

Construction Environmental Management Plan

Cross River Rail – Rail, Integration and Systems Alliance

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Revision Details

Rev	Remarks
A	Final C-EMP for Review and endorsement by the Independent Environmental Monitor (IEM)
B	Updated C-EMP to incorporate comments from the Independent Environmental Monitor
C	Updated C-EMP to incorporate comments from the Independent Environmental Monitor
00	Endorsed by the Independent Environmental Monitor for Advance Works and Enabling Works
01	For Endorsement by the Independent Environmental Monitor for the following additional RIS Scope of Works Northern Stage 1 Works Mayne Yard North Stage 1 & 2B RNA Stage 1

1 Purpose of this Plan

The Cross River Rail Delivery Authority (the Delivery Authority) is responsible for facilitating the efficient delivery of the Cross River Rail (CRR) Project (the Project).

Cross River Rail will be delivered in partnership with the private sector through three major infrastructure packages of work: the Tunnel, Stations and Development (TSD) public-private partnership; the Rail, Integration and Systems (RIS) alliance; and the European Train Control System (ETCS) contract.

The Rail, Integration and Systems (RIS) alliance will be delivered by the UNITY Alliance.

The Construction Environmental Management Plan (C-EMP) forms the basis of the construction assurance program to be implemented during UNITY's construction and commissioning activities, until such time as it provides all relevant written notices to the Delivery Authority that the RIS Project has achieved environmental design requirements.

The C-EMP is compiled based on the requirements of the CPB Contactors Management System (CMS), as outlined in the Alliance Management Plan (AMP), and has been specifically tailored to ensure compliance with the CRR Project requirements.

1.1 Background

This plan describes UNITY's systems and processes for environmental management and the strategies we will implement throughout construction and commissioning to effectively minimise and where possible, avoid impacts to the environment and community, while remaining compliant with the RIS Project's Conditions of Approval.

It presents best-practice environmental management strategies, plans and commitments in accordance with currently known Conditions of Approval and Delivery Authority requirements, and outlines the controls we use to address specific issues identified in the:

- Coordinator-General's Change Report (CGCR) - 26 June 2019
- May 2019 Request for Project Change (RfPC)
- Cross River Rail Outline Environmental Management Plan (OEMP), approved by the Coordinator General on 18 December 2018
- Environmental Design Report (EDR)
- Sustainability Management Plan (SMP)

This includes but is not limited to:

- Noise and vibration management
- Air quality management
- Heritage management
- Water quality management.

UNITY's environmental sub-plans identify the project activities specific to each environmental aspect that presents a potential environmental risk. Each sub-plan details the main controls UNITY will use to manage and minimise impacts on the environment, reflecting best-practice mitigation measures and guidelines.

1.2 Project Summary

Details of the full project scope inclusive of the RIS alliance scope of works are presented in the Request for Project Change published for Public Consultation in May 2019.

The details can be found on the project website: <https://crossriverrail.qld.gov.au/eis-project-changes/>

The RIS Alliance scope of works spans the following key areas defined as:

- **Mayne Area** – the rail corridor bounded by the southern side of Albion Station, the northern side of O’Connell Terrace and the southern side of Bowen Hills Station
- **Northern Area** – the Exhibition loop rail corridor bounded by the northern side of O’Connell Terrace and the northern portal near the northern end of College Road
- **Southern Area** – the rail corridor commencing south of Dutton Park Station south of the Southern Portal and which generally follows the rail corridor to just south of the existing Salisbury railway station.

1.3 Project Works - Activities Summary

The Coordinator-General’s change report defines Project Works as follows in Appendix 1, Schedule 3:

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.

For the purpose of this C-EMP, the Project Works addressed in the Plan include:

- Advance Works – site wide – site investigations comprising of intrusive and non-intrusive works:
 - Intrusive works include but may not be limited to:
 - Positive Public Utility Plant (PUP) locations identification
 - Geotechnical Surveys
 - Contaminated Land, Acid Sulphate Soils and groundwater Surveys
 - Non-intrusive works include but may not be limited to:
 - PUP locations pre-identification
 - Traffic control works, that is traffic management and access to support the intrusive and pioneering works
 - Topographical and boundaries surveys
 - Dilapidation surveys
 - Environmental surveys such as fauna and flora surveys, heritage values assessment and recording
 - Environmental monitoring such as surface water, groundwater, background noise, vibration and air quality monitoring
- Enabling Works – select locations:
 - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston
 - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback
 - Mayne North Enabling Works which consist of decommissioning Mayne North Yard
 - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor

- Major Construction Works – site wide
 - **Southern Stages – Fairfield to Salisbury (F2S) and Southern Portal Construction Activities:**
The two key features of the southern area are the F2S stations and Clapham Yard:
 - F2S stations package, comprises six stations upgrades including:
 - Third platform added at each station to increase capacity
 - Work at all six stations to improve operations
 - New pedestrian bridge over Clapham Yard at Moorooka station, to connect the new third platform to the existing station platforms
 - Clapham Yard stabling facilities expanded to provide additional train storage and maintenance inclusive of a new bridge over Moolabin Creek
 - Staging in the southern area requires varying levels of corridor access including using the existing standard possessions of the Inner City, Cleveland and Gold Coast lines:
 - Standard possessions – between November 2019 and March 2024
 - Night Works – Working windows of ‘after last train’ and ‘before first train’
 - Extended possessions – around public holidays for commissioning works
 - **Tunnel Stages:** Tunnel construction will be managed by the TSD consortium. However, UNITY will be responsible for integration of the traction power, signalling system and building management system into the Queensland Rail operational network at the Rail Management Centre (RMC) and Disaster Recovery Centre (DRC)
 - **Northern Stages – Northern Portal, Exhibition Station and Mayne Yard Construction Activities:** The two key features of the northern area are Exhibition Station and Mayne Yard. There are also works required throughout the corridor between Albion and the northern portal. Delivery of Exhibition Station works and the new third track has been designed to move construction works through as quickly as practical to avoid undue impacts on RNA operations. Overall staging at Mayne Yard includes:
 - Construction of a Mayne Yard North facility
 - Remodelling of Mayne Yard
 - Construction of a new bridge connection across Breakfast Creek removal and demolition of the existing Suburban bridge
 - Construction of the new Exhibition Station island platform
 - Staging in the northern area requires varying levels of corridor access including:
 - Standard possessions - between 2019 and 2023
 - Night works - working windows of ‘after last train’ and ‘before first train’ between 2020 and 2023
 - Extended possessions - around public holidays
 - **Site Wide – Testing and Commissioning (T&C) Activities:** T&C activities will take place continually through all areas of the project – whether they are temporary activities (eg. removals) or permanent activities (eg. where items are installed but not yet fully operational). Detailed T&C plans will be developed to ensure Queensland Rail requirements are met and operational certainty is maintained
 - **Site Wide – Construction monitoring Activities:** Construction monitoring activities ensure compliance with the requirements detailed in the C-EMP and associated sub-plans are detailed in Attachment 4
 - **Project Construction Offices & Compounds:** UNITY’s temporary site facilities, as detailed below, are designed to maximise team productivity while minimising impacts to local businesses, community members and the travelling public. It includes use of a main project office, facilities

along the alignment and facilities dedicated to each of the F2S stations. A central office will also be located at Moorooka to coordinate the F2S scope

- Main project Office: Gilchrist Avenue, Herston (project majority)
- Satellites and facilities – general alignment:
 - RNA, O'Connell Terrace, Bowen Hills
 - Tufton Street, Bowen Hills
 - Mayne Yard rail office
 - Victoria Park, Spring Hill
- Satellites and facilities – F2S:
 - Salisbury Station
 - Rocklea Station
 - Moorooka Station/Clapham
 - Yeerongpilly Station
 - Yeronga Station
 - Fairfield Station.

1.4 Project Works – Areas of Works

Overall the Project Works will take place across the RIS Alliance alignment.

The majority of the works will physically occur within the existing Queensland Rail corridor boundaries.

Where the proposed works cannot be undertaken within the Queensland Rail Corridor (eg. surface water monitoring at the nearby sensitive receptors), the works will either be undertaken within public land (safe access pending) or once due notification has been provided to and access granted by relevant private stakeholders.

1.5 Project Works – Construction Methodologies

Construction methodologies are dependent on distinct elements of scope within each area of the project.

A summary of the construction methodologies is presented below.

Table 1: Summary of work packages

Area	Construction Methodologies/Staging
Enabling Works	• Site facility establishment • Site access establishment • PUP (water, sewer, communications) relocation and protection • Temporary public access (pedestrian or vehicle) arrangements.

Area	Construction Methodologies/Staging
General Corridor	Civils • Clear and grub • Service protection/relocation • Topsoil stripping • Bulk earthworks (excavation, embankment) • Rock excavation and rock dowelling • Subgrade treatment • Capping • Stormwater (RCP/RCBC) • Stormwater pits • Gross pollutant traps • Subsoil drainage • RMAR • Fencing • Asphaltting.
	Track-works • Track delivery • Track installation • Track welding • Track grinding.
	Signalling • Signal cable routes • Turnout installation • Equipment huts and cases • Signal gantries.
	OHLE • Foundation install • Grading rings • Mast and cantilever distribution and assembly • Mast installation • Fixed anchor and Tensorex • Running of wires • Earthing • Registration.
	Telecommunication • Above and below ground fibre optic network • OPGW • Tunnel fitout • RMC and DRC connections.

Area	Construction Methodologies/Staging
Stations	F2S • OHLE enabling works • Screw pile foundations • Back-to-back platforms (precast facing panels, backfill, decks) • Side platforms (structural steel, decks) • Lift and overbridges (structural steel) • Lighting • Buildings and canopies (structural steel, sheeting) • Systems (ticketing, passenger information) • LV connections. Exhibition Station • Service relocation and protection • Rock excavation • Bridge demolition • Building demolition • Piling • Rock bolting • Form reinforce pour (bridge concrete structures) • Bridge girder and span erection • Post tensioning and grouting • Anti-throw and electrification screens • Earthing and bonding • Form reinforce pour (concrete retaining wall structures) • Form reinforce pour (deflection walls) • Form reinforce pour (track slab) • Form reinforce pour (island platform structures) • Form reinforce pour (underground plaza) • Precast track slab • Landscaping • Lighting • Canopies (structural steel, architectural sheeting) • Systems (ticketing, passenger information).
Structures	• Rail bridge over Breakfast Creek • Pier protection works for existing bridges • Footbridges • Road bridges over rail • RSS structures • Retaining walls • Pier strengthening works at O'Connell Terrace bridge • Footpath for O'Connell Terrace bridge • Track slab under O'Connell Terrace and Bowen Bridge Road bridges • QR Normandy carwash underpass • Demolition of bridges, buildings, platforms etc. • SFC feeder station base slab.

Area	Construction Methodologies/Staging
Stabling Yards	• Earthworks (as per general corridor) • Access roads • Buildings • Stabling facilities (driver facilities, toilets, amenities) • Sewage decant system • Walkways • Lighting • Security fencing • CCTV • Graffiti road • Driver platforms.
Feeder Station	• SFC and TSC installation • HV and LV cable routes • HV terminations and jointing.

1.6 Environmental Objectives

UNITY's environmental management objectives for RIS include:

- Manage construction in accordance with the C-EMP and sub-plans to avoid or minimise project impacts on the environment and community
- Promote a culture of environment and sustainability awareness that empowers all personnel involved in RIS activities to make informed decisions about environmental risks, impacts and mitigation measures
- Develop, implement and maintain environmental incident-management procedures to eliminate unauthorised environmental harm
- Design and construct RIS in a manner that is lawful and fulfil the Delivery Authority's environmental requirements
- Partner with the Delivery Authority to achieve its goal for environmental management and sustainability across the rail system.

2 Legislative and Other Requirements

2.1 Legislative Requirements

All Project Works as defined in Section 1.3, must comply with:

- The Coordinator-General Imposed Conditions
- Other relevant Commonwealth, State and Local Government Approvals such as Operational Works Development Approvals
- Relevant environmental legislation such as the *Environmental Protection Act 1994*.

2.2 Other Requirements

All Project Works must consider, be consistent with and be delivered in general accordance with:

- The Outline Environmental Management Plan
- Australian and New Zealand Standards (if not already mandated by State and Commonwealth governments)
- State, local and other guidelines such as the *International Erosion Control Association Best Practice Erosion and Sediment Control Guidelines 2008* (IECA Guidelines)
- UNITY's ISO 14001-accredited EMS.

All Project Works must be delivered by implementing the mitigation measures identified in this C-EMP. The C-EMP has been developed by taking into consideration the legislative and other requirements.

2.3 Coordinator-General Imposed Conditions

The Project Works covered by this C-EMP will be done in accordance with the Project Wide Imposed Conditions – Cross River Rail Project, Appendix 1 of the Coordinator-General's Change Report – 26 June 2019.

The Imposed Conditions relevant to various environmental elements are either captured in the body of this C-EMP's general obligations or within the sub-plans, when obligations are specific to an element.

The most up-to-date version of the Coordinator-General's Change Report can be found on the Coordinator-General's website. Appendix 1 of the Change-Report contains all the Imposed Conditions for the Cross River Rail project, most of which are relevant to the RIS Alliance and the Project Works detailed in Section 1.3.

The compliance table in Attachment 3 maps out where the C-EMP addresses the Imposed Conditions.

2.4 Other Environment Planning Approvals Strategy

UNITY is also responsible for obtaining numerous planning and environmental approvals from regulatory authorities in accordance with Queensland legislation.

Where feasible, Project Works have generally been scoped to avoid the need for regulatory approvals in addition to the Coordinator-General Change Report.

Prior to works commencing, the UNITY Approvals Team ensures that all relevant approvals for the scope of works are in place and key conditions and requirements are communicated to the personnel involved in delivering the works, inclusive of the Environmental Monitor.

2.5 Sustainability and ISCA

2.5.1 Imposed Conditions

There are two Imposed Conditions as part of the environmental Design Requirements that also relates to the Construction Phase of the Project. Therefore, these two conditions will be managed through the implementation of the C-EMP as per the following measures.

- *Imposed Condition 7(d) – EDR - 7. Climate change and sustainability*
 - (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, programming to avoid rework or redundant work)

During Construction Planning, the following efforts will be implemented to optimise energy efficiency during the Delivery Phase:

- Through procurement identify local suppliers and sub-contractors
- Through Construction Planning, optimise mass haul operations to minimise double handling of material
- Through Construction Planning, review staging of works and design constructability to avoid rework and redundant work
- *Imposed Condition 7(d) – EDR -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.

During Construction Planning, the following efforts will be implemented to optimise energy efficiency during the Delivery Phase:

- Through procurement identify local suppliers and sub-contractors which have identified
- Opportunities to minimise waste disposed to landfill, fuel use and use of potable water wherever possible.
- Opportunities to use recycled materials or materials which contain recycled content where fit for purpose.
- Through Construction Planning (Construction Area Plan / WorkPack), identify and communicate to the delivery team opportunities to re-use site-won material (e.g. low level contaminated soils)

2.5.2 Sustainability Rating

The CRR Project is pursuing an Infrastructure Sustainability Council of Australia (ISCA) Sustainability Rating.

The RIS Alliance is supporting the Project to achieve its overarching rating.

By its nature, sustainability and the ISCA Rating Scheme are cross-project considerations. The ISCA rating scheme is divided between Categories and Credits, some of which will be achieved through the successful implementation of the C-EMP and associated sub-plans.

The credits of particular relevance to the C-EMP are detailed in Table 2, including how each sub-plan to this C-EMP will support achievement of the target levels.

Table 2: Sustainability categories and associated ISCA credits applicable to the C-EMP

Category	Credit	Relevant C-EMP Sub-plan
Energy and Carbon	Ene-1: energy and carbon monitoring reduction	Air Quality Management
	Ene-2: renewable energy	Air Quality Management

Category	Credit	Relevant C-EMP Sub-plan
Water	Wat-1: water use monitoring and reduction	Waterways and Water Quality Management Construction Environmental Monitoring Program
	Wat-2: water saving opportunities	Waterways and Water Quality Management Construction Environmental Monitoring Program
Discharges to Air, Land and Water	Dis-1: receiving water quality	Acid Sulfate Soil Management Erosion and Sediment Control Management Waterways and Water Quality Management
	Dis-2: noise	Noise and Vibration Management
	Dis-3: vibration	Noise and Vibration Management
	Dis-4: air quality	Air Quality Management
Land	Lan-1: previous land use	Land Management
	Lan-2: conservation of onsite resources	Land Management
	Lan-3: contamination and remediation	Land Management
Waste	Was-1: waste management	Land Management Waste Management
	Was-2: diversion from landfill	Waste Management
Ecology	Eco-1: ecological value	Acid Sulfate Soil Management Biosecurity Management Contaminated Land Management Landscape and Rehabilitation Management Nature Conservation Management
Community Health, Well-being and Safety	Hea-1: community health and well-being	Air Quality Management Noise and Vibration Management
Natural and Cultural Heritage	Her-1: heritage assessment and management	Indigenous Cultural Heritage Management Non Indigenous Cultural Heritage Management
	Her-2: monitoring and management of heritage	Indigenous Cultural Heritage Management Non Indigenous Cultural Heritage Management
Stakeholder Participation	Sta-1: stakeholder management strategy	Indigenous Cultural Heritage Management Non Indigenous Cultural Heritage Management Community Engagement

Category	Credit	Relevant C-EMP Sub-plan
	Sta-4: addressing community concerns	Air Quality Management Indigenous Cultural Heritage Management Noise and Vibration management Non Indigenous Cultural Heritage Management Community Engagement
Urban and Landscape Design	Urb-1: urban design	Landscape and Rehabilitation Management
	Urb-2: implementation	Landscape and Rehabilitation Management

Further details on how the successful delivery of the ISCA rating is proposed to be managed are presented in UNITY's Sustainability Management Plan (RIS-UNA-SUS-MPL-00283).

3 Environmental Management Approach

UNITY's Project Management System (PMS) guides how we manage the RIS Works to meet the Delivery Authority's and other stakeholders' requirements. It will foster an integrated and standardised approach across all operations and functions, and ensure that relevant third-party certifications are maintained.

The Alliance Management Plan contains information on the PMS.

The C-EMP is based on the requirements of the PMS and has been specifically tailored to ensure compliance with the Coordinator-General, the Delivery Authority and Queensland Rail requirements.

3.1 Environmental Management System Documentation

The C-EMP is the head document in UNITY's Environmental Management System (EMS) and is supported by sub-plans that provide specific details in relation to environmental aspects, and their relevant management requirements for the duration of construction and commissioning.

Figure 1 below provides a diagrammatical representation of UNITY's EMS documentation and how it integrates with construction planning.

