Project Works must be designed, planned and implemented to maintain acceptable footpath and cycle paths in areas adjacent to project worksites in terms of capacity, legibility and pavement condition. The proponent must consult with the Brisbane City Council and Queensland Rail about changes in pedestrian and cycle paths required to facilitate Project Works.

Condition 15. Water quality

(a) Discharge of groundwater from Project Works must comply with:

(i) the Brisbane River Estuary environmental values and water quality objectives (Basin no. 143 - mid-estuary) in the Environmental Protection (Water) Policy 2009;

(ii) in the vicinity of Moolabin Creek, Yeerongpilly - Oxley Creek - Lowland freshwater environmental values and water quality objectives (Basin no. 143 (part) - including all tributaries of the creek) in the Environmental Protection (Water) Policy 2009.

Note that surface water runoff and dewatering activities from sediment basins and surface excavations associated with surface construction works is managed in accordance with Imposed Condition 18.

(b) During construction monitor and report on water quality in accordance with the Water Quality Management Plan, a sub-plan of the Construction Environmental Management Plan.

Condition 16. Water resources

(a) Prior to the commencement of Project Works involving excavation, the Proponent must undertake predictive modelling of the potential for groundwater drawdown. The predictive modelling must be based on validated monitoring data and must address the likely extent of any drawdown over time, up to the time when such movement reaches equilibrium.

(b) Project Works must be designed, planned and implemented to avoid where practicable and otherwise minimise the inflow of groundwater to the Project Works, including excavations, the underground stations and tunnels, having regard for the predictive modelling.

(c) The Proponent must monitor the inflow of groundwater to the Project Works and compare monitoring data with the predictive modelling. If the rate of groundwater inflow rate exceeds 1L/sec in any worksite, the proponent must revise work methods and devise and implement mitigation measures as soon as practicable.

Condition 17. Surface water

(a) For underground tunnels and stations - Project Works, and worksites, must be designed and implemented to avoid inundation from stormwater due to a 2 year (6hr) ARI rainfall event and flood waters due to a 5 year ARI rainfall event.

(b) A Flood Management Plan that applies to all worksites affected by tributary or creek flooding (in a 5 year ARI flood event and stormwater during a 2 year ARI rainfall event) must be endorsed by the independent Environmental Monitor prior to the commencement of Relevant Project Work. A Flood Management Plan is not relevant to flooding of the Brisbane River (main channel).

(c) The Flood Management Plan must include, as a minimum:

  (i) general description of the Relevant Project Works

  (ii) flood assessment

  (iii) specific flood management measures, including:

    (A) appropriate storage of materials and equipment

    (B) early warning indicators

    (C) risk management for predicted rainfall events

    (D) risk management for predicted tidal flooding events for works in the tidal zone

    (E) risk management for unpredicted flood events

  (iv) Tidal works management for works in the tidal zone, including:

    (A) barge and marine equipment details

    (B) barge mooring plan

    (C) vessel traffic management plan

    (D) marking of navigational hazards.

(d) Project works must be designed and implemented to avoid afflux or cause the redirection of uncontrolled surface water flows, including stormwater flows, outside of worksites.

Condition 18. Erosion and sediment control

(a) An erosion and sediment control sub-plan that is consistent with the Guidelines for Best Practice Erosion and Sediment Control (International Erosion Control Association, 2008) and the Department of Transport and Main Roads' Technical Standard MRTS52 – Erosion and Sediment Control must be submitted as part of the Construction Environmental Management Plan.

Condition 19. Acid sulphate soils

(a) Acid sulphate soils must be managed in accordance with the methods and requirements of the latest edition of the *Queensland Acid Sulphate Soil Technical Manual*.

Condition 20. Landscape and open space

(a) Project Works are designed and implemented to minimise impacts on landscape and open space values.

(b) Project works and worksites in Victoria Park must be designed, planned and implemented to avoid, or minimise the loss of trees and ornamental plantings, and must minimise the area of the park directly impacted during such works.