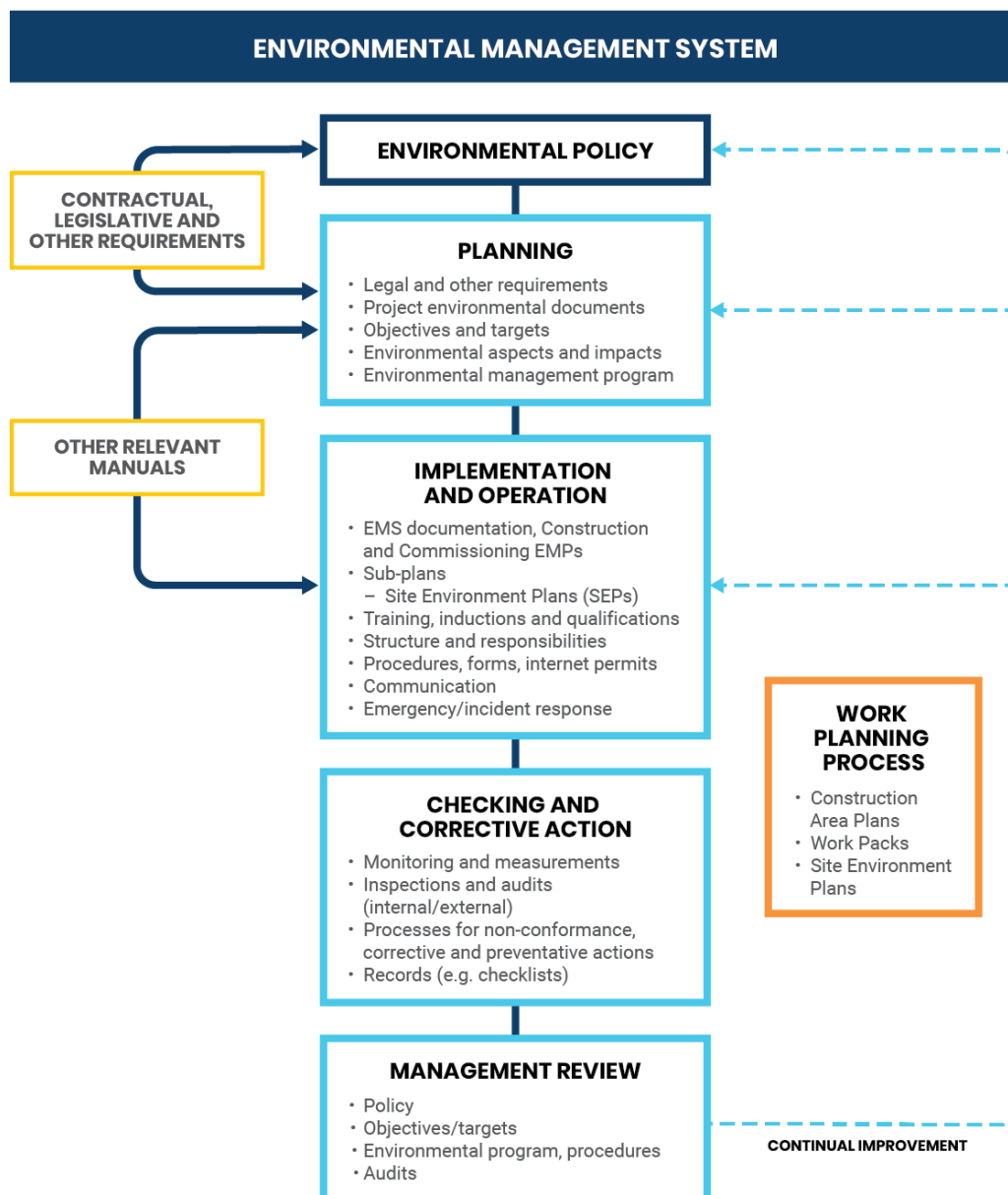


Figure 1: Integration of technical environmental management requirements into construction work planning process

3.2 Risk Assessment

UNITY's work planning process requires Construction Area Plans (CAPs), Work Packs and associated risk assessments to be developed for each specific project area. The Construction Management Plan (CMP) details how this process will be managed in accordance with the PMS.

This multidisciplinary planning process ensures that environmental, health, safety and quality risks, among others, are:

- Adequately identified in relation to specific scope
- Appropriate mitigations measures, in accordance with this C-EMP, are incorporated into the works processes.

3.2.1 Construction Area Plans

CAPs are initial work planning documents. The relevant environmental management and monitoring requirements detailed within the C-EMP sub-plans are referenced in the CAPs to ensure environmental and approval requirements are implemented throughout planning and execution of RIS construction activities.

CAPs describe methodology, resources, plant and equipment, risks and other specific requirements. CAPs are developed in consultations with the key discipline leads on the project.

CAP development considers:

- Legislative requirements
- The most efficient and effective methodology for the work
- Risks and opportunities related to the methodology
- Effects on the environment, community, rail and traffic
- Specification requirements and limitations
- Possible effects of location, timing and other outside influences (including weather, service or government authorities).

CAPs cover the following:

- Description and scope of works, including proposed methodology and temporary works
- Assumptions and constraints, including safety and health, design assumptions, PUP, environment, sustainability, community and traffic
- Technical data
- Plant and materials required
- Construction sequence
- Hazards and risks
- Interfaces with other construction activities.

3.2.2 Work Packs

Work Packs are the primary tool to develop activity or task-specific management requirements, which include environment, as well as discipline management needs for safety, health and quality.

Work Packs are used to communicate the critical environmental requirements to personnel and subcontractors who are accountable for implementing these requirements on the ground throughout the Project Works.

The Work Packs provide:

- Direction and guidance on construction methods that have been risk-assessed from a safety and environmental perspective
- Specific management controls to reduce the potential risk of perceived environmental hazards
- Specific management controls required to be implemented as a result of the outcomes of predictive studies (e.g. predictive noise modelling). Indeed, where predictive studies indicate that impacts cannot be adequately managed with already established mitigation measures, specific mitigation measures must be developed in consultation with Directly Affected Persons (DAP).
- Inspection and monitoring requirements for perceived environmental hazards
- Triggers for specific management responses, such as adjusting works based on monitoring exceedances, complaints or imminent rainfall
- Applicable internal permits to be approved prior to high-risk activities (such as permits to dewater).

UNITY will be working closely with all key internal stakeholder and Alliance members to ensure they are adequately briefed on the upcoming works. The documents such as the CAPs, WPs and SEPs will provide the broader Alliance team members the assurance the works have been adequately planned and will be managed both effectively and consistently.

The Environmental Monitor will be given access to the WPs and SEPs for review and comments prior to works commencing to ensure the adequate level of management measures are cascaded from this C-EMP down to specific works.

3.2.3 Work Method Statements and Subcontractor Risk

Where components of the program of works are delivered by subcontractors to support the Alliance, the subcontractors will be briefed on the outcomes of the Construction Area and Work Pack Risk Assessments.

Subcontractors are responsible for developing task specific safe works methods statements (ie. SWMS or JSEAs) that incorporate, as a minimum, the known hazards, risk assessment and controls identified in the risk assessments. The subcontractor's documentation will be reviewed and approved prior to the subcontractor mobilising to site by the UNITY environmental team and the relevant supervisor, as a minimum.

3.2.4 Site Environment Plans (SEPs)

SEPs are developed to supplement this plan, where they add value in supporting the CAPs, Work Packs and WMS. They provide a visual representation of the environmental constraints and controls to be implemented on the RIS Project.

When SEPs are warranted, they communicate to personnel and subcontractors the minimum environmental management requirements, and provide a solid understanding of the sensitivities around work zones and the controls they are accountable for installing and maintaining throughout their activities. Importantly, SEPs identify critical environmental risks and controls including:

- Disturbance limits
- Exclusion zones, such as tree-protection zones, heritage areas, etc.
- Installation requirements for erosion and sediment controls
- Maintenance/refuelling zones
- Sensitive receptors such as places of residents and businesses
- Environmental monitoring locations
- Known contamination/potential acid sulfate soils (PASS) locations and stockpiling locations.

UNITY will progressively review SEPs as the works progress to ensure they continue to be adequate for the scope of works they cover. SEPs will be decommissioned following completion of works.

3.3 General Environmental Management

UNITY has developed specific sub-plans to address key elements of the CG's Conditions of Approval and the O-EMP commitments. Each C-EMP sub-plan provides a range of proposed measures to:

- Develop methods and controls to avoid, minimise or provide alternatives to activities, so to not cause environmental harm
- Control the occurrence of identified environmental impacts
- Respect and safeguard the local community
- Satisfy the environmental requirements of the State and relevant agencies.

The relationships between the CG Conditions of Approval and the O-EMP are detailed in Figure 2.

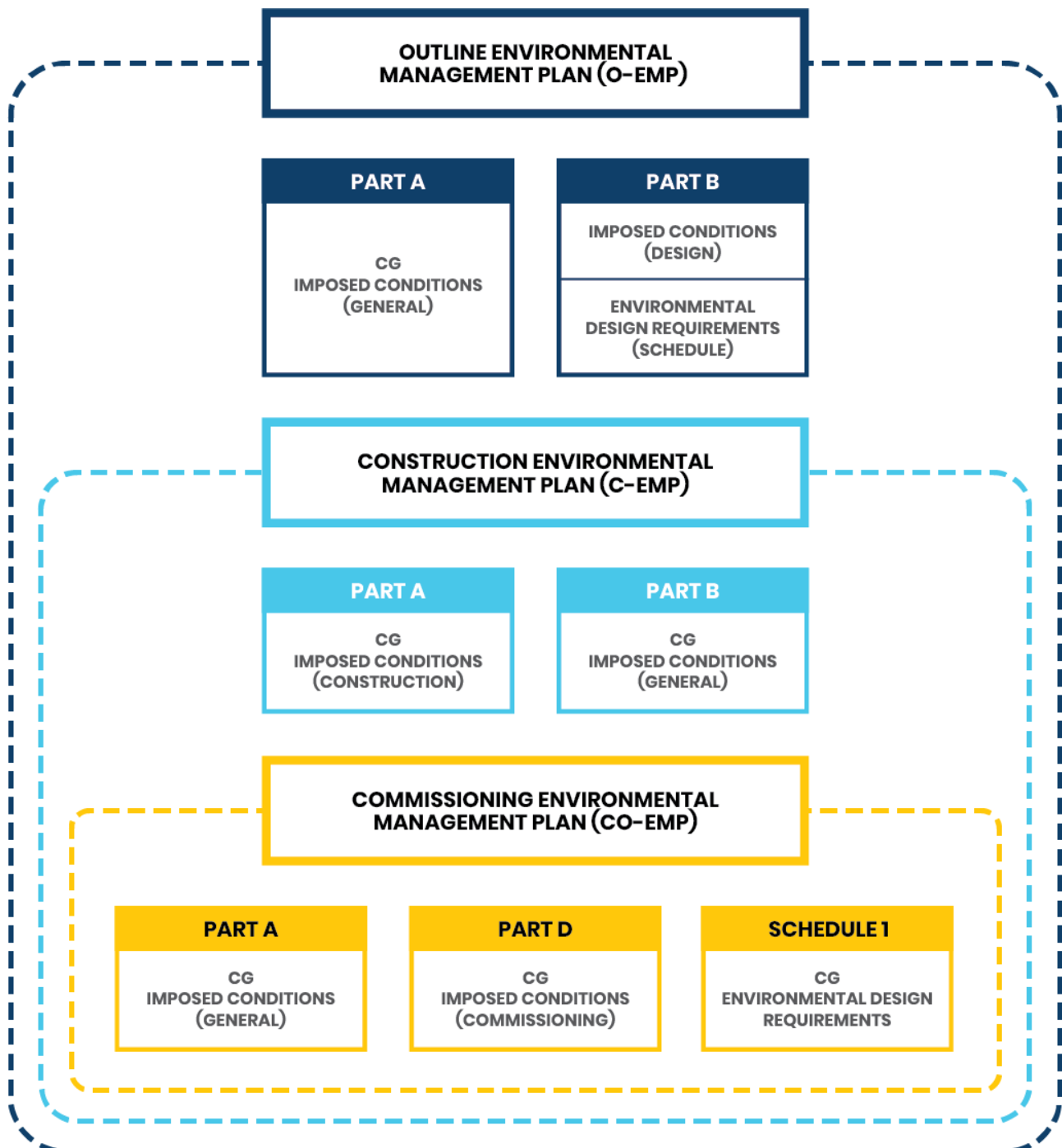


Figure 2: Relationships between plans and the CG's Conditions of Approval

3.3.1 C-EMP Structure

The O-EMP requires the development of 20 sub-plans to the C-EMP.

The C-EMP implementation is supported by the implementation of other key head plans, such as the Construction Management Plan, the Traffic Management Plan and the Workplace Health and safety Management Plan, among others.

These head plans provide additional details on mitigation measures pertinent to the works which will be incorporated in our CAPs and Work Packs.

On this basis and the nature of the Project Works detailed in Sections 1.2 to 1.5, certain subplans listed in the final O-EMP have either been combined or further separated to provide a consistent approach across the Project.

Table 3 summarises the C-EMP subplans that have been developed to address the imposed conditions, or as required by the approved O-EMP, and that will be used to inform the detailed content of the CAPs and Work Packs.

Table 3: Environmental elements sub-plans included in the C-EMP

Mandatory Sub-Plan as per the O-EMP	Mandatory Sub-Plan as per the CG report – Condition 2b(v)	C-EMP Subplan reference
Community and Stakeholder Engagement Plan	Community and Stakeholder Engagement Plan	Community Engagement Plan
Acid Sulfate Soils Management Sub-Plan	Not nominated in CG conditions	Acid Sulfate Soils Management Sub-Plan
Air Quality Management Sub-Plan	Air Quality Management Plan	Air Quality Management Sub-Plan
Nature Conservation Sub-Plan (Pest and Weeds element)	Not nominated in CG conditions	Biosecurity Management Sub-Plan
Cultural Heritage Management Plan	Indigenous Cultural Heritage Management Plan	Indigenous Cultural Heritage Management Sub-Plan
Non Indigenous Cultural Heritage Management Plan	Non Indigenous Cultural Heritage Management Plan	Non Indigenous Cultural Heritage Management Sub-Plan
Erosion and Sediment Control Sub-Plan	Erosion and Sediment Control Sub-Plan	Erosion and Sediment Control Sub-Plan
Land Management Sub-Plan	Nominated in CG conditions as Settlement Management Plan	Land Management Sub-Plan
Contaminated Land Management Plan	Not nominated in CG conditions	Land Management Sub-Plan
Nature Conservation Management Sub-Plan	Nature Conservation Management Sub-Plan	Nature Conservation Management Sub-Plan
Noise and Vibration Management Sub-Plan	Noise and Vibration Management Sub-Plan	Noise and Vibration Management Sub-Plan
Waste Management Sub-Plan	Not nominated by CG	Waste Management Sub-Plan
Water Quality Monitoring Sub-Plan	Water Quality Monitoring Plan	Waterways and Water Quality Management Sub-Plan
Construction Worksite Management Plan	Construction Worksite Management Plan	Construction Activities Management Sub-Plan

Mandatory Sub-Plan as per the O-EMP	Mandatory Sub-Plan as per the CG report – Condition 2b(v)	C-EMP Subplan reference
Construction Traffic Management Plan	Construction Traffic Management Plan	Construction Activities Management Sub-Plan
Construction Vehicle Management Plan	Construction Vehicle Management Plan	Construction Activities Management Sub-Plan
Spoil Placement Management Plan	Spoil Placement Management Plan	Construction Activities Management Sub-Plan
Visual Amenity and Lighting Management Plan	Not nominated in CG conditions	Construction Activities Management Sub-Plan
Social Amenity Management Plan	Not nominated in CG conditions	Landscape and Rehabilitation Sub-Plan Condition 20 of the CG Change Report is also addressed in the CEP, Nature Conservation and Heritage sub-plans.
Hazardous and Risk Management Plan	Not nominated in CG conditions	No specific sub-plan developed Hazardous chemicals and substances are addressed in the Land Management Plan and Waste Management Plan Emergency response is mentioned in the C-EMP main body and appropriate references are made to the Emergency Response Plan where environmental and safety emergencies are addressed.
Climate Change and Sustainability Plan	Not nominated in CG conditions	No specific sub-plan developed Correlation between Sustainability matters relevant to Construction are incorporated in Section 2.5 and the relevant C-EMP sub-plans NGER is addressed in the Air Quality Management Sub-Plan Waste is addressed in the Waste Management Sub-Plan.

3.3.2 Sub-Plans Structure

Each sub-plan has been broken down into key components, as described in the table below:

Table 4: Environmental sub-plans structure

Component	Details	Effect
Environmental Outcome(s)	Required outcome of the project for the environmental element as per: - CG Conditions - O-EMP.	- Unless otherwise agreed with the relevant authorities, results will be achieved through: - Successful implementation of the mitigation measures - Meeting the relevant performance criteria expectation.
Relevant Area	Area(s) along the RIS alignment where construction requirements, and as such, environmental outcomes, are applicable.	Informs
Relevant Work / Activities	Key construction activities at relevant areas for which the environmental outcomes, performance criteria and associated mitigation measures are relevant, insofar as they relate to the environmental or social aspects addressed in the sub-plan.	Informs
Performance Criteria	Measurable goals or indicators to demonstrate that environmental outcomes have been met	Mandatory if no mitigation measures

Component	Details	Effect
	- Performance criteria generally consistent with the CG Conditions and O-EMP, specific to each environmental outcome to be met - Quantitative performance criteria, where feasible, to ensure they are measurable (eg. specific monitoring will be implemented to monitor performance against the set criteria) - Where quantitative performance criteria cannot be set, the qualitative criteria are supported by mitigation measures, as deemed relevant.	When performance criteria cannot be achieved, they serve as triggers for mitigation measures to be implemented.
Sustainability	Relevant ISCA sustainability credits and requirements applicable during the construction phase of the project.	- Mandatory once approved for implementation - Details are provided in the Sustainability Management Plan.
Mitigation Measure	Mitigation measures are either: - Measures to support and satisfy the performance criteria - Actions agreed with DAP, where required, in consultation with the Environmental Monitor and the Community Relations Monitor (where applicable) to achieve the environmental outcome of the element. The mitigations measures are endorsed by the Environmental Monitor in consultation with the Delivery Authority.	- Must be implemented where relevant and must be agreed and endorsed prior to the relevant works commencing and/or the design being finalised - Where mitigation measures are developed and agreed in consultation with DAPs, in addition to or as replacement for the mitigation measures already endorsed as part of the plan, the additional mitigation measures must be entered in the Mitigation Measures Register, which will remain confidential and will be maintained by the Environmental Monitor.
Monitoring	Monitoring will determine: - Satisfaction of the performance criteria - Implementation and effectiveness of mitigation measures. Monitoring will be undertaken at a frequency sufficient to demonstrate the robustness of the assurance program and suitable to identify compliance issues.	- Mandatory once endorsed - Monitoring will either be conducted by a Suitably Qualified Person (SQP) embedded in the UNITY team or an independent SQP, where UNITY cannot resource the monitoring effort internally - Monitoring will be of suitable intensity and frequency to provide sufficient assurance the requirements have been met - Attachment 4 provides a summary of the Construction Environmental Monitoring Program.
Reporting	UNITY will prepare a monthly report in accordance with the CG Change Report requirements that summarises: - Construction activities undertaken during the month - Results of the monitoring activities for air, noise, vibration and water quality, and where required, interpretation of the results - 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 - Details of complaints, including the number of complaints, description of issues, responses and corrective actions.	The mandatory monthly report will be: - Reviewed and verified by the Environmental Monitor - Reviewed by the Community Relations Monitor - Published on the project's website.

Component	Details	Effect
Corrective Action	Action to be developed and implemented for monitoring detects when: - Performance criteria are not being achieved - Agreed mitigations measures are not being implemented.	UNITY must either/or: - Implement the agreed mitigation measures - Agree to alternative mitigation measures to achieve the environmental outcome and/or the performance criteria. Where relevant, alternative mitigation measures must be agreed with the DAP in consultation with the Environmental Monitor, and where relevant, the Community Relations Monitor.
Auditing	Any additional internal auditing requirements that may be triggered above and beyond the review and auditing processes detailed in Section 7.	- Mandatory - To be undertaken by UNITY in consultation with the Environmental Monitor and Delivery Authority.

3.4 Environmental Management Responsibilities

UNITY will collaborate with the Delivery Authority to deliver RIS with the least possible impact on the environment, local communities and businesses. Responsibilities for project environmental management are detailed below:

Table 5: Key roles in environmental management

Entity	Role and Responsibility
Coordinator-General (CG)	Administers the <i>State Development and Public Works Organisation Act 1971</i> .
Delivery Authority	Overarching proponent ultimately accountable and responsible for key activities of the project until operations commence and for implementing and complying with the CG's Conditions of Approval.
UNITY	Delivery partner to which the accountability and responsibly otherwise assigned to the Delivery Authority have been delegated: - For the RIS Works - To the extent agreed by and with Delivery Authority UNITY will be responsible for implementing and complying with the CG's Conditions of Approval where relevant and this C-EMP.
QR	Rail Infrastructure Manager A person who has effective management and control of rail infrastructure or proposed rail infrastructure, whether or not the person – (a) owns or will own the rail infrastructure; or (b) has or will have a statutory or contractual right to use the rail infrastructure or to control, or provide, access to it.
TMR	Nominated entity with jurisdiction for each of the CG's Conditions of Approval as per Schedule 2 of the CG's Change Report.
BCC	Assessment manager for Prescribed Tidal Works approvals Interests in land, local roads and other urban infrastructure, and natural assets Local Roads Manager Provides input to urban design measures, EMP and worksite rehabilitation.
Environmental Monitor	An independent entity engaged by the Delivery Authority and Approved by the Coordinator-General to comply with the CG's conditions of approvals.
Community Relations Monitor	An independent entity engaged by the Delivery Authority to comply with the CG's conditions of approvals.

Entity	Role and Responsibility
Subcontractor	UNITY may delegate environmental requirements and responsibilities to subcontractors. UNITY will remain responsible for the compliance with the endorsed C-EMP All subcontractors are required to attend the General Site Induction where the requirements and obligations of the C-EMP will be communicated at a site and delivery level All subcontractors will be required to comply with the C-EMP and develop relevant documentation, such as WMS, consistent with the C-EMP, as required, for UNITY review and endorsement.

4 Compliance

The compliance table in Attachment 3 maps where the C-EMP and its sub-plans address the Imposed Conditions.

4.1 Overarching CG Conditions

The Coordinator-General has imposed general conditions that are applicable to the whole of the RIS Alliance footprint, irrespective of the location, type, duration or intensity of the Project Works.

They encompass the requirement to develop a suitable C-EMP consistent with the CG conditions and the O-EMP, and the requirements to undertake the Project Works within Authorised Hours of Work.

4.1.1 C-EMP Development

The CG has imposed the following conditions (refer to Table 6) for the RIS Works and development of a C-EMP:

Table 6: CG's conditions – C-EMP

CG Condition	Details
Appendix 1, Part A, Condition 1(a)	The project must be carried out generally in accordance with: (i) the Cross River Rail Request for Project Change dated April 2019; (ii) the 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;
Appendix 1, Part A, Condition 1(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 BD prior to the relevant commencement date.
Appendix 1, Part C, Condition 4(a)	Prior to the commencement of project works, 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.
Appendix 1, Part C, Condition 4(b)	The endorsed Construction Environmental Management Plan must be submitted to the Coordinator-General at least 20 BDs prior to the commencement of Relevant Project Work.
Appendix 1, Part C, Condition 4(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 (DAP) (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

CG Condition	Details
	(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 DAP 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 Outline EMP.
Appendix 1, Part C, Condition 4(d)	The Construction Environmental Management Plan must be implemented for the duration of Relevant Project Work.
Appendix 1, Part C, Condition 4(e)	Relevant Project Work is authorised if it is undertaken in accordance with the Construction Environmental Management Plan.
Appendix 1, Part C, Condition 4(f)	The Construction Environmental Management Plan must be publicly available on the project website for the duration of the construction phase.
Appendix 1, Part C, Condition 4(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.
Appendix 1, Part C, Condition 4(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.

4.1.2 Pre-Works Notification

Prior to the Relevant Project Works Commencing, UNITY will provide all relevant stakeholders with the necessary notifications, as detailed in Table 7 below.

Publication of the C-EMP on the Project Website provides assurance that:

- The Environmental Monitor is informed of the C-EMP content
- The Environmental Monitor has reviewed and endorsed the C-EMP as generally in accordance with the CG's Conditions and the O-EMP
- All due notification processes have been followed.

Table 7: Pre-works notification requirements

Program	Notification by UNITY	Notification by the Delivery Authority
Prior to the relevant 'Project Works' commencing	25 BD prior to the works – the endorsed plan will be submitted to Delivery Authority in a format suitable for uploading to the project website and submitted in writing to the CG and all nominated entities in Schedule 2 of the CG's Conditions of Approval	20 BD prior to the works – notify the CG and all nominated entities in Schedule 2 of the CG's Conditions of Approval as per the timeframes nominated by the CG in accordance with Appendix 1, Part A, Condition 1.(b) of the CG's Change Report

4.1.3 Hours of Work

The CG has imposed specific working hours to ensure that project works will not adversely impact the community. The working hours are irrespective of the scale of works. However, the nature of the works drive the allowable working hours.

The working hours and associated exemptions (eg. emergencies) are detailed in Appendix 1, Part C, Condition 10 of the Change report.

Table 9 summarises this condition.

4.1.3.1 Standard Working Hours

As a general rule, Project Works will be authorised to proceed Monday to Saturday 6.30 am to 6.30 pm.

These hours are deemed “Standard Working Hours”

4.1.3.2 Non Standard Working Hours

Project works proposed to occur outside of the Standard Working Hours will be authorised to proceed under an Out of Hours Works permitting Process. They include

- Where predictive modelling / screening, in particular Noise and Vibration identifies that the proposed Project Works will not exceed the CG noise and / or vibration goals, Works will be authorised to proceed uninterrupted 24 hours a day, 7 days a week as they will be deemed Managed Works.
- Where works are either proposed to occur under a Possession or as Extended Works,

Out of Hours Works Permitting process requires justification and approval for non-standard hours works from the Stakeholder & Community Relations Manager, the Environment Manager, the Area Manager and the Construction Manager up to 4 weeks before the works.

When seeking permission to undertake works in non-standard hours, the Out of Hours Works Permit requires confirmation that the requirement to implement noise mitigation and/or noise monitoring has been considered.

The decision to implement noise mitigation measures and/or to undertake noise monitoring during construction activities that occur during non-standard hours is based on a risk management approach. The purpose of the risk management approach is to minimise the disruption and disturbance to the community.

The risk assessment will consider factors that might influence the noise impact at receptors including:

- The loudness and character of the construction equipment's noise emissions (such as tonality and impulsiveness)
- The proximity of noise generating equipment to receptors
- The sensitivity of individual receptors near the works based on the community consultation knowledge database
- The hours when the noisy activity is likely to occur.

The type and extent of noise mitigation controls to be implemented on site will be based on the results of the risk assessment.

4.1.3.3 Expected Non- Standard Working Hours

Works that occur outside of standard hours within the Queensland Rail corridor are regulated by Queensland Rail's Scheduled Corridor Access System (SCAS) or other possessions (e.g. night works occurring after Last train and before first train) which schedules closures of the railway for specific times and durations.

This system is outside of Unity's control and the time period in which works may be undertaken is strictly enforced. Consequently, it is necessary to work continuously throughout the SCAS allowable time periods, that is over the entire weekend during the day, evening and night.

Other Construction activities and corresponding justification that may need to be undertaken during non-standard hours are described in Table 8.

Table 8: Construction activities likely to be required outside standard hours

Activity	Explanation
Concrete pours	Cooler temperatures required for curing of concrete in accordance with Technical requirements
Bridges: Delivery (and possibly erection) of deck unit and Sub and Super Structures	Access may require delivery through police escort and crossing of live lanes of traffic. Required to be undertaken outside of peak times.
Piling rig mobilisation and demobilisation	Access may require delivery through police escort and crossing of live lanes of traffic. Required to be undertaken outside of peak times.
Rail shutdown works	To minimise disruption of railway operations
- Establishment of work areas and access points - Line marking - Underground Utilities relocations within road reserves / roads	Traffic control is required to stop traffic. Works are proposed at night to minimise disturbance to traffic
Substation delivery Prefabricated elements delivery (e.g. Stations Buildings)	To suit any abnormal load restrictions

4

Table 9: CG's Conditions – working hours

Worksites and Associated UNITY Activities	Surface Works – Standard Hours	Extended Hours	Managed Work (<i>Project work for which either the predicted or monitored impacts meet the performance criteria at a Sensitive Place</i>)	Spoil Haulage and Materials/Equipment Delivery	Works Carried Out in an Emergency (Condition 10.(c))
Mayne Railway Yard and Mayne Area Clapham Yard inclusive of embedded Moorooka Station All works excluding blasting	Monday to Saturday 6.30am–6.30pm	Approved rail possession Up to 80 hrs of continuous works,	24 hours 7 days	24 hours 7 days	24 hours 7 days
		Works which, as per Condition 10(d) fall under the Other Extended Work categories below: - Are located within the rail corridor - Are located within a road reserve or busway and cannot be reasonably nor practicably undertaken during standard hours due to potential disruption to traffic flows or bus operation - Involve the transport, assembly or decommissioning of oversized plant, equipment, components or structures (eg. cranes) - Require delivery of 'in time' materials such as concrete, hazardous materials, large components and machinery - 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. If the works comply with any of the above, then they will also be allowed to occur in addition to the standard hours: - Monday to Friday 6.30pm to 10.00pm.			
Northern Area between Exhibition Station and Northern Portal (excluding Exhibition Station) All works excluding blasting	Monday to Saturday 6.30am–6.30pm	Approved rail possession Up to 80 hrs of continuous works,	24 hours 7 days	Monday to Friday 6.30am–10.00pm Saturday 6.30am – 6.30pm	24 hours 7 days
		Works which, as per Condition 10(d) fall under the Other Extended Work are allowed to occur in addition to the standard hours: Monday to Friday 6.30pm to 10.00pm.			
Exhibition Station F2S Stations (excluding Moorooka) All works excluding blasting	Monday to Saturday 6.30am– 6.30pm	Approved rail possession Up to 80 hrs of continuous works,	24 hours 7 days	Monday to Saturday 6.30am – 6.30pm Unless deemed Other Extended Work and therefore Extended Hours will apply Monday to Friday in addition to the Standard Hours	24 hours 7 days
		Works which, as per Condition 10(d) fall under the Other Extended Work are allowed to occur in addition to the standard hours: Monday to Friday 6.30pm to 10.00pm.			
Blasting	7.30am–4.30pm Monday to Saturday, and not on Sundays or public holidays PRIOR TO BLASTING – AT LEAST 48 HOURS's NOTICE must be provided to persons who may be adversely affected	Currently not approved unless works are deemed to meet the requirements of condition 10.(d)	Currently not approved unless works are deemed to meet the requirements of managed work If they do – 24 hours/7 days	As per the applicable site requirement	24 hours 7 days

4.2 O-EMP

The C-EMP has been developed using the approved O-EMP (December 2018) to inform the performance criteria and mitigations measures detailed in each sub-plan.

4.3 Monitoring, Inspections, Reporting, Review, Audit

A key element to UNITY's EMS is a robust compliance regime based on the founding principles of ISO14001.

This includes the development of a Monitoring, Inspections, Reporting, Review, Audit (MIRRA) Schedule consistent with the requirements of the CG Conditions and OEMP.

The Monitoring and Inspection regime is detailed in Attachment 4.

The Auditing and Review regime is detailed in Section 7.

The Reporting regime is detailed in Section 8.2.

5 Inductions, Training and Awareness

5.1 Inductions

All RIS Alliance project personnel and contractors are required to undertake a Project induction.

This induction will incorporate project-specific environmental-management awareness material, including:

- Personal accountabilities and duties under the *Environmental Protection Act 1994* and other relevant laws
- RIS-specific sensitivities including but not limited to:
 - Air quality
 - Noise and vibration
 - Contaminated land management
 - Water management and erosion and sediment controls
 - Vegetation management
 - Community
 - Heritage
- Personal responsibilities for implementing mitigation measures under the C-EMP
- Incident response, including responsibilities and notification requirements
- Internal and external communication processes, including dealing with public complaints
- Cultural heritage management requirements, including training, mitigation and awareness, as outlined in the Cultural Heritage Management Sub-Plan.

5.2 Training

Training of project staff is in accordance with the Training Needs Analysis (TNA) which identifies:

- Key environmental training to be delivered and implemented
- Key personnel or disciplines required to undertake the training
- Key personnel or disciplines for whom the training is recommended.

UNITY will deliver project-specific environmental training and awareness at toolbox talks and/or pre-start meetings, including:

- General management requirements in relation to RIS Project activities
- Focused/specific management requirements in relation to high-risk project activities
- Periodic (refresher or in response to high-risk project activities) environmental training, which will ensure personnel are reminded of their management responsibilities and made aware of any changes to mitigation measures and/or monitoring
- Specific mitigation measures and approval conditions
- Appropriate environmental incident response, including responsibilities and notification requirements.

Induction and training will include relevant environmental aspect requirements, such as:

- Project-specific internal environmental permitting
- Erosion and sediment control measures, including installation, maintenance and monitoring

- Water quality management, particularly dewatering activities
- Noise and vibration management measures, including unnecessary revving of engines, unnecessary engine braking, piling activities and generally exercising due courtesy to local residents
- Fauna management requirements
- Contaminated land and PASS identification and management measures
- Weed and pest management measures
- Hazardous materials and waste management needs
- Emergency and spill-response training execution, including:
 - Correct use of spill kits
 - Correct handling of materials
 - Measures to minimise exposure to hazardous materials
 - All staff involved in works near or above water must be trained in specific spill response procedures
- Records of inductions and training is maintained on the project, including:
 - Names of personnel being inducted or receiving training
 - Date of attendance
 - Name of personnel delivering the induction/training
 - Evidence that the personnel being inducted or receiving training has understood the content by way of questionnaire and signing the induction/training register.

6 Incident, Non-Compliance and Complaints Management

6.1 Incident Classification

Environmental incidents will be classified in accordance with the event matrices presented Attachment 5 and Attachment 6.

6.2 Incident Management

6.2.1 Incident Response

The immediate response to all incidents is to make the area safe and undertake measures to prevent further environmental harm. An assessment will be made in consultation with the Environment Manager to ensure that responses do not result in further harm.

Where an incident is identified as an environmental emergency requiring the implementation of emergency response, UNITY will enact the emergency response protocols detailed in the Emergency Response Plan.

Environmental emergencies include events such as significant loss of containment and flooding that may present a risk to human health, property and/or the receiving natural environment.

6.2.2 Notification and Reporting

Incident notification and reporting will be undertaken as per Section 8.2. Environmental Incidents. Incidents will be reported to regulators in accordance with the requirements of Local, State and Federal regulations.

6.2.3 Preserve the Incident Scene

Scenes of high-level environmental incidents will be preserved until the incident investigation team has collected relevant data and evidence (see below).

6.2.4 Investigation

All incidents will be investigated according to UNITY's procedures. The level of investigation required will depend on the incident classification. Corrective actions, including those required to help prevent future incident occurrences, will be a key outcome of incident investigations.

Selection of the investigation team will depend on severity of the incident and availability of experienced personnel. However, the investigation team will require a mix of both operational and safety and environment personnel.

The following should be considered when selecting an investigation team:

- Statutory requirements
- UNITY and Delivery Authority corporate requirements
- Technical specialists with an understanding of the work process
- Administrative support
- Mix of skills and experience
- Potential conflict of interest for any proposed member.

6.2.5 Corrective and Preventative Actions

Following an incident, corrective and preventive actions will be identified, assigned to the appropriate person/s and closed out according to set timeframes. Timeframes will be set to ensure damage incurred is rectified and any chance of recurrence is eliminated as soon as practical. All corrective actions will include reference to the relevant incident record for ease of tracking.

6.3 Non-Compliances

Management of non-compliances will follow a similar (if not the same) process as for incident management. While the outcome of a non-compliance may not carry the same severity as an incident, the non-compliance may represent potential for a future serious incident, if not addressed properly.

A non-compliance that triggers the following will be managed with the necessary degree of confidentiality to protect all interested parties in a timeframe agreed by all stakeholders to ensure that project activities can resume as soon as possible:

- Development of specific mitigation measures with DAPs, as outlined in Appendix 1 of the Coordination Plan – Environmental Monitor
- Work activities to be stopped at the request of the Environmental Monitor until such time the non-compliance is corrected.

The Delivery Authority and Environmental Monitor will agree acceptable timeframes.

The below diagram provides an overarching view of non-compliance management processes.

For each non-compliance, UNITY will undertake a review of the root cause and contributing factors to identify the appropriate corrective actions.

The review of the non-compliance will cover a review of the management documents (including the C-EMP, Workpack and SEP) used by Unity to inform construction methodologies.

Where the root cause or a contributing factor is linked to inadequate or insufficient management measures identified in this C-EMP or its subplans, Unity will update the C-EMP / its sub-plans accordingly.

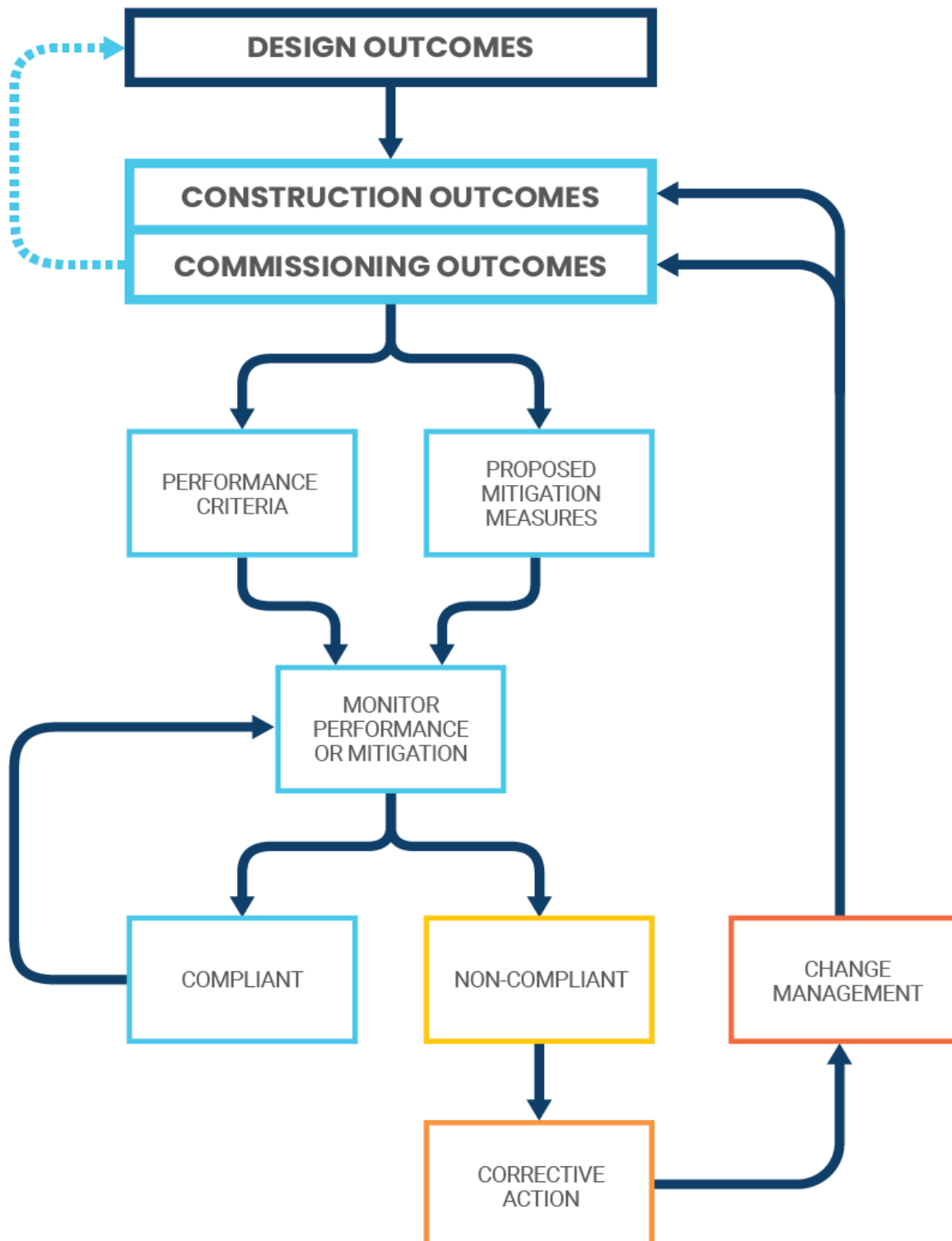


Figure 3: Performance monitoring and change management

6.4 Complaints Management

UNITY Environment team will work closely with the Communication and Stakeholder Engagement team if there is a complaint regarding an environmental matter. If a complaint cannot be resolved in a timely fashion, UNITY will instigate the Complaints Management Process described in the Community Engagement Plan.