(c) Worksites in Victoria Park must be enclosed with a visually solid screen and any night lighting including security lighting must be situated to minimise the spill of light beyond the worksite enclosures.

(d) Existing pathways and recreational facilities in Victoria Park must be relocated within the park for the duration of the works, in consultation with the Brisbane City Council. Upon completion of the project works, such pathways and facilities must be re-established in locations in the park in consultation with the Brisbane City Council.

Condition 21. Worksite rehabilitation

(a) Worksites for project infrastructure, such as the surface connections, stations and ancillary buildings must be rehabilitated as soon as practicable upon completion of the works.

(b) All other worksites required to support commissioning activities must be rehabilitated as soon as practicable on completion of commissioning or sooner where possible.

(c) Rehabilitation must address soil erosion and sedimentation, dust nuisance and landscape and visual impact.

(d) Any planting, landscaping and streetscape works undertaken as part of rehabilitation must be undertaken in accordance with landscape and urban design plans prepared in consultation with the Brisbane City Council.

Part D. Imposed Conditions (Commissioning)

Condition 22. Environmental design requirements

(a) The Proponent must conduct such testing and monitoring as is necessary to demonstrate that the Environmental Design Requirements in Schedule 1 have been satisfied.

(b) At the completion of Commissioning, the Proponent must give written notice to the Coordinator-General that the Project has achieved the Environmental Design Requirements in Schedule 1.

Condition 23. Commissioning

(a) Commissioning may be carried out in stages.

(b) Testing for commissioning must be supported by advanced notice to local residents and businesses.

(c) Testing for commissioning must not cause an exceedance of the goals in Table 2, Table 3, Table 4 or Condition 15.

Schedule 2. Environmental Design Requirements

1. Traffic and transport

(a) Emergency access and evacuation for each station and the tunnel is designed in consultation with the Emergency Service Authorities.

(b) Station plazas and forecourts are of a sufficient size and dimension to avoid peak pedestrian flows spilling onto adjacent carriageways. Where the overflow of pedestrians onto carriageways cannot be avoided, local traffic management measures addressing such circumstances must be designed and implemented prior to the commencement of Project operations.

(c) Pedestrian and cycle pathways in the vicinity of stations are designed in accordance with Rail Infrastructure Manager's and TMR's requirements.

(d) The design of driveways and roadworks for the Project avoid conflicts between construction traffic and cyclists and pedestrians.

(e) New footpaths, pedestrian walkways and pedestrian road crossings in the vicinity of stations are designed, in consultation with BCC and emergency services authorities, to allow safe and efficient pedestrian movement during peak periods and, where applicable, major events at the Brisbane Cricket Ground (Woolloongabba station), Lang Park (Roma Street station) and the RNA Showgrounds (Exhibition station).

(f) The Project design provides for pedestrian connectivity between the PA Hospital, Boggo Road Busway station and Park Road Railway station, and incorporates appropriate crime prevention through environmental design (CPTED) principles and Disability Discrimination Act 1992 (DDA) compliant vertical transport facilities.

2. Air Quality

(a) Ventilation outlets from underground stations are designed and sited so as not to cause an increase in air temperature of more than one degree Celsius, measured as an hourly average, or concentrations of ambient air contaminants that exceed air quality objectives.

(b) The Project is designed so that it does not cause the air quality objectives specified in Table 5 to be exceeded.

(c) The ventilation outlets are designed to avoid discharging directly into an air intake for any other ventilation or air conditioning system that is in place at the time of detailed design and construction of the relevant ventilation outlet.

Table 5. Ambient air quality outcomes

Pollutant	Air Quality Objective	Average Period
Total Suspended Particulates (TSP)	90 µg/m^3	Annual
Particulates as PM10 (<10 µm)	50 µg/m^3	24 hours
	25 µg/m^3	Annual

3. Noise and Vibration

(a) Where practicable, the Project is designed to achieve the following noise criteria for railway surface track airborne noise emissions:

(i) 65 dBA, evaluated as the 24 hour average equivalent continuous A-weighted sound pressure level;

(ii) 87 dBA, evaluated as a Single Event Maximum sound pressure level.