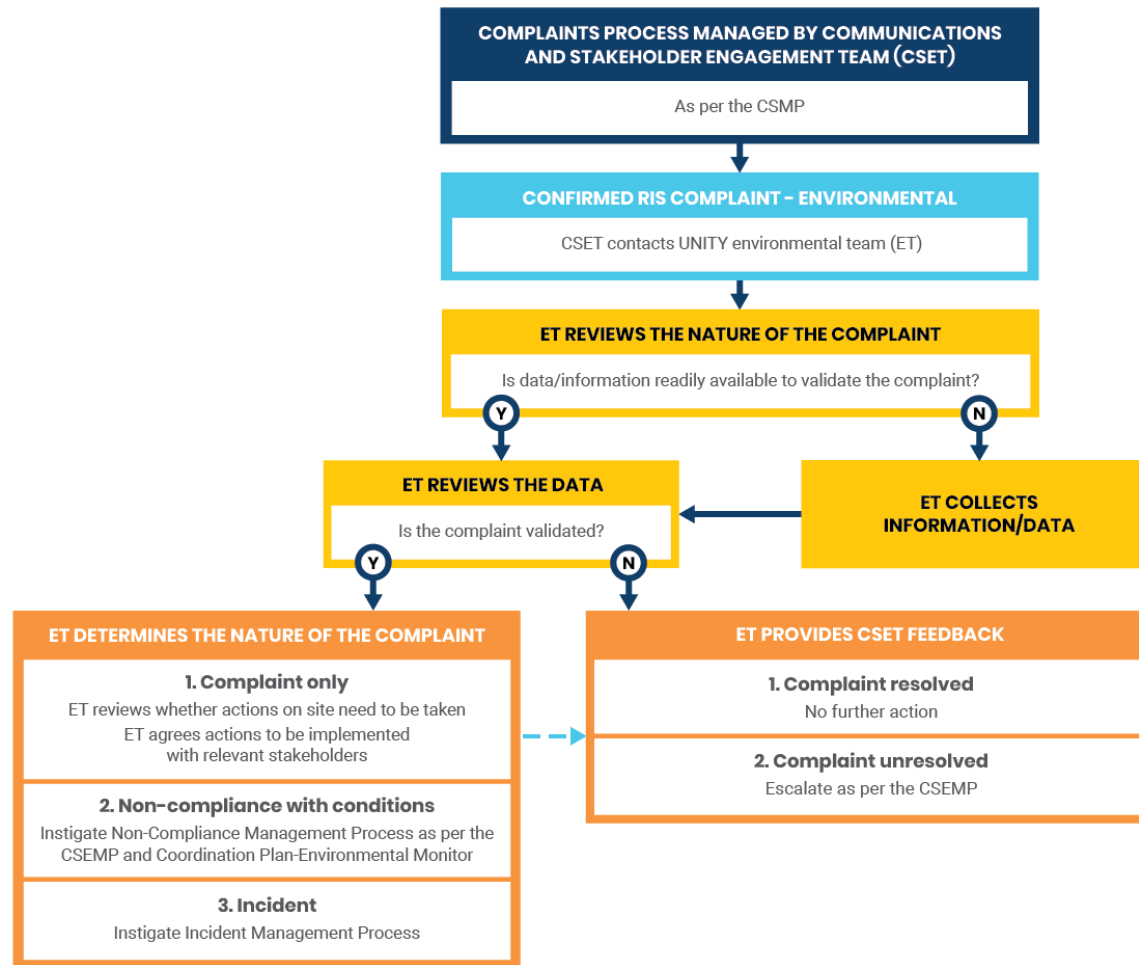
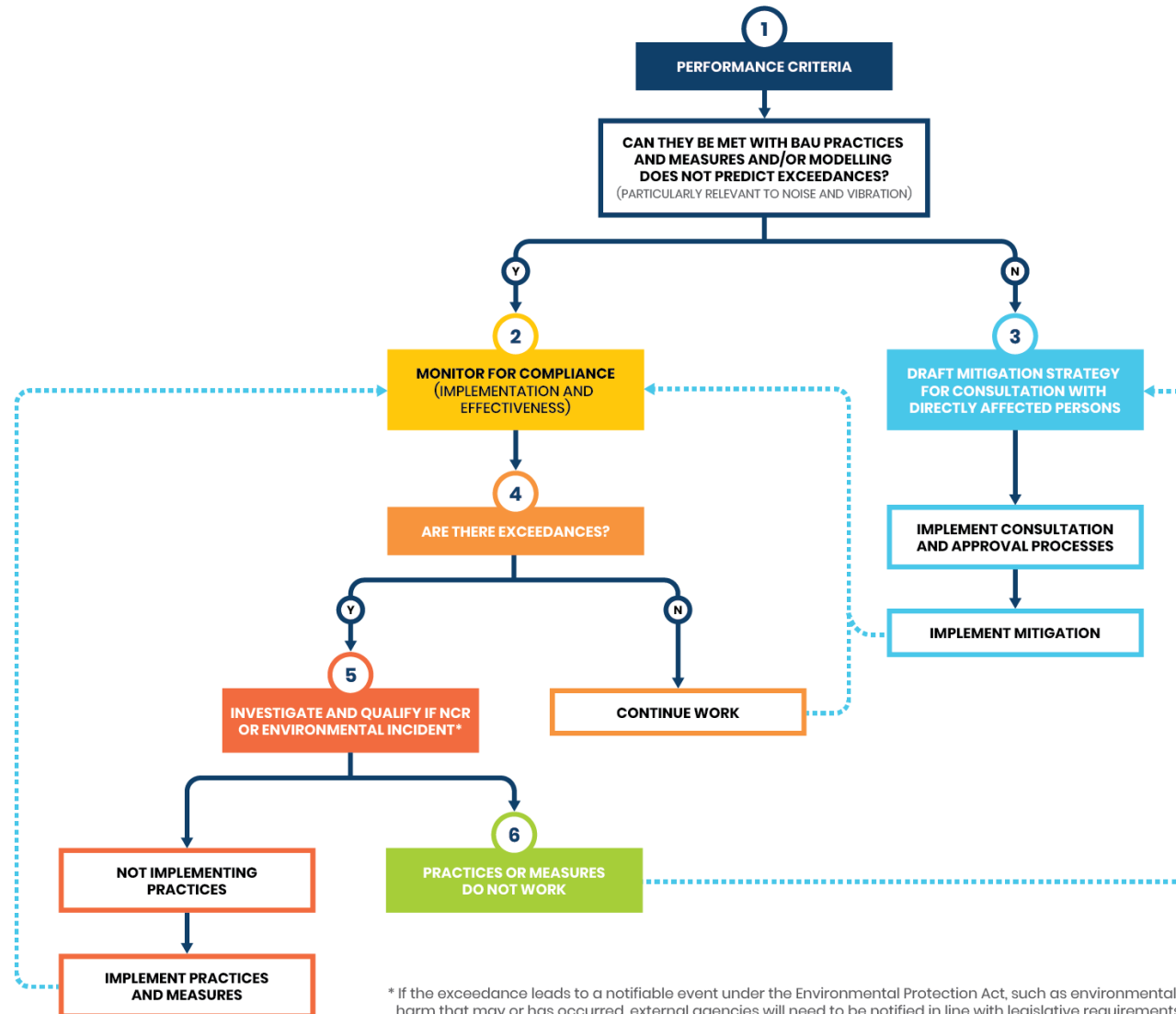


Figure 4: Environmental complaints management process

6.5 Environmental Monitor Role

The classifications of what constitutes incidents, non-compliances and complaints, and associated management protocols, will be agreed between the Delivery Authority, Environmental Monitor and UNITY. The Environmental Monitor is a critical stakeholder in the successful management of these events. The below diagram illustrates how the Environmental Monitor will remain informed and involved in the process, as per the requirements of the CG Change Report.

UNITY notes that where monitoring results indicate an exceedance of the project goals or performance criteria, UNITY will undertake a review of the C-EMP or the relevant sub-plan, and update them as required.



* If the exceedance leads to a notifiable event under the Environmental Protection Act, such as environmental harm that may or has occurred, external agencies will need to be notified in line with legislative requirements (non-conformances will be managed as per the NCR process, while incidents will be managed as to our Incident Management Process – refer to our CEMP for details).

DOCUMENTS	
1	OBLIGATIONS REGISTER
1A	CG REPORT
	OEMP
	LEVEL 2 APPROVALS
1B	CEMP
	COEMP
2	MONITORING PROGRAM
3	MITIGATION MEASURES REGISTER
4	MONTHLY AND ANNUAL REPORT
5	EVENT NOTIFICATION TO ENVIRONMENTAL MANAGER, CG AND DELIVERY AUTHORITY
6	INVESTIGATION REPORT

ENVIRONMENTAL MONITOR KEY INPUT	
1	REVIEW AND APPROVE AS PART OF CEMP AND MONITOR COMPLIANCE
1A	MONITOR COMPLIANCE
1B	REVIEW, APPROVE AND MONITOR COMPLIANCE
2	REVIEW AND APPROVE AS PART OF CEMP
3	REVIEW AND MAINTAIN REGISTER OF AGREED MITIGATION MEASURES
4	REVIEW, VERIFY AND PROVIDE ADVICE TO CG
5	RECEIVE AND REVIEW, AND POTENTIALLY PROVIDE FEEDBACK AND SUPPORT
6	RECEIVE AND REVIEW, AND POTENTIALLY PROVIDE FEEDBACK AND SUPPORT. MAY ALSO BE CONSULTED.

7 Auditing and Reviews

UNITY will conduct regular reviews and audits of this plan to maximise the benefits that can be achieved through the continual improvement process. The Environment Manager and Alliance Manager will be responsible for the internal review and auditing of the C-EMP.

External audits and reviews will also be undertaken by the:

- Environmental Monitor as per Condition 7 of the CG change report at a frequency of their discretion
- ISO14001 certified Auditor to ensure UNITY is adequately performing under their EMS yearly.

7.1 Auditor Selection

Internal audits will be led preferably by a person independent of the works. The Quality Manager will be responsible for selecting the auditor.

The external audits will be led by SQPs and include:

- The Environmental Monitor as per Condition 7 of the CG change report
- ISO14001 certified Auditor to ensure UNITY is adequately performing under their EMS.

7.2 Audit Report

The auditors will prepare Audit Summary Reports at the earliest practical instance following the audit.

The internal audits reports will be used to inform the Annual Report required by Condition 6 of the CG Change Report.

The internal and external audit report will be used to inform the Environmental Monitor and support them in producing the required advice to the CG and the Delivery Authority as required by Condition 7 of the CG Change Report.

8 Plan Monitoring and Reporting

8.1 Updates and Reviews

The review requirements of this plan will be as per the below table:

Table 10: Updates and review requirements

Requirements Source	Frequency	Trigger	Review	Endorsement	Notification to CG
CG's Change Report – Appendix 1 – Part C – Imposed Conditions (Construction) Condition 4(g)(i)	As triggered but no longer than 6 monthly	When there is new or additional relevant project works	Environmental Monitor Community Relations Monitor Delivery Authority	Environmental Monitor	Required – 20 BD before the works can commence
CG's Change Report – Appendix 1 – Part C – Imposed Conditions (Construction) Condition 4(h))	As triggered but no longer than 6 monthly	Updates to the C-EMP that are limited to new or different mitigation measures for managed work	As above	As above	Not required
EMS	As triggered but no longer than 6 monthly	Change in work activities at a particular site	As above	Alliance Manager	Required if changes are deemed new or additional works
EMS	6 monthly	If no review triggered in the prior 6 months	As above	Alliance Manager	Required if significant updates are triggered from the review

8.2 Reporting

8.2.1 Monthly Report

UNITY will prepare a monthly report in accordance with the CG Change Report requirements to summarise:

- Construction activities undertaken during the month
- Results of the monitoring activities for Air, Noise, Vibration and Water quality and where required, interpretation of the results
- 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
- Details of complaints, including the number of complaints, description of issues, responses and corrective actions.

8.2.2 Additional Reporting

Additional environmental reporting requirements will be as per the CG's Change Report (Appendix 1, Part C, Conditions 5 and 6) as per the below table:

Table 11: Additional Reporting requirements

Type	Frequency and Timeframes	Recipients	Delivery Authority Action
Incident and Non Compliance Report CGCR C5(b) – (c)	Interim Within two days of an environmental incident or a non-compliance with the CG's conditions being detected Comprehensive Within 14 days of the interim report, or as part of the next monthly environmental report, whichever is sooner.	UNITY AMT Environmental Monitor Community Relations Monitor Delivery Authority CG	Publish the Non-Compliance Event Report on the project website Retain on the project website for the duration of the commissioning phase for the project.
Notifiable Incident under the EP Act CGCR C5(b) – (c)	Interim Within 24 hours of an environmental incident or a non-compliance that causes or threatens 'material or serious environmental harm' Comprehensive As required by the DES. Before any project member is questioned by officers of a statutory authority they will endeavour to consult the ALT to determine whether legal counsel is needed. Regulatory inspectors must be given appropriate assistance during their own investigations.	Department of Environment and Science (DES) UNITY AMT Environmental Monitor Community Relations Monitor Delivery Authority CG	Decide whether this is published on the project website Remain involved in the investigation and discussions with the DES.
Monthly environmental construction report CGCR C6(e)	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.	Environmental Monitor Community Relations Monitor Delivery Authority	Publish on the project website Retain on the project website for the duration of the commissioning phase for the project.
Annual Report CGCR C6(e)	By 15 July or the next business day after the end of the financial year to which the report relates.	Environmental Monitor Community Relations Monitor Delivery Authority	Provide to the CG and publish on the project website and no later than 31 July in any year during the construction and commissioning phases about compliance with the imposed conditions.

UNITY will ensure all monthly and annual environmental reports and incident reports are kept for a minimum of five years after completion of construction or otherwise in accordance with applicable legislation or the regulator's requirements.

8.2.2.1 Interim Notification Contents

The Interim Notification report must include, subject to Legal or Confidentially Privilege

- a description of the Non-Compliance Event, including details of the location, date and time of the Non-Compliance Event;
- the name and contact details of a designated contact person;
- an outline of actions that have been or will be taken to respond to the Non-Compliance Event.

8.2.2.2 Comprehensive Notification Contents

The Comprehensive Notification report must include, subject to Legal or Confidentially Privilege

- a description of the Non-Compliance Event, including details of the location, date
- and time of the Non-Compliance Event;
- the name and contact details of a designated contact person;
- the circumstances in which the Non-Compliance Event occurred;
- details of any complaint in relation to the Non-Compliance Event;
- the cause of the Non-Compliance Event;
- a description of the environmental effects of the Non-Compliance Event;
- the results of any sampling or monitoring performed in relation to the Non-Compliance Event;
- actions taken to mitigate the environmental effects of the Non-Compliance Event;
- proposed actions to prevent a recurrence of the Non-Compliance Event, including timing and responsibility for implementation.

8.2.2.3 Annual Report Contents

- The Annual Report must include, subject to Legal or Confidentially Privilege:
- a compliance evaluation table detailing the relevant imposed condition, whether
- compliance with the condition was achieved and how compliance was evaluated;
- an evaluation of compliance in relation to the CEMP and its sub-plans;
- a summary of any Non-Compliance Events during the reporting period;
- 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).

Attachment 1 Terms and Definitions

Acronym/Abbreviation	Definition
AASS	Actual Acid Sulfate Soils
ACH Act	Aboriginal Cultural Heritage Act 2003 (Qld)
ADA	Alliance Development Agreement
ADR	Accepted Development Requirement
AEP	Annual Exceedance Probability
ALT	Alliance Leadership Team
AMP	Alliance Management Plan
AMT	Alliance Management Team
Outline AQMP	Outline Air Quality Management Plan
ARI	Average Recurrence Interval
ASS	Acid Sulfate Soils
ASSMP	Acid Sulfate Soil Management Plan
BAU	Business as Usual
BCC	Brisbane City Council
BD	Business Day
BPM	Best Practice Management
BTEXN	Benzene, Toluene, Ethylbenzene, Xylenes, Naphthalene
CAP	Construction Area Plan
CAPEX	Capital Expenditure
C-EMP	Construction Environmental Management Plan
CG	Coordinator-General
CHMP	Cultural Heritage Management Plan as per the meaning of the ACH Act
Outline CLMP	Outline Contaminated Land Management Plan
CLR	Contaminated Land Register
CMP	Construction Management Plan
CMS	CPB Management System
CO-EMP	Commissioning Environmental Management Plan
CPM Act	Coastal Protection and Management Act
CRRDA	Cross River Rail Delivery Authority
CEP	Community Engagement Plan (also called Communications and Stakeholder Engagement Management Plan or CSMP)
CSET	Communications and Stakeholder Engagement Team
Outline CTMP	Outline Construction Traffic Management Plan
Outline CVMP	Outline Construction Vehicles Management Plan
CRR	Cross River Rail
Outline CSEP	Outline Community and Stakeholder Engagement Plan
CSEMP	Communications and Stakeholder Engagement Management Plan
Outline CWMP	Outline Construction Worksite Management Plan
Cwth	Commonwealth

Acronym/Abbreviation	Definition
DA	Development Approval
DAF	Department of Agriculture and Fisheries
DAP	Directly Affected Persons
DATSIP	Department of Aboriginal and Torres Strait Islander Partnerships (Qld)
DEE	Department of Environment and Energy (Cwth)
Delivery Authority	Cross River Rail Delivery Authority
DES	Department of Environment and Science
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.
DNRME	Department of Natural Resources, Mine and Energy
DOORS NG	Rational Dynamic Object Oriented Requirements System Next Generation
DO	Dissolved Oxygen
DRC	Disaster Recovery Centre
DSDMIP	Department of State Development, Manufacturing, Infrastructure and Planning
DTMR	State Department of Transport and Main Roads
EA	Environmental Authority
EDMS	Electronic Document Management System
EDQ	Economic Development Queensland
EDR	Environmental Design Report
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMR	Environmental Management Register
EMS	Environmental Management System
EP Act	Environmental Protection Act 1994
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EPP	Environmental Protection Policy
EPReg	Environmental Protection Regulation 2008
ERA	Environmentally Relevant Activity
ESC-P	Erosion and Sediment Control Plan
ETCS	European Train Control System
EVNT	Endangered, Vulnerable, and Near Threatened protected species
EWMS	Environmental Work Method Statement
EY	Exceedance per Year
F2S	Fairfield to Salisbury
FRP	Filterable Reactive Phosphorus
FSC	Fauna Spotter Catcher
GBO	General Biosecurity Obligation
GED	General Environmental Duty
GHG	Greenhouse Gas
HAT	Highest Astronomical Tide