Note: The Single Event Maximum (SEM) Sound Level will be calculated as follows:

- If the number of single events due to train passing is larger than 15 over a 24-hour period, use the arithmetic average of the maximum levels for the highest 15 events.
- If the number of single events due to train passing is equal to or less than 15 over a 24-hour period, use the arithmetic average of the maximum levels for all the train events (e.g. if a total of 13 passes occur over a 24-hour period, use the arithmetic average of all 13 movements).
- Noise modelling or monitoring activities aimed at assessing performance against the Planning Levels must be undertaken 1 metre from the most exposed façade of an affected building an 0.5 metres below the eave height.

(b) Where practicable, the Project is designed to achieve the goals for ground-borne noise provided in Table 6 and for vibration provided in Table 7.

(c) Ventilation systems, mechanical plant, and electricity feeder stations at or near stations are designed and sited to operate within the noise goals outlined in Table 8.

Table 6. Ground-borne noise design criteria (rail operations) – tunnels and underground station

Receiver	Time of day	Internal noise design criteria (dBA)
Residential	07:00-22:00	40dBA
	22:00-07:00	35dBA
Schools, educational institutions, places of worship.	When in use	40dBA to 45dBA
Retail areas	When in use	50dBA to 55dBA
General office areas	When in use	45dBA
Private offices and conference rooms	When in use	40dBA
Theatres	When in use	35dBA

Table 7. Ground-borne vibration design criteria (rail operations)

Receiver type	Period	Vibration goal (vibration velocity)
Residential	Day/ night	106dBV (0.2 mm/s)
Commercial and community facilities (including schools and places of worship)	When in use	112dBV (0.4 mm/s)
Industrial	When in use	118dBV (0.8 mm/s)
Sensitive equipment within medical or research facilities	When in use	82dBV (0.013 mm/s)

Table 8. Mechanical plant noise goals (operations)

Receiver	Time of day	Background (b/g) noise creep dBA LA_{90} (1 hour)	Acoustic quality objectives dBA LA_{eq} (1 hour)
Residential (for outdoors)	07:00 - 22:00	b/g + 0	-
	22:00 - 07:00	b/g + 0	50

Receiver	Time of day	Background (b/g) noise creep dBA LA_{90} (1 hour)	Acoustic quality objectives dBA LA_{eq} (1 hour)
Residential (for outdoors)	07:00 - 22:00	-	35
	22:00 - 07:00	-	30
Library and educational institution (for indoors)	When in use	-	35
Commercial and retail activity (for indoors)	When in use	-	45

4. Settlement

(a) Detailed design of the alignment and underground stations will be informed by a detailed ground settlement analysis, based on hydrogeological and geological modelling

(b) The settlement analysis will indicate the predicted horizontal and vertical extent of ground settlement for the Project Works and the time period over which such ground settlement would occur.

5. Hydrology

(a) A hydrogeological model will be developed during detailed design and before construction of relevant sections to determine ground conditions along the tunnel section.

(b) Further borehole investigations, groundwater monitoring and permeability testing at the station locations and along the tunnel alignment to identify and characterise any major transmissive features and better constrain the local hydrogeological model for detailed design.

(c) Review available bore construction records and target aquifers to determine the suitability of monitoring bores installed during the geotechnical investigations for ongoing groundwater monitoring for construction and commissioning. Following this review, additional bores may be proposed to address gaps identified in the groundwater monitoring network.

(d) Identify through surveys and consultation, water bores in the area potentially affected by groundwater drawdown and implement measures to mitigate potential effects on identified bores.

(e) In the event a new 'groundwater feature' (e.g. areas of high groundwater flow/ yield) is identified along the Project alignment, further detailed groundwater monitoring would be undertaken to characterise the feature and identify potential impacts to the environment. Additional management measures would be developed, where required.

(f) Develop and implement design measures and construction methods to minimise groundwater inflows in to the construction area.

(g) The Project design provides for the capture of groundwater seepage, should it enter the underground structures, and the subsequent treatment of such groundwater prior to its release to an approved discharge point.