Acronym/Abbreviation	Definition
Outline HRMP	Outline Hazard and Risk Management Plan
H&S	Health and Safety
IC	Independent Certifier
IECA	International Erosion Control Association
IFD	Intensity-Frequency-Duration
ISCA	Infrastructure Sustainability Council of Australia
KPI	Key Performance Indicator
KRA	Key Result Area
LNAPL	Light Non Aqueous Phase Liquid
Managed Works	Means Project Work for which either the predicted or monitored impacts meet the performance criteria at a Sensitive Place.
MCU	Material Change of Use
MEDQ	Minister for Economic Development Queensland
MES	Matters of Environmental Significance
MHWS	Mean High Water Spring
MLES	Matter of Local Environmental Significance
MNES	Matter of National Environmental Significance
MOSI	Mandatory Optional Scope Items
MRTS	Main Roads Technical Specifications
MSES	Matter of State Environmental Significance
NALL	Natural Assets Local Law 2003
NATA	National Association of Testing Authorities
NC Act	Nature Conservation Act 1992
Outline NCMP	Outline Nature Conservation Management Plan
NEPM	National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013
NGER	National Greenhouse and Energy Reporting Act 2007
NGR	New Generation Rollingstock
Non Compliance Event	means Project Works that do not comply with the Imposed Conditions
NT Act	Native Title Act 1993 (Cwth)
Outline NVMP	Outline Noise and Vibration Management Plan
O-EMP	Outline Environmental Management Plan
OFSC	Office of Federal Safety Commission
OPEX	Operational Expenditure
PAA	Project Alliance Agreement
PAHs	Poly Aromatic Hydrocarbons
PALM	Permit and Licence Management
PASS	Potential Acid Sulfate Soils
PCPV	Peak Component Particle Velocity
PDA	Priority Development Area
PMP	Project Management Plan

Acronym/Abbreviation	Definition
PMS	Project Management System
PMST	Protected Matters Search Tool
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 Works	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
PSTR	Project Scope and Technical Requirements
QHC	Queensland Heritage Council
Qld	Queensland
QR	Queensland Rail
QRHC	Queensland Rail Heritage Council
RCP	Representative Concentration Pathway
RCS	Respirable Crystalline Silica
RE	Regional Ecosystem
RFP	Request For Proposal
RfPC	Request for Project Change
RIFA	Red Imported Fire Ant
RIS	Rail, Integration and Systems Package
ROMP	Risk and Opportunity Management Plan
RPEQ	Registration as a professional engineer of Queensland
RPP	Riverine Protection Permit
SAMP	Outline Social Amenity Management Plan
SARA	State Assessment and Referral Agency
SBS	System Breakdown Structure
SDS	Safety Data Sheet
SDAP	State Development Assessment Provisions
SDPWO Act	State Development and Public Works Organisation Act 1971 (Qld)
Sensitive Place	- Dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel) - Library, childcare centre, kindergarten, school, university or other educational institution - Medical centre, surgery or hospital - Protected area - 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 - 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.
SEP	Site Environmental Plan
SEQ	South East Queensland
SME	Subject Matter Expert

Acronym/Abbreviation	Definition
SMP	Sustainability Management Plan
SMP	Site Management Plan (contaminated land)
SPP	State Planning Policy
SQP	Suitably Qualified Person
Suitably Qualified Person – Contaminated Land	Means a person who: (a) has qualifications and experience relevant to performing the function including but not limited to: i. a bachelor's degree in science or engineering; and ii. 3 years' experience in undertaking soil contamination assessments; and (b) is a member of at least one organisation prescribed in Schedule 8 of the Environmental Protection Regulation 2008
Suitably Qualified Person (other matters)	Means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature
SWMS	Safe Work Method Statement
TBC	To be Confirmed
TDS	Total Dissolved Solids
TEC	Threatened Ecological Community
TMP	Traffic Management Plan
TN	Total Nitrogen
TNA	Training Needs Analysis
TOR	Terms of Reference
TP	Total Phosphorus
TRH	Total Recoverable Hydrocarbons
TSS	Total Suspended Solids
VFM	Value for Money
WAP	Work Area Plan
WBS	Work Breakdown Structure
WHSMMP	Workplace Health and Safety Management Plan
WRRMP	Waste and Resource Recovery Management plan
WQMP	Outline Water Quality Management Plan

Attachment 2 Environmental Certification



Certificate AU14/4487

The management system of

CPB Contractors Pty Limited

Level 18, 177 Pacific Highway, North Sydney, NSW, 2060
Australia

has been assessed and certified as meeting the requirements of

ISO 14001:2015

For the following activities

The provision of project management and related services including design, procurement, construction, traffic management at roadworks, completion, commissioning and maintenance of civil Infrastructure (including site preparation, road and bridge construction, non-building construction, plant hire and leasing), building, rail, water, utilities, tunnelling, energy, marine, mine infrastructure, structural, mechanical, piping and electrical engineering and related industries delivered under varying forms of contract including joint ventures and alliances. The scope of registration also includes the maintenance and repair of fixed and mobile plant and the manufacture of precast concrete units for major infrastructure works.

This certificate is valid from 07/12/2016 until 30/11/2019 and remains valid subject to satisfactory surveillance audits.
Re certification audit due before 30/10/2019
Issue 7. Certified since December 1995

This is a multi-site certification.
Additional site details are listed on the subsequent page.

Authorised by



 SGS Systems & Services Certification Pty Ltd
 10/585 Blackburn Road, Notting Hill VIC 3168, Australia
 t(61-3) 9574 3200 f(61-3) 9574 3399 www.au.sgs.com

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Certificate AU14/4487, continued

SGS

CPB Contractors Pty Limited

ISO 14001:2015

Issue 7



Additional facilities

Business Unit Operations

Level 2, 177 Pacific Highway, North Sydney, NSW, 2060

Level 6, 567 Collins Street, Melbourne, VIC, 3000

Level 6, HQ South Tower, 520 Wickham Street, Fortitude Valley, QLD
4006

14-64 Industrial Avenue, Bohle, QLD, 4818

202 Pier Street, Perth, WA, 6000

Level 2, 19 Hargreaves Street, Auckland, 1011, New Zealand

Ground Level, 62 Cavenagh Street, Darwin, NT, 0800

Plant Facilities

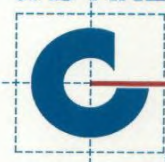
8a Hereford Street, Berkeley Vale, NSW, 2261

Lot 804 (SubLot5) Elmsfield Road, Midvale, WA, 6056

67 Bernoulli Street, Darra, QLD, 4076

158 Cherry Lane, Laverton North, VIC, 3026

JAS-ANZ



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Pre-cast Facility

Corner Engineering & Industrial Drive, North Boambee, NSW, 2450

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Attachment 3 Coordinator-General – Project Wide Imposed Conditions Compliance Table

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part A - General Conditions		Part A. Imposed Conditions (General)		Not applicable to Advance Works – Site Wide – Non Intrusive Works
CG Report - Part A - Condition 1 - General Conditions		Condition 1. General conditions		
CG Report - Part A - Condition 1 - General Conditions	UNITY	(a) The project must be carried out generally in accordance with:	Section 2.1	
CG Report - Part A - Condition 1 - General Conditions	UNITY	(i) the Cross River Rail Request for Project Change dated April 2019;	Section 2.1	
CG Report - Part A - Condition 1 - General Conditions (part)	UNITY	(ii) the 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 (D) CRR-0003-CD-GA-110 – Construction Site Plans Moorooka Station (G) CRR-0003-RP-GA-124 – Property Impact Plans – 24	Section 2.1	
CG Report - Part A - Condition 1 - General Conditions (part)	Not Applicable to UNITY	(ii) the 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 (C) CRR-0003-AL-GA-211 – General Arrangement - 11 (E) CRR-0003-DUT-GA-101 – Dutton Park Station (F) CRR-0003-RP-GA-111 – Property Impact Plans – 11	N/A	These amended Plans form part of the TSD scope of works
CG Report - Part A - Condition 1 - General Conditions	Not Applicable to UNITY	(iii) amendments to the Project identified in the Cross River Rail Request for Project Change dated June 2018;.	N/A	The June 2018 RfPC relates to the Temporary Roma Street Coach Terminal Scope which does not form part of the RIS Alliance Scope of Works
CG Report - Part A - Condition 1 - General Conditions	Not Applicable to UNITY	(iii) amendments to the Project identified in the Cross River Rail Request for Project Change dated November 2018.	N/A	The November 2018 RfPC relates to the Roma Street Demolition Scope which does not form part of the RIS Alliance Scope of Works
CG Report - Part A - Condition 1 - General Conditions	Delivery Authority	(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.	N/A	The notification to external parties managed by the Delivery Authority as the Project Owner
CG Report - Part A - Condition 1 - General Conditions	Not Applicable to UNITY	(c) The temporary coach terminal works must be carried out in accordance with the conditions imposed at Appendix 3.	N/A	The Temporary Coach Terminal scope of Works does not form part of the RIS Alliance Scope of Works
CG Report - Part A - Condition 2 - Outline EMP		Condition 2. Outline Environmental Management Plan		
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(a) Two months prior to the commencement of Project Work submit a final Outline Environmental Management Plan to the Coordinator-General for approval.	N/A	The Final Outline Environmental Plan is the Responsibility of the Delivery Authority and was approved on 18 December 2018
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(b) The Outline Environmental Management Plan must:	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(i) Include the environment outcomes and performance criteria for each environmental element from the draft outline EMP except as amended by these conditions;	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(ii) include possible mitigation measures, monitoring and reporting for each environmental element to achieve the environmental outcomes;	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(iii) include an outline of:	N/A	As Above

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(A) the Construction Environmental Management Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(B) the Commissioning Environmental Management Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(iv) be consistent with the Environmental Design Requirements in Schedule 1	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(v) include the following sub-plans:	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(A) Community and Stakeholder Engagement Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(B) Construction Worksite Management Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(C) Construction Traffic Management Plan (CTMP)	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(D) Construction Vehicle Management Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(A) Water Quality Monitoring Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(B) Erosion and Sediment Control Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(C) Spoil Placement Management Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(D) Noise and Vibration Management Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(E) Air Quality Management Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(F) Settlement Management Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(G) Non-Indigenous Cultural Heritage Management Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(H) Indigenous Cultural Heritage Management Plan	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(ii) 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.	N/A	As Above
CG Report - Part A - Condition 2 - Outline EMP	Delivery Authority	(b) 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.	N/A	As Above
CG Report - Part B - Design Conditions		Part B. Imposed Conditions (Design)		
CG Report - Part B - Condition 3 - Design		Condition 3. Design		
CG Report - Part B - Condition 3 - Design	UNITY	(a) The project must achieve the Environmental Design Requirements in Schedule 1	Not addressed in the C-EMP	This process will be managed during the detailed design process and will be Reported on as part of the Progressive Environmental Design Report Commissioned against under the Commissioning Environmental Management Plan

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Construction Conditions		Part C - Construction. Imposed Conditions (Construction)		
CG Report - Part C - Construction - Condition 4 - C-EMP		Condition 4. Construction Environmental Management Plan		
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(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.		Not applicable to Advance Works – Site Wide – Non Intrusive Works
CG Report - Part C - Construction - Condition 4 - C-EMP	Delivery Authority	(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.	N/A	The notification to external parties managed by the Delivery Authority as the Project Owner Not applicable to Advance Works – Site Wide – Non Intrusive Works
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(c) The Construction Environmental Management Plan must:	This Plan	Not applicable to Advance Works – Site Wide – Non Intrusive Works
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(i) describe the Relevant Project Work;	Section 1.3, Section 1.4, Section 1.6	Not applicable to Advance Works – Site Wide – Non Intrusive Works
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(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;	Section 3.2	The planning documentation UNITY uses ensures the adequate level of detail is distilled through pertinent management documents that are not only targeted at the works and associated impacts but also the audience of project staff responsible for implementing the associated mitigation measures The outcomes of the predictive studies and assessments will typically be detailed in the Construction Area Plans or in the Workpacks and associated Site Environmental Plans
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(iii) be generally consistent with the Outline EMP and incorporate its environmental outcomes and performance criteria;	Section 4.2	The endorsement of this plan by the Environmental Monitor and subsequent publication on the Project Website is the guarantee that the C-EMP is consistent with the O-EMP and the imposed condition.
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(iv) incorporate and respond to the Imposed Conditions (Construction);	Section 4 This Plan and associated sub-plans	This compliance Table maps out how each Imposed Condition (Construction) has been addressed and traces where the detail of the information will be contained (either within the C-EMP body, its subplans or other planning documentation such as Workpacks and Site Environmental Plans .
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(v) demonstrate that the Imposed Conditions (Construction) will be complied with during Relevant Project Work;	Section 4	
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(vi) incorporate the community engagement plan, including the complaints management process, in accordance with Condition 9;	Section 3.3, Section 6.4 CEP	
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(vii) where predictive studies indicate impacts beyond those provided for in the performance criteria, incorporate mitigation measures to achieve the environmental outcomes;	Section 3.2	
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(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);	CEP Section 6.5	
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(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);	Section 6.3	
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(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;	Section 6.3, Section 7	The Construction Environmental Monitoring Program in attachment 4 supplements section 6.3

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(xi) incorporate the EMP sub-plans required by the Imposed Conditions or as required by the approved Outline EMP;	Section 3.3.2	
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(d) The Construction Environmental Management Plan must be implemented for the duration of Relevant Project Work;	Section 3.1	
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(e) Relevant Project Work is authorised if it is undertaken in accordance with the Construction Environmental Management Plan;	Section 4.1.2	
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(f) The Construction Environmental Management Plan must be publicly available on the project website for the duration of the construction phase;	Section 4.1.2	
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(g) The Construction Environmental Management Plan may be updated;	Section 8.1	
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(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;	Section 8.1	
CG Report - Part C - Construction - Condition 4 - C-EMP	UNITY	(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.	Section 8.1	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	Condition 5. Compliance		
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(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.	Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(b) The notification must include:	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(i) a description of the Non-Compliance Event, including details of the location, date and time of the Non-Compliance Event;	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(ii) the name and contact details of a designated contact person;	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(iii) an outline of actions that have been or will be taken to respond to the Non- Compliance Event.	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(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:	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(i) a description of the Non-Compliance Event, including details of the location, date and time of the Non-Compliance Event;	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(ii) the name and contact details of a designated contact person;	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(i) the circumstances in which the Non-Compliance Event occurred;	Section 6, Section 8.2.2	

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(iii) details of any complaint in relation to the Non-Compliance Event;	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(iv) the cause of the Non-Compliance Event;	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(v) a description of the environmental effects of the Non-Compliance Event;	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(vi) the results of any sampling or monitoring performed in relation to the Non- Compliance Event;	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(vii) actions taken to mitigate the environmental effects of the Non-Compliance Event;	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(viii) proposed actions to prevent a recurrence of the Non-Compliance Event, including timing and responsibility for implementation.	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 5 - Compliance	UNITY	(b) 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.	Section 6, Section 8.2.2	
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	Condition 6. Reporting		
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(a) The Proponent must prepare a Monthly Report that summarises compliance and monitoring results for the duration of construction works.	Section 8.2.1	
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(b) The Monthly Report must include:	Section 8.2.1	
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(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;	Section 8.2.1	
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(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;	Section 8.2.1	
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(iii) reporting of complaints, including the number of complaints, description of issues, responses and corrective actions.	Section 8.2.1	
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(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.	Section 8.2.2	
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(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.	Section 8.2.2	
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(e) The Annual Report must include:	Section 8.2.2	
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(i) a compliance evaluation table detailing the relevant imposed condition, whether compliance with the condition was achieved and how compliance was evaluated	Section 8.2.2	

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(ii) an evaluation of compliance in relation to the CEMP and its sub-plans;	Section 8.2.2	
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(iii) a summary of any Non-Compliance Events during the reporting period;	Section 8.2.2	
CG Report - Part C - Construction - Condition 6 - Reporting	UNITY	(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).	Section 8.2.2	
CG Report - Part C - Construction - Condition 7 - Environmental monitor	UNITY	Condition 7. Environmental Monitor		
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery Authority	(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.	N/A	This is the responsibility of the Delivery Authority
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery Authority & UNITY	(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:	Community Engagement Sub-Plan	
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery Authority & UNITY	(i) all approvals;	Section 2.4	
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery Authority & UNITY	(ii) the Construction Environmental Management Plan;	Section 4.1.2	
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery Authority & UNITY	(iii) results of all monitoring required under the Imposed Conditions (Construction) including through the Construction Environmental Management Plan;	Section 3.3.2, Section 8.2	
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery Authority & UNITY	(iv) all information relating to complaints, including access to the complaints database.	Community Engagement Sub-Plan	
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery authority	(c) The Environmental Monitor must:	N/A	This condition details the responsibilities and accountabilities of the Environmental Monitor
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery authority	(i) monitor compliance with the imposed conditions during the construction of the project;	N/A	This condition details the responsibilities and accountabilities of the Environmental Monitor
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery authority	(ii) monitor compliance with the Construction Environmental Management Plan and sub-plans;	N/A	This condition details the responsibilities and accountabilities of the Environmental Monitor
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery authority	(iii) maintain a register of mitigation measures agreed between the Proponent and Directly Affected Persons (Mitigation Register);	N/A	This condition details the responsibilities and accountabilities of the Environmental Monitor
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery authority	(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;	N/A	This condition details the responsibilities and accountabilities of the Environmental Monitor
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery authority	(v) review the results of monitoring, which may be verified by the Environmental Monitor including by independent monitoring;	N/A	This condition details the responsibilities and accountabilities of the Environmental Monitor
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery authority	(vi) provide advice to the Proponent about compliance with the Imposed Conditions for construction, including by providing the results of independent monitoring where required;	N/A	This condition details the responsibilities and accountabilities of the Environmental Monitor