(h) Where the project design anticipates groundwater entering underground structures, the design provides:

  (i) measures to minimise settlement due to project-induced drawdown;

  (ii) measures to ensure structural integrity and Project operational safety; and

  (iii) measures to minimise the risk of exposing acid sulphate soils to air or the chance for oxidation.

(i) The Project design achieves the water quality objectives stated for the Brisbane River Estuary environmental values and water quality objectives (Basin No. 143 mid-estuary) referred to in the Environmental Protection (Water) Policy 2009 for water, including groundwater, released from the tunnels and underground stations to surface waters.

(j) The project design achieves no increase in pollutant loads for water, including groundwater, released from the surface works to surface waters.

(k) The Project design is based on current flooding information to achieve flood immunity to the tunnel infrastructure and underground stations in a 1 in 10,000 year annual exceedance probability (AEP) regional flood event, and a 1 in 100 AEP overland flow event.

(l) The Project design will not cause property damage from flood impacts to third parties for events up to and including the 1 in 100 AEP flood event.

(m) Project Works in Mayne Rail Yard must be designed on the basis of detailed flood modelling.

6. Cultural Heritage

(a) The Project design reflects and minimises the impact on the cultural and historical significance of places where surface works occur, and where reasonable and practicable, avoids or minimises the direct impact on heritage values of such places.

(b) The Project design acknowledges a locality's historical significance or cultural significance to Aboriginal people through input to:

  (i) place naming;

  (ii) interpretative signage and other landmarks; and

  (iii) the themes for public art.

(c) In developing the Project design, the Proponent would provide opportunities for architectural design sympathetic to the cultural heritage landscape and streetscape.

7. Climate change and sustainability

(a) Project ventilation systems are designed to minimise energy consumption while achieving acceptable passenger comfort and air quality outcomes in both the ambient environment and the Project stations and tunnel system.

(b) The Project is designed to be adaptable to conditions that may arise as a result of climate change, including accommodating the predicted 1.0 m sea level rise scenario in 2100 (upper range).

(c) Sustainability initiatives, particularly in relation to energy consumptions and savings throughout the Project lifecycle are incorporated in detailed design and tracked via a Sustainability Tool (e.g. ISCA's rating tool) through to Project implementation.

(d) In design and construction, devise and implement a process for optimising energy efficiency in construction planning and delivery (e.g. component sourcing and transportation, spoil and materials handling – no double handling, programing to avoid re-work or redundant work).

(e) In operations, energy efficient design that meets the performance criteria of all Project plant and equipment would be included in the design specification.

8. Land use and tenure

(a) Minimise the 'footprint' of the Project during both construction and operations to reduce impacts on existing land uses through design refinement.

(b) The Project design seeks to optimise land use and transport integration with:

(i) PA Hospital, Boggo Road Busway station, Park Road Railway station and Boggo Road Urban Village;

(ii) Woolloongabba Priority Development Area (PDA);

(iii) Albert Street;

(iv) Roma Street; and

(v) Bowen Hills PDA.

(c) The Project is to be designed in consultation with:

(i) Rail Infrastructure Manager in relation to use of Railway land required for project worksites; and

(ii) Proponents for urban development projects at Boggo Road Urban Village, Woolloongabba PDA, Albert Street and Roma Street redevelopment and Royal National Agricultural and Industrial Association of Queensland (RNA) redevelopment.

(d) The Project design minimises the loss of public open space in Victoria Park during construction.

9. Visual amenity and lighting

(a) The Project design seeks to minimise the visual impact of the above-ground infrastructure with regards to its scale, height and bulk. Specific urban design and visual impact studies are required to inform detailed design for:

(i) the station ventilation outlets and intake structures;

(ii) the above-ground electricity feeder stations;

(iii) the portals and transition structures; and

(iv) noise barriers and other impact mitigation devices or structures.

(b) Where required, noise barriers are designed to reduce the visual impacts to surrounding properties and roadways by:

(i) incorporating urban design treatments and landscape elements such as massed plantings;

(ii) using clear or transparent materials to maintain existing expansive views beyond the rail corridor, subject to security and maintenance considerations being evaluated; and

(iii) avoiding the use of highly reflective materials and materials that support graffiti.

(c) Landscaping, urban design and public art treatments sympathetic to heritage landscape and streetscape values are incorporated into the design of Project Works at stations and thoroughfares accessing stations.

10. Social environment

(a) The design of stations and public spaces developed as part of the Project stations incorporate CPTED principles to maximise commuter safety.

11. Waste

(a) The Project is designed to minimise waste generation and maximise the reuse and recycling of waste materials generated by the Project during its construction and operation.

(b) Opportunities are investigated during the detailed design phase for the use of recycled materials, including for Project infrastructure produced from concrete, road base, asphalt and other construction materials.

(c) During detailed design, the feasibility of re-using material excavated from the Project is investigated.

Schedule 3. Nominated entities with jurisdiction for conditions

Table A1 lists the organisations/agencies responsible for each of the Coordinator-General's Imposed Conditions (Appendix 1).

Table A1. Entities with jurisdiction for Coordinator-General Imposed Conditions

Part	Approval	Condition no.	Entity with jurisdiction
A	General conditions	1	Coordinator-General
A	Outline Environmental Management Plan	2	Coordinator-General
B	Design	3	Chief Executive, TMR
C	Construction Environmental Management Plan	4	Chief Executive, TMR
C	Compliance	5	Chief Executive, TMR
C	Reporting	6	Chief Executive, TMR
C	Environmental Monitor	7	Coordinator-General
C	Community Relations Monitor	8	Coordinator-General
C	Community engagement plan	9	Chief Executive, TMR
C	Hours of work	10	Chief Executive, TMR
C	Construction Noise and Vibration	11	Chief Executive, TMR
C	Property Damage	12	Chief Executive, TMR
C	Air Quality	13	Chief Executive, TMR
C	Traffic and Transport	14	Chief Executive, TMR
C	Water quality	15	Chief Executive, TMR
C	Water resources	16	Chief Executive, TMR
C	Surface water	17	Chief Executive, TMR
C	Erosion and sediment control	18	Chief Executive, TMR
C	Acid sulphate soils	19	Chief Executive, TMR
C	Landscape and open space	20	Chief Executive, TMR
C	Worksite rehabilitation	21	Chief Executive, TMR
D	Environmental design requirements	22	Chief Executive, TMR
D	Commissioning	23	Chief Executive, TMR

Schedule 4. Definitions

Directly Affected Persons means an entity being either the owner or occupant of premises for which predictive modelling or monitoring indicates the project impacts would be above the performance criteria in the Imposed Conditions.

Construction Environmental Management Plan means the Construction Environmental Management Plan referred to in Condition 4.

Outline EMP means the Outline EMP approved by the Coordinator-General in Condition 2.

Managed Work means Project Work for which either the predicted or monitored impacts meet the performance criteria at a Sensitive Place.

Non-Compliance Event means Project Works that do not comply with the Imposed Conditions

Predictive Modelling means the use of appropriate analytical scenario testing, whether or not by numerical measurements, undertaken prior to the commencement of Project Works.

Project Work means any works, including early works, demolition works or site preparation works, for construction of the project. Project Work does not include:

- any works associated with the demolition of buildings and structures on State owned land;
- works involving the relocation or replacement of public utilities when undertaken by a public utility authority or provider;
- the placement and management of spoil at spoil placement locations
- works associated with the temporary Roma Street Coach Terminal.

Sensitive Place means:

- a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel)
- a library, childcare centre, kindergarten, school, university or other educational institution
- a medical centre, surgery or hospital
- a protected area
- a public park or garden that is open to the public (whether or not on payment of money) for use other than for sport or organised entertainment
- a work place used as an office or for business or commercial purposes, which is not part of the project activity(ies) and does not include employees accommodation or public roads.

Appendix 2. Coordinator-General's recommendations for the Cross River Rail project

This appendix includes the Coordinator-General's recommendations for the Cross River Rail project.