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery authority	(vii) provide advice to the Proponent about issues raised in complaints and the response to complaints, including advice from the Community Relations Monitor;	N/A	This condition details the responsibilities and accountabilities of the Environmental Monitor
CG Report - Part C - Construction - Condition 7 - Environmental monitor	Delivery authority	(viii) endorse the Construction Environmental Management Plan as consistent with the Outline EMP and complying with the Imposed Conditions (Construction);	N/A	This condition details the responsibilities and accountabilities of the Environmental Monitor
CG Report - Part C - Construction - Condition 8 - Community Relations monitor		Condition 8. Community Relations Monitor		
CG Report - Part C - Construction - Condition 8 - Community Relations monitor	Delivery authority	(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.	N/A	The Delivery Authority has engaged an Independent Community Relations Monitor in July 2019
CG Report - Part C - Construction - Condition 8 - Community Relations monitor	Delivery authority	(b) The Community Relations Monitor must:	N/A	This condition details the responsibilities and accountabilities of the Community Relations Monitor
CG Report - Part C - Construction - Condition 8 - Community Relations monitor	Delivery authority	(i) review and provide advice to the Environmental Monitor on the community engagement plan required by Condition 9;	N/A	This condition details the responsibilities and accountabilities of the Community Relations Monitor
CG Report - Part C - Construction - Condition 8 - Community Relations monitor	Delivery authority & Unity	(ii) receive monthly reports from the proponent on complaints;	Section 8.2	
CG Report - Part C - Construction - Condition 8 - Community Relations monitor	Delivery authority	(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;	N/A	This condition details the responsibilities and accountabilities of the Community Relations Monitor
CG Report - Part C - Construction - Condition 8 - Community Relations monitor	Delivery authority	(iv) provide advice to the Environmental Monitor in relation to complaints, community engagement and consultation on mitigation measures;	N/A	This condition details the responsibilities and accountabilities of the Community Relations Monitor
CG Report - Part C - Construction - Condition 8 - Community Relations monitor	Delivery authority	(v) be available to members of the community in accordance with Condition 9(f)(vi).	N/A	This condition details the responsibilities and accountabilities of the Community Relations Monitor
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan		Condition 9. Community engagement plan		
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(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.	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(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.	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(c) The community engagement plan must provide for:	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(i) Directly Affected Persons to be consulted prior to commencement of Project Works and ongoing thereafter about Project Works, predicted impacts and mitigation measures;	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(ii) Directly Affected Persons to be consulted about possible mitigation measures;	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(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;	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(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;	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(v) specific community consultation plans for identified key stakeholders;	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(vi) implementation of an Indigenous employment policy, providing for Indigenous training and employment opportunities;	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(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.	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(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.	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(e) The complaints management system must deliver a prompt response to community concerns with relevant information, action where required, and reporting of incidents.	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(f) As a minimum, the complaints management system must include the following elements:	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(i) a procedure for receiving complaints on a 24 hour, seven days a week basis, during Project Works;	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(ii) a mechanism for notifying the community of the complaints procedure and how it may be accessed;	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(iii) a process for registering and handling complaints received, including a database for tracking of complaints and actions taken in response;	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(iv) a procedure for verifying complaints through monitoring and detailed investigation, and escalating and resolving verified complaints;	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(v) a procedure for complaints to be notified to the Community Relations Monitor, including information about the complaint and its resolution;	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(vi) access by the community to the Community Relations Monitor; and	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(vii) regular reporting via the monthly environmental report, to the community of complaints and corrective actions, maintaining appropriate confidentiality.	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 9 - Community Engagement Plan	UNITY	(g) All information regarding complaints, including the information collected in Condition 9(f)(iii) must be made available to the Community Relations Monitor.	Community Engagement Sub-Plan	Refer to CG Conditions of Approval Compliance Table in the CEP
CG Report - Part C - Construction - Condition 10 - Hours of work		Condition 10. Hours of work		
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(a) Surface works for the Project are authorised to be undertaken within the hours of work set out in Table 1.	Section 4.1.3	

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 10 - Hours of work	Multiple	Table 1. Construction hours		
CG Report - Part C - Construction - Condition 10 - Hours of work	Not Applicable to UNITY	(b) Project Works that are underground, or in a ventilated acoustic enclosure, may be undertaken at any time provided the environmental outcomes are achieved.	N/A	This condition is related to the TSD scope of works
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(c) Works carried out because of an emergency that:	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(i) is endangering the life or health of a person; or	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(ii) is endangering the structural safety of a building; or	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(iii) is endangering the operation or safety of community infrastructure that is not a building; or	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(iv) is required to prevent environmental harm, may be undertaken outside the hours set out in Table 1.	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(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:	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(i) Project Works within rail corridor land;	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(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;	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(iii) Project Works involving the transport, assembly or decommissioning of oversized plant, equipment, components or structures;	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(iv) delivery of "in time" materials such as concrete, hazardous materials, large components and machinery;	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(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.	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(e) 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.	Section 4.1.3	
CG Report - Part C - Construction - Condition 10 - Hours of work	UNITY	(f) Prior to blasting events, at least 48 hours' notice must be provided to persons who may be adversely affected.	Section 4.1.3	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration		Condition 11. Construction Noise and Vibration		
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(a) Project Works must aim to achieve the project noise goals for human health and well-being presented in Table 2.	Noise and Vibration Sub-Plan	

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	Table 2. Noise goals (internal) for Project Works	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	Notes	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	1. All goals are internal noise levels for human health and well-being outcomes.	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	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).	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(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.	Section 3.3.2, Section 8.2, Attachment 4	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(c) Project Works predicted to or monitored as generating noise levels more than 20dBA (LA eq 10min, adj) above the relevant goal in Table 2. are authorised to occur in a locality only:	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(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;	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(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;	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(iii) where the mitigation measures are incorporated in a mitigation register and implemented prior to undertaking the Project Works;	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(iv) between the hours 7.00am to 6.00pm Monday to Friday, with a respite period between 12.00noon and 2.00pm each day;	Noise and Vibration Sub-Plan	

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(d) Project Works must aim to achieve the construction vibration goals in Table 3.	Noise and Vibration Sub-Plan	Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Establishment of site access in Victoria Park to the Rail Corridor Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	Table 3. The construction vibration goals	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	Notes:	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	1. All residential receivers in the vicinity of the Project blasting sites are regarded as reinforced or framed structures (i.e. BS7385)	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	2. Residential sleep disturbance	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	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	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	4. If resonance is present, or if investigation to detect resonance were not able to be undertaken due to a lack of access	Noise and Vibration Sub-Plan	

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(e) 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.	Noise and Vibration Sub-Plan	Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Establishment of site access in Victoria Park to the Rail Corridor Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(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:	Noise and Vibration Sub-Plan	Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Establishment of site access in Victoria Park to the Rail Corridor - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(i) between the hours 7.00am to 6.00pm Monday to Friday, with a respite period between 12.00noon and 2.00pm each day; or	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 11 - Construction Noise and Vibration	UNITY	(ii) in accordance with the mitigation measures developed in consultation with and agreed by Directly Affected Persons that are incorporated in the Mitigation Register.	Noise and Vibration Sub-Plan	
CG Report - Part C - Construction - Condition 12 - Property damage		Condition 12. Property Damage		

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 12 - Property damage	UNITY	(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.	Section 6.5, Attachment 4 Noise and Vibration Sub-Plan	Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 12 - Property damage	UNITY	(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:	Noise and Vibration Sub-Plan Non- Indigenous Cultural Heritage Sub-Plan CEP	Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.
CG Report - Part C - Construction - Condition 12 - Property damage	UNITY	(i) advance communication with potentially Directly Affected Persons;	As above and Section 6.5 CEP	
CG Report - Part C - Construction - Condition 12 - Property damage	UNITY	(ii) procedures for building condition surveys both in advance of and following Project Works, including provision for consultation with property owners and occupants;	As above and CEP	

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 12 - Property damage	UNITY	(iii) monitoring to be undertaken for potential impacts to property; and	As above and Attachment 4	Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.
CG Report - Part C - Construction - Condition 12 - Property damage	UNITY	(iv) mitigation measures.	As above and CEP	

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 12 - Property damage	UNITY	(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.	Non- Indigenous Cultural Heritage Sub-Plan CEP	Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.
CG Report - Part C - Construction - Condition 13 - Air Quality		Condition 13. Air quality		
CG Report - Part C - Construction - Condition 13 - Air Quality	UNITY	(a) Project Works must aim to achieve the goals in Table 4.	Air Quality Management Sub-Plan	
CG Report - Part C - Construction - Condition 13 - Air Quality	UNITY	Table 4. Air quality criteria and goals	Air Quality Management Sub-Plan	

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 13 - Air Quality	UNITY	(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	Section 3.3.2, Section 8.2, Attachment 4 Air Quality Management Sub-Plan	Limited Applicability to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station. For these works visual monitoring will be conducted as part of the routine inspection by the environment team and the daily inspections undertaken by the supervisors
CG Report - Part C - Construction - Condition 14 - Traffic and Transport		Condition 14. Traffic and transport		
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(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.	Construction Activities Management Sub Plan	
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(b) During construction workforce car parking must be provided and managed to avoid workforce parking on local streets.	Construction Activities Management Sub-Plan	
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(c) Access for emergency services to project worksites and adjoining properties must be maintained throughout the construction phase.	Construction Activities Management Sub-Plan	
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(d) Practicable access is maintained to adjacent properties throughout the construction phase.	Construction Activities Management Sub-Plan	

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(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.	Construction Activities Management Sub-Plan	Partially applicable as most of the Spoil the RIS alliance will generate is or is likely to be contaminated and therefore is not deemed spoil as per the definition of the Outline Spoil Placement Management Plan Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	Delivery Authority	(f) The Outline Environmental Management Plan must be supported by a road safety assessment for the spoil haulage route.	N/A	Construction Spoil is defined in the Outline Spoil Placement Management Plan as <i>any soil or rock removed from a Project worksite or work area as a consequence of undertaking Project Works. Construction spoil does not include any material, such as liquid or solid waste material, contaminated soil or water, or hazardous or toxic material, that is subject to approvals or permitting requirements for its handling or removal</i> Most of the Spoil that the RIS Alliance will generate comes from a Brownfield Railway Corridor. May it be ballast or subsoils, most of the material is deemed contaminated and will require lawful disposal to appropriately licensed landfills. Partially applicable as most of the Spoil the RIS alliance will generate is or is likely to be contaminated and therefore is not deemed spoil as per the definition of the Outline Spoil Placement Management Plan Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(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.	Construction Activities Management Sub-Plan	Vehicle Management Plans will be included on the Workpacks for the following activities - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(h) The Construction Traffic Management Plan must include:	Construction Activities Management Sub-Plan	
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(i) the proposed access to worksites, with local or minor roads only used where unavoidable to access a project worksite;	Construction Activities Management Sub-Plan	
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(ii) a process for advance notice to Directly Affected Persons and local communities within the vicinity of the spoil haulage routes and worksite accesses;	CEP	
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(iii) local traffic management measures developed in consultation with Brisbane City Council for key intersections:	Construction Activities Management Sub-Plan	
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(A) in Bowen Hills including Bowen Bridge Road, College Road and O'Connell Terrace;	Construction Activities Management Sub-Plan	
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	Not Applicable to UNITY	(B) in the CBD including Albert Street, Charlotte Street, Elizabeth Street and Roma Street;	N/A	This condition affects the TSD Scope of Works
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	Not Applicable to UNITY	(C) at Woolloongabba including Leopard Street, Stanley Street, Vulture Street and Main Street;	N/A	This condition affects the TSD Scope of Works
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	Not Applicable to UNITY	(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.	N/A	This condition affects the TSD Scope of Works
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(iv) specific traffic management measures developed in consultation with other key stakeholders, including:	CEP Construction Activities Management Sub-Plan	
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	Not Applicable to UNITY	(A) the department administering the Economic Development Act 2012 with regards traffic management in the Queens Wharf Brisbane priority development area;	N/A	This condition affects the TSD Scope of Works
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(B) Queensland Rail about maintaining access to railway stations; and	Construction Activities Management Sub-Plan	
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(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.	Construction Activities Management Sub-Plan	
CG Report - Part C - Construction - Condition 14 - Traffic and Transport	UNITY	(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.	Construction Activities Management Sub-Plan	

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 15 - Water Quality		Condition 15. water Quality		
CG Report - Part C - Construction - Condition 15 - Water Quality	UNITY	(a) Discharge of surface water and groundwater from Project Works must comply with the Brisbane River Estuary environmental values and water quality objectives (Basin no. 143 - mid-estuary) in the Environmental Protection (Water) Policy 2009.	Contaminated land Management Sub-Plan Erosion and Sediment Control Sub-Plan Waterways and Water Quality Management Sub-Plan Acid Sulfate Soils Management Sub-Plan	Limited (e.g. in the event of a loss of containment) to no applicability to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 15 - Water Quality	UNITY	(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.	Contaminated Land Management Sub-Plan Erosion and Sediment Control Sub-Plan Section 3.3.2, Section 8.2, Attachment 4 Acid Sulfate Soils Management Sub-Plan	Limited (e.g. in the event of a loss of containment) to no applicability to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.
CG Report - Part C - Construction - Condition 16 - Water Resources		Condition 16. Water resources		

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 16 - Water Resources	UNITY	(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.	Contaminated Land Management Sub-Plan Waterways and Water Quality Management Sub-Plan Acid Sulfate Soils Management Sub-Plan	Consistent with Volume 3 of RfPC#4 groundwater drawdown risk is associated with Tunnelling activities which is outside of the RIS Alliance Scope of Works and also relates to potential future settlement issues. Disturbance of contaminated soils, acid sulphate and groundwater has a level of relevance to this condition, generally to ensure that the construction methodologies do not result in excessive amount of dewatering of impacted waters that may increase the risk to the receiving environment and the workers Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.
CG Report - Part C - Construction - Condition 16 - Water Resources	UNITY	(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.	Contaminated Land Management Sub-Plan Waterways and Water Quality Management Sub-Plan Acid Sulfate Soils Management Sub-Plan	As above
CG Report - Part C - Construction - Condition 16 - Water Resources	UNITY	(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.	Contaminated Land Management Sub-Plan Waterways and Water Quality Management Sub-Plan Acid Sulfate Soils Management Sub-Plan	As above
CG Report - Part C - Construction - Condition 17 - Surface Water		Condition 17. Surface Water		

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 17 - Surface Water [PART]	Not Applicable to UNITY	(a) Project Works, and worksites, must be designed and implemented to avoid inundation from stormwater due to a 2 year (6hr) ARI rainfall event [...].	N/A	This condition is relevant for tunnelling and sub-surface works associated with deep shafts excavations
CG Report - Part C - Construction - Condition 17 - Surface Water [PART]	UNITY	(a) Project Works, and worksites, must be designed and implemented to avoid inundation from [...] flood waters due to a 5 year ARI rainfall event.	Erosion and Sediment Control Sub-Plan	To the extent that is reasonable and practicable and based on detailed flood modelling findings Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor Unity has reviewed the currently available flooding zones information and the following site offices are outside the 1 in 20-year Event flood zone. There are therefore outside the 1 in 5 year flood zone - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Satellites and facilities – general alignment: - RNA, O'Connell Terrace, Bowen Hills - Tufton Street, Bowen Hills - Mayne Yard rail office - Victoria Park, Spring Hill - Satellites and facilities – F2S: - Salisbury Station - Rocklea Station - Moorooka Station/Clapham - Yeerongpilly Station - Yeronga Station - Fairfield Station.
CG Report - Part C - Construction - Condition 17 - Surface Water	UNITY	(b) 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.	Erosion and Sediment Control Sub-Plan	To the extent that is reasonable and practicable
CG Report - Part C - Construction - Condition 18 - ESC		Condition 18. Erosion and sediment control		
CG Report - Part C - Construction - Condition 18 - ESC	UNITY	(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.	Erosion and Sediment Control Sub-Plan	
CG Report - Part C - Construction - Condition 19 - Acid SS		Condition 19. Acid sulphate soils		

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 19 - Acid SS	UNITY	(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.	Acid Sulphate Soils Management Sub-Plan	
CG Report - Part C - Construction - Condition 20 - Landscape and Open space		Condition 20. Landscape and open space		To the extent this is relevant to construction activities
CG Report - Part C - Construction - Condition 20 - Landscape and Open space	UNITY	(a) Project Works are designed and implemented to minimise impacts on landscape and open space values.	Landscape and Rehabilitation Sub-Plan	To the extent this is relevant to construction activities Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard
CG Report - Part C - Construction - Condition 20 - Landscape and Open space	UNITY	(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.	Landscape and Rehabilitation Sub-Plan	
CG Report - Part C - Construction - Condition 20 - Landscape and Open space	UNITY	(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.	Nature Conservation Sub-Plan	Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard

Source	Responsibility	Condition Details	Addressed	Comments
CG Report - Part C - Construction - Condition 20 - Landscape and Open space	UNITY	(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.	Landscape and Rehabilitation Sub-Plan	This is currently not covered by RfPC#4 Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard
CG Report - Part C - Construction - condition 21 - Workspace rehabilitation		Condition 21. Worksite rehabilitation		Not Applicable to - Intrusive works include but may not be limited to: - Positive Public Utility Plant (PUP) locations identification - Geotechnical Surveys - Contaminated Land, Acid Sulphate Soils and groundwater Surveys - Enabling Works – select locations: - Project site office establishment at Victoria Park, off Gilchrist Avenue in Herston - Northern Portal from College Road to Mayne neck which consist of decommission redundant Normanby Roads and enable Holding Road with Turnback - Mayne North Enabling Works which consist of decommissioning Mayne North Yard - Biomedical Technology Services (BTS) building demolition near Victoria Park and establishment of site access to the Rail Corridor
CG Report - Part C - Construction - condition 21 - Workspace rehabilitation	UNITY	(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.	Landscape and Rehabilitation Sub-Plan	
CG Report - Part C - Construction - condition 21 - Workspace rehabilitation	UNITY	(b) All other worksites required to support commissioning activities must be rehabilitated as soon as practicable on completion of commissioning or sooner where possible.	Landscape and Rehabilitation Sub-Plan	
CG Report - Part C - Construction - condition 21 - Workspace rehabilitation	UNITY	(c) Rehabilitation must address soil erosion and sedimentation, dust nuisance and landscape and visual impact.	Landscape and Rehabilitation Sub-Plan	
CG Report - Part C - Construction - condition 21 - Workspace rehabilitation	UNITY	(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.	Landscape and Rehabilitation Sub-Plan	

Attachment 4 Construction Environmental Monitoring Program

EMP Sub-Plan	Activity/Element	Monitoring Procedure	Locations	Responsibility	Frequency
Acid Sulfate Soils	Surface Water	Surface water testing regime for acid sulfate soils parameters	Mayne Yard and associated sensitive receiver of Enoggera/Breakfast Creek	Environment team	as per the ASSMP
	Soils	Visual site inspections of excavated stockpiled materials, excavations, lime stockpiles, ASS treatment pads.	Mayne Yard Clapham Yard	1. Environment team 2. Area supervisor/superintendent	1. Weekly scheduled inspections 2. Daily inspections
	Groundwater	Groundwater water testing regime to be determined by SQP during the detailed design phase based on review of existing information.	Mayne Yard and associated sensitive receiver of Enoggera/Breakfast Creek	Environment Team	To be confirmed during detailed design
Air Quality	Predictive	Predictive modelling of TSP, PM10 and dust.	Site wide	Air quality specialist	Prior to Project Works Commencing
		Monitoring of potential adverse weather conditions (eg. wind).	Active worksites	Environment team	Three days look ahead in daily prestart
	Site Inspection	Visual site inspections of exposed areas and stockpiles.	Active worksites	Area supervisor/superintendent	Daily when working
	Scheduled Inspections	Visual site inspections undertaken during scheduled inspections.	Active worksites	Environment team	Weekly
	Complaints	Further investigations to be undertaken in the event of a complaint related to nuisance dust.	Site wide	Communications and Stakeholder Engagement Team (CSET) Environment team with support from SQP as required	As triggered
	Air Quality Criteria	Particulate matter monitoring to demonstrate compliance with the TSP, deposited dust and PM10 construction criteria which could be mobilised during bulk earthworks activities Exact locations of each monitoring station to be confirmed at detailed design upon review of the prevalent wind conditions and nearest sensitive receptors Monitoring locations for TSP and PM10 will be sited where feasible in accordance with AS2922.	Active high-risk sites – 1 monitoring station at each of the following sites: - Mayne Yard - Victoria Park near Centenary pool - Clapham Yard - Background location North (likely Mayne Yard or Exhibition Station) - Background location South Rocklea DES.	Environment team	TSP and PM10 – on a continuous basis initially to validate model and then as required if monitoring data demonstrates compliance with criteria Regular (typically weekly or fortnightly) data downloads would be required Deposited dust – monthly
Air Quality Weather	Predictive	Weather forecast is reviewed and key climatic conditions recorded and distributed site wide (eg. rain, wind, temperatures).	Active worksites	Environment team	Three days look ahead in daily prestart
	Routine	Daily weather records at key strategic locations along the alignment using a weather station The following parameters are to be recorded at sufficient interval to support compliance assessment of air quality and surface water quality results: rainfall, humidity, temperature, wind speed, wind direction.	Mayne Yard Exhibition Station Clapham Yard F2S station as required	Environment team	Daily when working
Indigenous and Non Indigenous Heritage	Protected Heritage Values	Visual site inspections of items of heritage significance marked as requiring protection (eg. as per heritage permits and/or NICHMP requirements), ie. inspection of exclusion zone around a protected structure or heritage value (eg. artefact scatter) such as barricading and signage.	As relevant	1. Environment team 2. Area supervisor/superintendent	1. Weekly scheduled inspections 2. Daily inspections
	Heritage building susceptible to vibration impact	As per the vibration monitoring section.	As per the vibration monitoring section	As per the vibration monitoring section	As per the vibration monitoring section

EMP Sub-Plan	Activity/Element	Monitoring Procedure	Locations	Responsibility	Frequency
Noise and Vibration NOISE	Predictive	Predictive modelling of noise levels to be generated during construction.	Site wide	Acoustics specialist	Detailed design
		Predictive modelling of noise levels to be generated by specific construction activities with high risk of generating noise, including reverberated noise (eg. piling) or to be undertaken out of standard hours (eg. night works).	As relevant	Environment team	As required
	Scheduled Inspections	Visual site inspections undertaken during scheduled inspections may be supplemented by spot checking of noise levels being generated at the source During site inspection records of activities being undertaken listing key large equipment being used and general location equipment The inspections would ensure that appropriate noise controls (eg. barricading) are being implemented and are effective.	Active worksites	Environment team	Weekly
	Complaints CG Conditions of Approvals	Further investigations to be undertaken in the event of a complaint related to nuisance noise Attended or unattended measurements as appropriate to identify and measure the source in question.	As appropriate to address the particular complaint	CSET Environment team with support from SQP as required	Within 24 hours if no monitoring already been undertaken in the area
	Noise Goals CG Conditions of Approvals/P	Buffer Distance Tests Attended measurements to quantify and qualify construction noise emissions using a calibrated sound level meter capable of measuring LA90, LAeq, LA10 and LA1 statistical noise levels in 15 minute intervals One 15 minute sample per survey location is generally sufficient Extraneous noise (eg. cars, trains etc.) should be excluded from the measurements. Sources contributing to the noise levels are to be noted.	Typically at the nearest receiver in each direction to each site specific activity associated with: • Worksite activities (site prep works, day and night works) • Surface trackworks.	Environment team with support from SQP as required	At the commencement of all noise intensive construction activities then typically once a week thereafter
		Buffer Distance Tests Unattended Noise Monitoring – worksites where exceedances are predicted to occur at sensitive receptors, particularly for out of hours works A calibrated noise logger capable of measuring LA90, LAeq, LA10 and LA1 statistical noise levels in 15-minute intervals would be sufficient. Noise loggers are not typically used where extraneous noise is present Therefore consideration should be given to using noise loggers capable of recording audio samples by means of pre-set trigger level exceedances to assist in identifying the source of the noise level exceedance.	At the nearest noise sensitive receiver adjacent	Environment team with support from SQP	On a continuous basis initially to validate model and then as required if monitoring data demonstrates compliance with outcomes Regular (typically weekly or fortnightly) data downloads would be required
		Plant Noise Audits Attended measurements using a calibrated sound level meter capable of measuring LAeq, LA10, LA1 and LAmx statistical noise levels Select the items of plant which appear to be the most dominant sources of noise. Measure noise emissions under conditions of maximum noise normally occurring for that source. For most noise sources, a one minute sample will be satisfactory, although sampling may be extended up to 15 minutes for sources varying greatly over time.	On site, typically at 7m from the item of plant (if safe to do so) in the direction of dominant noise emission. Closer to the source if other sources prevent measurement at this distance	Environment team	As required but generally limited to particularly noisy plant items such as piling rigs, hydraulic hammer, haul trucks etc.
Noise and Vibration VIBRATION	Predictive	Predictive modelling of vibration levels to be generated during construction.	Site wide	Acoustics specialist	Prior to Project Works Commencing
		Predictive modelling of vibration levels to be generated by specific construction activities with high risk of generating vibration (eg. blasting) or to be undertaken out of standard hours (eg. night works).	As relevant	Environment team	As required
	Baseline – DTMR/Clem7	Install vibration monitoring equipment using triaxial geophones (4.5 Hz) to capture vibration in the tunnel roof and or walls prior to commencement of any demolition, excavation or construction work. The devices will be calibrated against a traceable event. The devices will be installed as per manufacturer's installation guidelines. The output result shall also include waveforms of extreme events A suitable measurement frequency to be specified by the instrumentation designer, such that all events are captured, to avoid the two scenarios – low and high measurement frequencies. The first will lead to data overflow and the second will miss critical events Background monitoring and baseline reading will determine and correct external influences on monitoring results (for example, temperature, traffic, and atmospheric pressure) which can lead to errors in reported data. Hence, a two month baseline reading regime is imposed.	Clem7/O'Connell Terrace works	Environment team with support from SQP	Prior to Project Works Commencing near Clem7

EMP Sub-Plan	Activity/Element	Monitoring Procedure	Locations	Responsibility	Frequency
	Scheduled Inspections	Visual site inspections undertaken during scheduled inspections During site inspection records of activities being undertaken listing key large equipment being used that could be the source of vibration and general location equipment The inspections would ensure that appropriate vibration controls (eg. offset distances) are being implemented and are effective.	Active worksites	Environment team	Weekly
	Complaints CG Conditions of Approvals/	Attended or unattended measurements as appropriate to identify and measure the source in question.	As appropriate to address the particular complaint	Environment team with support from SQP	Within 24 hours is no monitoring already been undertaken in the area
	Vibration Targets CG Conditions of Approvals/	Blasting activities – minimum of two vibration and blast overpressure monitoring locations Measurements using a calibrated instrument capable of measuring peak particle velocity in three axes (ie. vertical, longitudinal and transverse) and blast overpressure. The results of the blast monitoring would enhance the input data fed into the predictive modelling process.	Exhibition Station All efforts should be made to locate the monitors at the nearest receivers to the blast site Monitoring should always be undertaken at a heritage listed structure if close to blasting.	CSET Environment team with support from SQP as required	During each blast throughout the blasting phase of the project
		Buffer Distance Tests – to validate the predictive modelling Unattended Vibration Monitoring – this monitoring will to address the initial and ongoing monitoring of emissions from construction to assist in planning of excavation and construction works. Worksites where exceedances are predicted to occur at sensitive receptors, particularly for out of hours works or heritage listed structures.	At foundation of potentially affected structure For heritage-listed structures, key areas are: - RNA Showgrounds - Old Museum - F2S QR listed heritage structure.	Environment team	At commencement of all vibration intensive activities associated with each worksite and surface track works On a continuous basis initially to validate model and then as required if monitoring data demonstrates compliance with outcomes Regular (typically weekly or fortnightly) data downloads would be required
	Vibration Targets DTMR/Clem7	System reliability is important as a lack of monitoring results may result in limitations on works or even suspension of construction operations. Where the consequences of monitoring system failure are unacceptable to a project, there shall be sufficient redundancy built into the system so that losses of discrete elements do not cause loss of the entire monitoring system Monitoring systems require routine checks and maintenance. Most monitoring systems require some access for maintenance. The monitoring designer must consider how this can be achieved. A log of maintenance undertaken on the system is recommended. This log shall record the date, nature of the work and who undertook it. This is useful for error tracing and a change in control procedures The location and number will be accepted on a project basis A PCPV (Peak Component Particle Velocity) threshold of 1.5 mm/sec is to be set in the logger A warning trigger level between 1.5 mm/s to 5 mm/sec is to be set in the logger.	Clem7/O'Connell Terrace works	Environment team with support from SQP	During the duration of works at O'Connell Terrace
Land Management	Known Contaminated Land Sites (EMR/CLR listing) – Soils – In Situ	Soil testing in accordance with the recommendations of the Contaminated Land SQP and if relevant to develop necessary mitigation measures.	Site-wide in brownfield areas High Risk Areas Mayne Yard Salisbury Yeerongpilly Clapham Yard	Contaminated land SQP	Prior to Project Works commencing
	Known Contaminated Land Sites (EMR/CLR listing) – Surface Water	Surface water testing regime to be determined by SQP during the detailed design phase based on review of existing information <i>It is noted that QR already is undertaking a surface water quality program as per the Mayne Yard EMP as such any surface water quality regime will be to supplement the existing regime that will continue to be complied with by QR.</i>	Mayne Yard Clapham Yard	Contaminated land SQP	Prior to Project Works commencing

EMP Sub-Plan	Activity/Element	Monitoring Procedure	Locations	Responsibility	Frequency
	Known Contaminated Land Sites (EMR/CLR listing) – Groundwater	Groundwater water testing regime to be determined by SQP during the detailed design phase based on review of existing information <i>It is noted that QR already is undertaking a groundwater water quality program as per the Mayne Yard EMP and associated preliminary contaminated information available for Mayne Yard East as such any groundwater water quality regime will be to supplement the existing regime that will continue to be complied with by QR.</i>	Mayne Yard	Contaminated land SQP	Prior to Project Works commencing
	Known Contaminated Land Sites (EMR/CLR listing) – Soils – Prior to Disposal	Classification Testing of contaminated land material to be disposed of offsite must be undertaken at a suitable frequency to comply with statutory requirements.	Site-wide in brownfield areas High Risk Areas Mayne Yard Clapham Yard	Environment team/NATA accredited laboratory for the selected analytes Support from SQP as required	Prior to disposal or re-use of material
	Suspected Contaminated Land	If construction works uncover an area of unknown, suspected contamination, all work within 50m of the contamination must cease and the suspected contamination reported to the UNITY Environmental Representative immediately.	As relevant	Environment team Superintendent and SQP as required	As required
	Unexploded Ordnances	If construction works uncover potential Unexploded Ordnances (UXOs) all work within 50m must cease and the suspected UXOs must notified immediately to the UNITY WHS Manager and environmental representative.	As relevant	WHS Manager Environment Manager	As required
	ERSED Compliance	ERSED structures are monitored for compliance with the area ERSED plan during weekly inspections Any non-conformances are identified in the Environment Action Register Erosion and sediment control devices must be cleared, repaired or replaced whenever inspections show signs of non-compliance or ineffective capability or capacity.	Active worksites	1. Environment team 2. Area supervisor/superintendent	1. Weekly and before predicted rain 2. Daily
	Topsoil Management	Inspections of areas that have been stripped of topsoil to ensure sufficient topsoil is salvaged and retained on site for rehabilitation purposes For long term topsoil stockpiles this will include an assessment of temporary cover requirements to mitigate the loss of topsoil This will include progress of the works and any Additional maintenance required. Reinstatement progress will be supported by photographic evidence.	Active worksites with salvageable topsoil	1. Environment team 2. Area supervisor/superintendent	1. Weekly scheduled inspections 2. Daily inspections
	Rehabilitation Monitoring	Weekly inspections of areas that have been reinstated. This will include progress of the works and any additional maintenance required. Reinstatement progress will be supported by photographic evidence.	Sites being rehabilitated	1. Environment team 2. Area supervisor/superintendent	1. Weekly scheduled inspections 2. Daily inspections
Land Management Dangerous Goods and Hazardous Materials	Storage of Hazardous Substances	Inspection at fuel and chemical storage areas to ensure compliance with AS. Action as necessary.	Active worksites	1. WHS team 2. Area supervisor/superintendent	Weekly
		Assess the walls and floor of storage bund for cracking Rectify any cracks immediately as these provide a 'weak point' for materials to leak through.	Active worksites	1. WHS team 2. Area supervisor/superintendent	Maximum monthly
		Check bunded areas for visible pollution and arrange for the safe and correct removal and disposal of any visible pollution immediately.	Active worksites	1. WHS team 2. Area supervisor/superintendent	Weekly and after rain
	Spill Kits	Random inspections of spill kit locations are undertaken by the environment team and foreman. Monthly inspections must ensure that spill kits are restocked and maintained.	Active worksites	1. Environment team 2. Area supervisor/superintendent	Maximum monthly
	Incidents – Spills	Maintain regulated waste tracking certificates and waste disposal receipts as a verification of type and amount of waste hydrocarbons and chemicals removed from site. This waste tracking documentation is to be maintained in the waste tracking register.	Monthly As required – maximum every 7 days	1. Environment team 2. Supervisor	1. Monthly 2. as required – maximum every 7 days
		Check that all fuel and oil spills are cleaned up immediately using the available spill kits and in accordance with the instructions on the relevant SDS and site rules.	As relevant	1. Environment team 2. Supervisor	As required
		Communicate all spills to the environment team immediately.	As relevant	1. Supervisor 2. Superintendent	As required
Biosecurity	Weeds and Pests	Weekly inspections of work areas, vehicles and equipment, for the presence of prohibited and restricted weeds and/or pest animals (particularly RIFA) activity.	Active worksites Key areas for RIFA along F2S	Environment team	Minimum Weekly For RIFA – as per the approved RIFA Management Plan

EMP Sub-Plan	Activity/Element	Monitoring Procedure	Locations	Responsibility	Frequency
Water Management	Surface Water Baseline Monitoring	Where existing recent water quality data is not available from existing monitoring programs, to demonstrate compliance and enable comparison with water retained on site, a reading of background water quality in the area must be taken at a maximum monthly, where stream flow is present. The selected location for this background reading must be representative of the receiving environment in the area from which discharge will occur If existing water quality data exists and/or active surface water quality programs are being undertaken – Baseline monitoring will consist of collation and review of existing water quality information against rainfall data to identify trends in water quality.	Intercepted by works - Enoggera/Breakfast Creek (mid-estuary – Brisbane River estuary) - Moolabin Creek (lowland freshwater – Oxley Creek catchment waters) - Rocky Waterholes Creek (lowland freshwater – Oxley Creek catchment waters). Immediately Downstream of Northern Area York's Hollow ((lowland freshwater – Brisbane River Estuary catchment waters) Immediately Downstream of Salisbury Station Stable Swamp Creek (lowland freshwater – Oxley Creek catchment waters)	Environment team	If triggered by data gap analysis findings Monthly until active civil works commence in the area
	Groundwater Water Baseline Monitoring	Same approach as for surface water baseline monitoring.	Mayne Yard Potentially Exhibition Station and F2S	Environment team	If triggered by data gap analysis findings Monthly or quarterly until active civil works commence in the area
	Surface Water Monitoring – Routine	Inspections will target all waterways minimum monitoring regime – visual monitoring supported by photographic evidence and supplemented with in situ monitoring for pH, EC, TDS, DO, turbidity This may be supplemented by elaborate samples for TSS, total nitrogen as N, nitrogen oxides, ammonia as N, organic Nitrogen, total phosphorus, filterable reactive phosphorus (FRP) to support background water quality data build-up Additional Routine Surface Water Monitoring Regime (locations and analytes) may be required based on the detailed design findings associated with ASS and/or contaminated land.	3 locations consisting of 1 upstream, 1 downstream and 1 at workfront at the following sites - Enoggera/Breakfast Creek - Moolabin Creek - Rocky Waterholes Creek. 2 locations consisting of 1 discharge and 1 downstream - Stable Swamp Creek - York's Hollow.	Environment team	Monthly until sufficient cover is achieved
	Surface Water Monitoring – Pre Rain	Inspections will target at a minimum cleared high risk areas (slopes >6%, slopes leading to waterways, active worksites in or in the vicinity of waterways) 24 hours before a forecast event of 70% chance of 20mm or more (<i>where conditions permit safe access</i>) Minimum monitoring regime – visual monitoring supported by photographic evidence It may be supplemented with in situ monitoring and laboratory samples as per the routine water monitoring regime at the discretion of the environment team.	1 upstream, 1 downstream and 1 at workfront at the following sites - Enoggera/Breakfast Creek - Moolabin Creek - Rocky Waterholes Creek. 1 nearest receiving point to site run-off at the Stable Swamp Creek site	Joint environment team and site supervisor	As required
	Surface Runoff – Post Rain	Inspection following rain event Following a rainfall event that has the potential or has caused run off from the construction areas This will be typically following any rainfall event exceeding 20 to 25 mm over 24 hours, however storm events during the high risk period of the year (November to March) of lesser amounts but higher intensity may cause run-off – as such due care should be taken to assess all active areas post rainfall once safe access to site is restored Sites will be inspected as a minimum within 50 to 100m upstream and 50 to 100m downstream (from the boundary of the construction area) of any waterway crossing. A site assessment with visual monitoring will be undertaken in order to determine if in-situ water quality monitoring is necessary. Visual monitoring will in the first instance confirm information regarding water flows within the waterway The visual assessment will also be undertaken to confirm the presence of potential contaminants affecting water quality. If contaminants are observed (eg. hydrocarbon sheen) or if there is a visible difference in water quality when comparing upstream and downstream monitoring points, water quality sampling will then be undertaken. The visual assessment will visually assess increases in turbidity, litter, hydrocarbons or the movement of any coarse sediment into the watercourse or waterway. The assessment	Intercepted by works and if safe to access 1 x Upstream, 1 x downstream and 1 x at work front at the following sites Enoggera/Breakfast Creek Moolabin Creek Rocky Waterholes Creek Immediately Downstream of Salisbury Station from a safe location 1 x nearest receiving point to site runoff Stable Swamp Creek York's Hollow If present in all conditions – source water	Environment team NATA accredited laboratory for the selected analytes Site supervisor to be in attendance in the event emergency works are required to stop an unexpected discharge	As required but no longer than 24 hours following a rain event to adequately capture representative site conditions If due to safe access concerns – sampling is delayed – this will be noted as part of the reporting

EMP Sub-Plan	Activity/Element	Monitoring Procedure	Locations	Responsibility	Frequency
		will also note any potential offsite impacts that may be adversely affecting water quality within the construction area In the event that visual monitoring indicates any impacts to water quality then water quality sampling will be undertaken with a calibrated handheld water quality monitoring device. At a minimum it will measure pH, EC and turbidity. Water quality parameters will then be recorded within the field inspection checklist for both the upstream and downstream locations alongside the construction area The field sampling will initially be supplemented by laboratory samples for TSS as a minimum to calibrate turbidity readings and TSS the field sampling will also initially be supplemented by laboratory samples for total nitrogen as N, nitrogen oxides, ammonia as N, organic Nitrogen, total phosphorus, filterable reactive phosphorus (FRP) to confirm whether these analytes are of concern for surface water runoff from the site In the event that the turbidity of the downstream sample is more than the project criteria, further downstream and upstream testing, coupled with a detailed stream and surroundings inspection, will be undertaken to ascertain whether the exceedance is related the construction activities.			
	Groundwater Monitoring – Routine	Regime and detail of parameters and analytes to be tested for to be confirmed following detailed design supporting investigations.	Trigger – ASS Mayne Yard and potentially Clapham Yard Trigger – Contaminated Land Mayne Yard	Environment team	As per the ASSMP and Contaminated Land SQP recommendations Potentially Monthly or quarterly until active civil works finish in the area
	Surface Water – Spills Response	Spills to surface waters (waterways) associated with unplanned mechanical failures or unplanned incidents with refuelling: The response would include the following observations and testing regime: Does not have an oily sheen In situ monitoring of pH, E.C, turbidity and DO If oily sheen a sampling regime of the affected area including upstream and downstream sampling will occur, lab analysis by NATA accredited laboratory for BTEXN, TRH, PAHs, Oil and Grease and 8 total heavy metals A minimum of three samples are collected at location of discharge meeting the natural water, upstream and downstream unplanned Sewage overflow The response would include the following observations and testing regime In situ monitoring of pH, E.C, turbidity and DO lab analysis by NATA accredited laboratory for TN, TP, TSS, BoD, e-Coli A minimum of three samples are collected at location of discharge meeting the natural water, upstream and downstream to identify the extent of impact and demonstrate the area has been successfully cleaned up by the spill response.	As required Enoggera/Breakfast Creek Moolabin Creek Rocky Waterholes Creek	Environment team	Within 24 hours of spill having occurred
	Dewatering Activities	In the event dewatering directly in creek or where run off could enter creek this will be undertaken only if an Approved Permit to Dewater has been issued by the environment team In situ Monitoring of the Source water and receiving water body will be undertaken to ascertain whether a Permit to Dewater can be issued. In situ monitoring will include pH, Turbidity and E.C as a minimum.	Enoggera/Breakfast Creek Moolabin Creek Rocky Waterholes Creek Stable Swamp Creek site Source water	Environment team	After rain events and prior to discharge
	Waterways (DAF)	Routine, regular and frequent visual monitoring is undertaken while carrying out construction work in a watercourse, waterway, or drainage feature and captured during weekly environmental inspections. Pre-works photos are taken of all waterways prior to construction commencing in the waterway as per the Accepted Development Code or Development Approval for the Waterway Post-works photos are taken at following completion of works within the waterway.	Enoggera/Breakfast Creek Moolabin Creek Rocky Waterholes Creek Enoggera/Breakfast Creek Moolabin Creek Rocky Waterholes Creek	Environment team Environment team	As per the Development Approval or Accepted Development Timeframes As per the Development Approval or Accepted Development Timeframes