Recommendation 1. **Ecosciences building planning**

The proponent should continue to undertake consultation with the key stakeholders to minimise constraints on the planned development of the stage 2 of the Ecosciences Precinct.

Recommendation 2. **Greenspace planning**

The proponent should liaise with Brisbane City Council to offset the loss of public open space/pocket parks in accordance with Element 6 Nature Conservation of the OEMP.

Recommendation 3. **Silicosis**

The proponent should consider the findings from the Coal Workers' Pneumoconiosis Select Committee final report, Black Lung White Lies – Inquiry into the re-identification of Coal Workers' Pneumoconiosis in Queensland. Implement relevant recommendations regarding the potential impacts from silica to underground workers involved in tunnelling construction (silicosis) and include in:

(a) The Hazard and Risk sub-plan and/or

(b) The Air Quality sub-plan

Recommendation 4. **Mined tunnelling**

Mined tunnelling should be implemented in accordance with the *Work Health and Safety Act – Tunnelling Code of Practice 2011* and the Excavation Work Code of Practice 2017.

Recommendation 5. **Myer Centre carpark**

The proponent should undertake an assessment taking into consideration the potential impacts on surface pedestrian, traffic and public transport networks of the proposed changes to exit arrangements for the Myer Centre carpark in consultation with Brisbane City Council and Myer Centre management.

Recommendation 6. **Freight**

The proponent should engage and consult with key stakeholders such as the Western Freight Users Group and the Rail Infrastructure Manager regarding the possession of the rail corridor to reduce potential impacts on rail freight movements during construction in accordance with Element 2 of the OEMP.

Recommendation 7. **Pavement impacts**

In consultation with Brisbane City Council, the proponent should develop mitigation measures to address any assessed pavement damage on local roads from project spoil haulage.

Recommendation 8. **Noise and Vibration**

The proponent should consult with relevant advisory agencies in the development of mitigation measures for predicted and monitored noise and vibration impacts above the goals for the CEMP.

Recommendation 9. **Dust impacts - Southern Portal / Boggo Road Railway station worksites**

The proponent should conduct predictive air quality modelling for early construction earthworks prior to the commencement of Project Works. Should exceedance of the goals in Table 4 of the Imposed Conditions be predicted, I recommend that consultation be undertaken with relevant entities including representatives of the PA Hospital, Leukaemia Foundation ESA Village, Ecosciences Precinct and the TRI building in the development of mitigation measures.

The proponent should establish real-time monitoring, with monitoring stations positioned at appropriate locations around the proposed worksites. Should exceedances of the goals in Table 4 be monitored or occur during construction, that are attributable to the project, the proponent should revise their adaptive management approach where necessary.

Recommendation 10. **Boggo Road Pedestrian Connection**

It is recommended that the Proponent refine the "Boggo Road Pedestrian Bridge Concept" (as shown in the Response to Submission Report dated June 2019) in consultation with the Department of Transport and Main Roads, Brisbane City Council, Ecosciences and the Princess Alexandra Hospital to maintain consistency with the Environmental Design Requirements for Traffic and Transport.

Recommendation 11. **Traffic Management**

In developing the Construction Traffic Management Plans required by Imposed Condition 14, it is recommended that the Proponent:

- continue to participate in the Traffic Management Liaison Group, together with Brisbane City Council, Translink and DTMR;
- undertake detailed analysis and modelling of the proposed temporary closure and diversion of the Inner Northern Busway at Roma Street;
- provide the outcomes of that analysis to Brisbane City Council and Translink to inform future public transport timetable management to accommodate the temporary diversion;
- consider the concurrent construction of other projects in the central business district in determining the appropriate spoil haulage hours in the central business district through the Construction Traffic Management Plan;
- consider the appropriate spoil haulage and materials equipment delivery hours at worksites in the vicinity of schools, taking into consideration student drop-off and pick-up hours between 7-9am and 2-4pm on school days.

Recommendation 12. **Parkland Boulevard**

It is recommended that the Proponent investigate the feasibility of upgrading access between the Roma Street Parklands and Parkland Boulevard Apartments and the external road network, with particular emphasis given to considering whether amendments to the College Road/Wickham Terrace/Gregory Terrace/Parkland

Boulevard intersection could accommodate an alternative egress point for Roma Street Parklands residents.

Recommendation 13. **Flood studies**

It is recommended that detailed hydraulic modelling be conducted as part of the final detailed design for the bridge structures in Breakfast Creek and Moolabin Creek. Brisbane City Council should be consulted on hydraulic modelling which will inform construction methodology and bridge design. Hydraulic modelling should be provided to Brisbane City Council for review and comment.

Recommendation 14. **Consultation with key stakeholders**

It is recommended that the Proponent should continue to undertake consultation with directly affected persons and key stakeholders for the duration of construction, to minimise and manage Project impacts.

Recommendation 15. **Noise mitigation at Dutton Park**

Consistent with achieving the Environmental Design Requirements for Noise and Vibration, it is recommended that where predictive modelling indicates exceedances of the noise criteria for railway surface track airborne noise emissions, the Proponent consult with Queensland Rail and residents of Cope Street during detailed design and consider noise mitigation measures that balance achieving compliance with MD-15-317, operational rail requirements and amenity impacts for residents of Cope Street.

Recommendation 16. **Noise mitigation at Albert Street and Roma Street**

To assist with meeting the project's construction noise criteria for night time cavern excavation and construction works, it is recommended that the Proponent consider (as part of the detailed construction planning) the use of a high performance enclosure for noise attenuation generally in the location of the "purpose built acoustic enclosure" shown on Drawing CRR-0003-CD-GA-150 and Drawing CRR-0003-CD-GA-155.

Recommendation 17. **Managing impacts on homeless persons and associated community service providers**

It is recommended that the Proponent continue to work in cooperation with key stakeholders, including the Queensland Council of Social Service, Department of Housing and Public Works, Department of Communities, Queensland Health, Brisbane City Council and government funded Micah Projects to provide appropriate assistance to homeless persons who may be adversely affected by the Project Works. In particular. the proponent should use targeted communication at each construction site and engage relevant stakeholders early to ensure appropriate notice is provided to homeless people and service providers prior to construction commencing.

Acronyms and Abbreviations

Acronym	Definition
ARI	Annual Recurrence Interval
BCC	Brisbane City Council
CBD	Central Business District
CEMP	Construction Environmental Management Plan
CGCR	Coordinator-General's change report
CGER	Coordinator-General's evaluation report
CRRDA	Cross River Rail Delivery Authority
CEP	Community Engagement Plan
CTMP	Construction Traffic Management Plan
DAP	Directly Affected Person
DES	Department of Environment and Science
DNRME	Department of Natural Resources, Mines and Energy
DTMR	Department of Transport and Main Roads
dB(A)	A-weighted decibels
EIS	environmental impact statement
EPP	Environmental Protection Policy
ESCP	Erosion and Sediment Control Plan
EVs	Environmental Values
HMP	Haulage Management Plan
m	metres
OEMP	Outline Environmental Management Plan
QR	Queensland Rail
RNA	Royal National Agricultural and Industrial Association of Queensland
SDPWO Act	*State Development and Public Works Organisation Act 1971*
WQO	Water quality objectives

Glossary

Term	Definition
coordinated project	A project declared as a 'coordinated project' under section 26 of the SDPWO Act. Formerly referred to as 'significant project'.
Coordinator-General	The corporation sole constituted under section 8A of the SDPWO Act and preserved continued and constituted under section 8 of the SDPWOA Act.
imposed condition	A condition imposed by the Queensland Coordinator-General under section 54B of the SDPWO Act. The Coordinator-General may nominate an entity that is to have jurisdiction for that condition
June 2019 CGCR	The Coordinator-General's change report dated 26 June 2019
significant project	A project declared (prior to December 2012) as a 'significant project' under section 26 of the SDPWO Act. Projects declared after 21 December 2012 are referred to as 'coordinated projects'.
the project	The project described in the Coordinator-General's Evaluation Report dated 20 December 2012.

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