EMP Sub-Plan	Activity/Element	Monitoring Procedure	Locations	Responsibility	Frequency
Nature Conservation FAUNA	Breeding Places/Habitat Places	Prior to clearing vegetation is required, monitoring will be undertaken within two weeks from the clearing to identify potential habitat and breeding places If active breeding places are identified further management and monitoring may be required especially if species are not covered by a Species Management Plan.	Sites where vegetation clearing is required	Fauna spotter/catcher	As required
Nature Conservation FLORA	Protected Vegetation	Visual site inspections of trees and vegetation marked as requiring protection (eg. as per permits requirements), ie. inspection of exclusion zone around tree such as barricading and signage.	As relevant with focus in: - NALL permit areas - NC Act permits and/or exemptions area - Marine Plants areas of Breakfasts Creek	1. Environment team 2. Area supervisor/superintendent	1. Weekly scheduled inspections 2. Daily inspections
Waste Management	Construction Wastes	Regular visual monitoring is undertaken of waste management areas during inspections including - Appropriate disposal of waste (ie. waste segregation is undertaken) - Storage capabilities of waste receptacles (ie. not overflowing) - Types and quantities of waste receptacles (ie. sufficient number of bins on site and adequate segregation opportunities are provided).	Active worksites	1. Environment team 2. Area supervisor/superintendent	1. Weekly scheduled inspections 2. Daily inspections

Attachment 5 Event Classification Matrix

This matrix is used to assign the Actual and Potential Consequence to Environmental Events (Incidents and Non Compliances)

Event Types				
Incident	Near Hit	Regulatory Visit	Stakeholder Contact	Hazards
An occurrence that results in damage to property, plant, equipment, the environment, or project interruption.	An occurrence that did not result in, but had the potential to result in, damage to property, plant, equipment, the environment, or project interruption. This includes non-Compliances with Conditions of Approvals or legislative requirements	A visit by a regulatory authority to the workplace.	A record of a contact between the workplace and an external stakeholder. For example, a compliment, complaint, an enquiry, or feedback.	An event record of an identified hazard that if uncontrolled has the potential to cause damage, harm or adverse health effects within the workplace.

This matrix is used to assign the Actual Consequence to an Environmental Incident and the Classification to an Environmental Impact

Event Classes				
Actual Consequence				
1A	2A	3A	No Impact	
Environmental discharges, environmental pollution or degradation which has high severity impacts on the community and/or environment or may have irreversible detrimental long-term impacts.	Environmental discharges, environmental pollution or degradation which has moderate severity impacts on the community and/or environment (1 to 3 months) but is fully reversible in the long term.	Environmental discharges, environmental pollution or degradation which has low severity impacts on the community and environment in the short term (<1 month) and is fully reversible with no residual impacts. Includes nuisance level impacts.	Negligible or sporadic discharges	
Potential Consequence				
1P	2P	3P	4P	5P
Long-term / irreversible damage to neighbouring or valued ecosystem. Long-term remediation required. Irreparable damage to highly valued items / locations of cultural significance.	Impacts extend off-site / external ecosystem. Considerable remediation required. Significant damage to structures / locations of cultural significance.	Medium term, contained impact; requiring significant remedial action. Moderate but permanent damage to structures / items / locations of cultural significance.	Short lived, well-contained environmental impact; minor remedial action required. Moderate damage that is largely repairable.	Small, contained localised impact. Low level repairable damage to commonplace structures.

Attachment 6 Environmental Harm Classification Guidance Matrix

The following Guidance Matrix must be read in the context of the Incident Classification definitions above. It contains examples only and is not intended to be comprehensive. All examples do not have to be present for that Class or Category to apply. Classification should consider the intent rather than just the literal meaning of the example. The Category selected should be the one that best represents the environmental impact of the incident, rather than the cause of incident. Classification of incidents must be done by persons with relevant environmental expertise. Expert advice may be required in some situations.

Environmental Harm Environmental Category	Class 1	Class 2	Class 3
WAT - Discharges to Surface Water	Major and/or multiple discharges of pollutant to surface water. High severity impact on values of water resource eg. Extensive contamination/pollution of waterways or water catchment areas (eg. tailings dam failure).	Significant and/or persistent discharge to surface water, moderate impact on values of water resource eg. - Spill escapes into offsite watercourse or storage with significant remediation required - Uncontrolled discharge from sedimentation basin or site drainage system above allowable limits - Significant release of sediment off-site into drains or receiving waters.	Minor pollutant discharge to surface water, no permanent impact on values of water resource eg. - Minor spill from a containment, including hydrocarbons, which may or may not escape into the non-controlled environment, but which is contained and doesn't result in persistent environmental harm - Controlled discharge from sedimentation basin or site drainage system above allowable limits.
CON – Contamination of Land and Groundwater	Major spill of environmentally hazardous materials (eg. hydrocarbons, chemicals, effluent, contaminated materials) to land eg. - Persistent and severe contamination of land - Severe contamination of groundwater - Extensive clean up and/or remediation required - Uncontrolled spill of regulated material.	Significant spill of environmentally hazardous materials (eg. hydrocarbons, chemicals, effluent, contaminated materials) to land eg. - Moderate contamination of groundwater with the consequence reversible - Spill confined to defined area(s) within or outside site or workplace - Significant clean up required over and above removal of contaminated material to land farm or approved waste area - Spill of a type and/or volume that must be reported to a regulatory body.	Minor leak or spill (greater than 20 litres) of environmentally hazardous materials (eg. hydrocarbons, chemicals, effluent, contaminated materials) to land eg. - No residual contamination of land - Minor contamination of groundwater, with minimal consequence - Spill confined to managed area(s) within site or workplace - No significant clean up required other than removal of contaminated material to land farm or approved waste area. Note: for Spills/Leaks <20 litres see definition for Near Hit Environmental Event No Impact Hydrocarbon Spill
AIR – Dust, odour and emissions to atmosphere	Severe or persistent discharge of hazardous pollutant to atmosphere eg. - Explosion or leak of hazardous gas or particulates - Evacuation of local vicinity - Continuous/frequent exceedance of air quality health criteria - Severe eco-toxic effects on listed habitats or communities.	Moderate or persistent discharge of pollutant to atmosphere eg. - Multiple occurrences of obnoxious odours outside the premises - Nuisance dust levels requiring significant offsite clean-up - Odour issues requiring relocation of material or significant changes to waste, earthworks of stockpile management - Significant quantities of Greenhouse or ozone depleting gases released to the atmosphere.	Minor discharge of pollutant to atmosphere that is in breach of a documented obligation or legal condition, but which doesn't result in significant impacts eg. - Overfill of cement silo, cement dust release - Nuisance dust requiring minimal or no offsite clean-up - Small quantities of greenhouse or ozone depleting gases released to the atmosphere - Failure to maintain plant in an efficient condition.
NVL – Noise, Vibration and Light (including overpressure)	Generation of noise, vibration, or light causing severe damage to property outside site or workplace, or the environment, or severe and/or persistent disruption to the community eg. - Major and persistent loss of amenity or nuisance - Extreme levels or persistent excessive noise resulting in severe community impacts - Confirmed substantial damage to property from vibration.	Generation of noise, vibration, or light causing sustained periods of inconvenience or disruption to community and the environment eg. - Significant loss of amenity or nuisance - Wilful disregard of limits - Noise, vibration or light levels regularly in excess of set criteria - Vibration causes confirmed minor damage to property.	Unplanned generation of noise, vibration, or light exceeding documented limits or controls and causing occasional inconvenience or disruption to community and the environment eg. - Minor loss of amenity or nuisance - Occasional unplanned breach of noise, vibration or light criteria at sensitive receivers - Substantiated public complaint satisfactorily resolved at project level.
WAS – Solid and Other Wastes NOTE: This category only applies to the unauthorised storage and handling of wastes. Once an incident occurs, use other categories to classify incident.	- Unauthorised storage, transport, treatment or disposal of a significant quantity (refer to legislation) of regulated waste (eg. classified, prescribed, hazardous) in contravention of waste management legislation - Unauthorised storage, transport, treatment or disposal of a significant quantity (eg. => 10,000 litres, 10 tonnes or 10.0m³) of non-regulated waste, in contravention of regulations or project waste management requirements.	- Unauthorised storage, transport, treatment or disposal of a minor quantity (refer to legislation) of regulated waste (eg. classified, prescribed, hazardous) in contravention of waste management legislation - Unauthorised storage, transport, treatment or disposal of a moderate quantity (eg. up to 10,000 litres, 10 tonnes or 10.0m³) of non-regulated waste, in contravention of regulations or project waste management requirements.	- Placement or storage of waste or contaminated materials in a manner or place where environmental harm could reasonably be expected to occur - Unauthorised storage, transport, treatment or disposal of a minor quantity (eg. up to 1000 litres, 1000kg or 1.0m³) of non-regulated waste in contravention of regulations or project waste management requirements.
FLFA – Flora and Fauna	Major loss or impact on land or water-based flora or fauna. Destruction of ecologically significant habitat that is of national significance. Endangering viability of species, habitat or ecosystem. Damage that cannot be remediated, or only remediated with risk of long-term loss eg. - Unapproved destruction of habitat in a national park or similar - Unplanned harm to scheduled flora and fauna species and habitats that may threaten the regional survival of the species or community	Medium impact on land or water-based flora, fauna or habitat. Short-term impact on ecosystem that is of regional significance. Damage that can be remediated eg. - Partial destruction of native habitat leading to impact on local species numbers or disruption to breeding cycles - Short-term disruption of protected fauna breeding cycle - Unplanned harm to scheduled flora or fauna species that may threaten the local survival of the species.	Minor loss or impact on land or water-based flora, fauna or habitat, but no long term negative effect on the ecosystem or habitat. Limited damage to an area of land of minor local ecological significance eg. - Death of a native animal, that is not identified as a pest, but not from a scheduled species - Damage to vegetation in breach of clearing permits and approvals - Localised spread of weeds or pathogenic material within site.

Environmental Harm Environmental Category	Class 1	Class 2	Class 3
	- Long term or permanent disruption of protected fauna breeding cycle - Introduction or spread of weeds and pathogens that pose a high risk of ecological or economic damage.	- Unapproved clearing of an area of remnant native vegetation, Declared Threatened or Rare flora - Introduction or spread of weeds and pathogens that will require extensive resources to contain.	
HER –Archaeological, Heritage and Cultural Issues	Destruction or irreparable damage to listed structures/items/ locations of cultural or heritage significance eg. - Wilful damage to a structure, place, item, or artefact. - Blatant disregard of widely held cultural values.	Significant damage to listed structures/items/locations of cultural or heritage significance eg. - Knowingly disturbing an archaeological site or place without the appropriate permits or in breach of a permit - Entering of protected site, with a breach of cultural 'laws'. Minor disregard of cultural values.	Minor accidental and repairable damage to listed structures or places, or minor infringement of cultural values eg. - Unintentionally disturbing an archaeological site or place without the appropriate permits - Entering of protected sites, but not in breach of cultural 'laws'.
RES – Use of land, water, fuels and energy, and other natural resources	Operations cause either short term severe or persistent unplanned disruption to the availability of resources to the community or the environment. Exhaustion or serious degradation of natural resources for future use eg. - Operations cause loss of flow in natural watercourses or irreversible depletion of aquifers - Continuous loss of supply water volume from non-licensed discharge point, with evidence of supply water contamination.	Operations cause substantial unplanned disruption to the availability of resources to the community or the environment. Significant impact on other energy/natural resource users or the environment outside site or workplace eg. - Water usage/de-watering by operations causes loss of pressure or flow to local/adjacent water bores - Unrecoverable loss of in situ or stockpiled growth medium (eg. buried) - Loss of minor water supply volume off-site.	Operations cause temporary unplanned disruption to the availability of resources to the community or the environment. Minor impact on other energy/natural resource users or the environment outside site or workplace eg. - Rehabilitation area disturbed - Minor land-use change without approval from Client or Regulator - Loss of water supply volume to localised environment due to continuous moderate leakage (eg. reservoirs, pipelines, tanks).
ASS - Acid Sulphate Soils	Mismanagement of acid sulphate soils results in high level or catastrophic persistent impacts eg. - Significant damage to infrastructure - Major acid drainage event.	Significant exposure, lack of containment or poor management of acid sulphate soils.	Minor exposure of acid sulphate soils eg. - Exposure of previously unidentified ASS during works - Failure of protective bunds but with no runoff leaving contaminated area.
ESC- Erosion & Sediment Control	- Erosion causing major irreversible impacts to the surrounding environment - Major clean up works requiring significant resources - Placement of high toxicity materials in a drainage line or adjacent to a waterway resulting in prosecution.	- Disruptions to freshwater or marine activities - Placement of contaminated wastes or medium toxicity materials in a location where it could potentially result in pollution - Moderate erosion to a landscape, including flow lines that can be remediated in the medium term - Critical E&S controls not installed.	- Minor reversible alteration in landscape or topography - Erosion causing minor impacts that are reversible - Placement of excavated soil or low toxicity materials in a location where it could potentially result in pollution - E&S Controls not maintained.
DMR -Dirt & Mud on Public Roads	Tracking or depositing of soil onto roads resulting in major clean-up works and major delays to arterial traffic.	- Tracking of soil material onto local roads requiring significant resources for clean-up works. - Exit controls and/or clean-up regime required but not in place - Repeated failure by trucks to cover loads in accordance with project requirements.	- Unplanned tracking of soil onto local roads requiring minor clean up: - Controls are in place but ineffective (eg. exit rumble grids, wheel washes), clean up (street sweepers) - Occasional failure by trucks to cover loads in accordance with project requirements.

Indigenous Cultural Heritage Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000274
Revision date:	07 October 2019
Revision number:	00

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY	IEM		IEM's review comments addressed in Rev B
Signature:					
B	15/09/19	UNITY	IEM	IEM	Plan endorsed on 20 September 2019 Plan upreved to Rev 00 to reflect endorsed status No changes made to content
Signature:					
00	07/10/2019	Unity	IEM	IEM	Endorsed plan for upload on the Project's Website
Signature:					

Plan Control

This Indigenous Cultural Heritage Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates is in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Incorporation of IEM review comments from 10 September 2019
00	Endorsed by IEM on 20 September 2019, ready for upload on the Project's Website

1 Purpose of this Plan

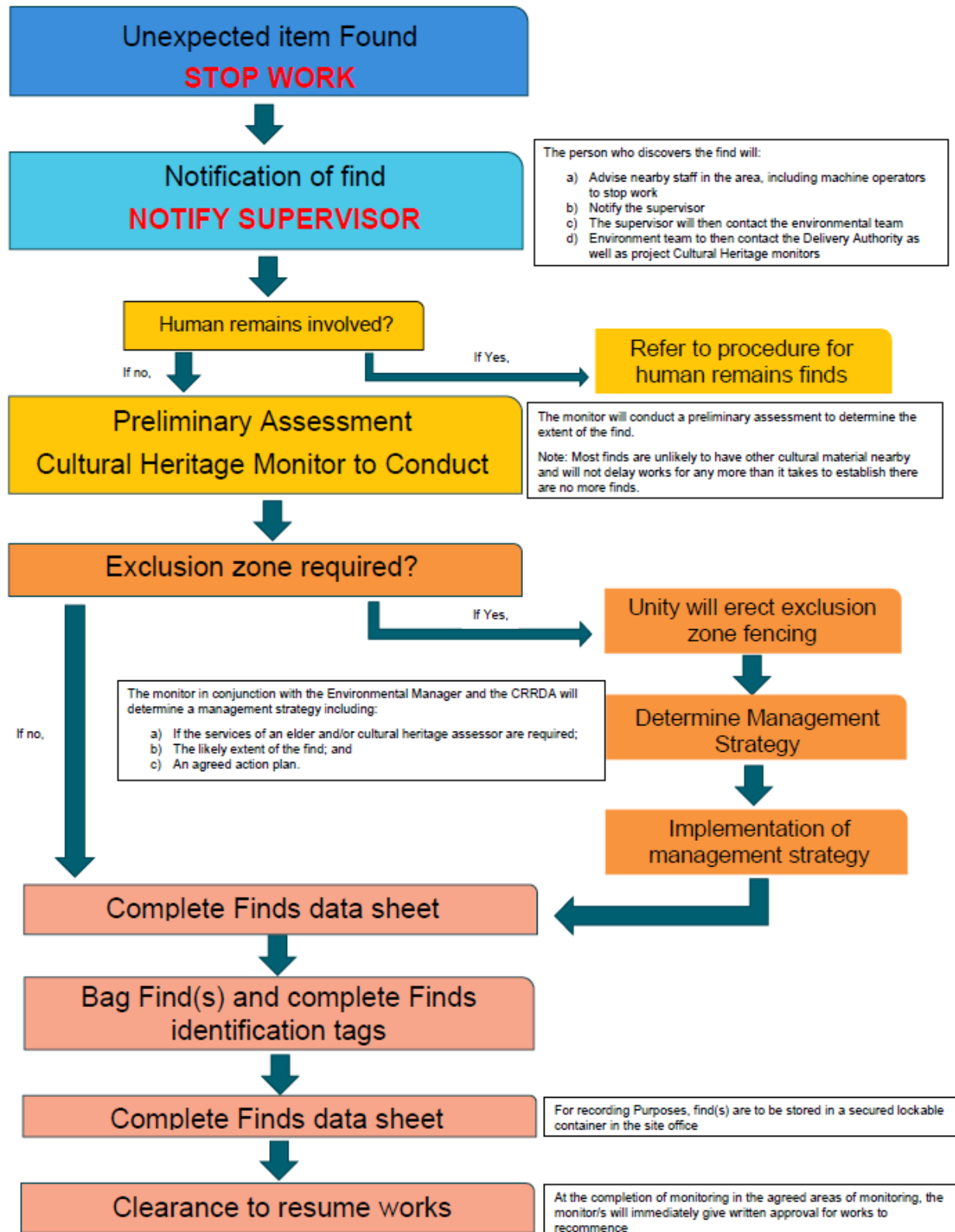
This sub-plan has been prepared to demonstrate how UNITY will comply with:

- Coordinator-General's Condition of Approval – Condition 2
- Final Outline-Environmental Management Plan (O-EMP) – Outline Cultural Heritage Management Plan (CHMP).

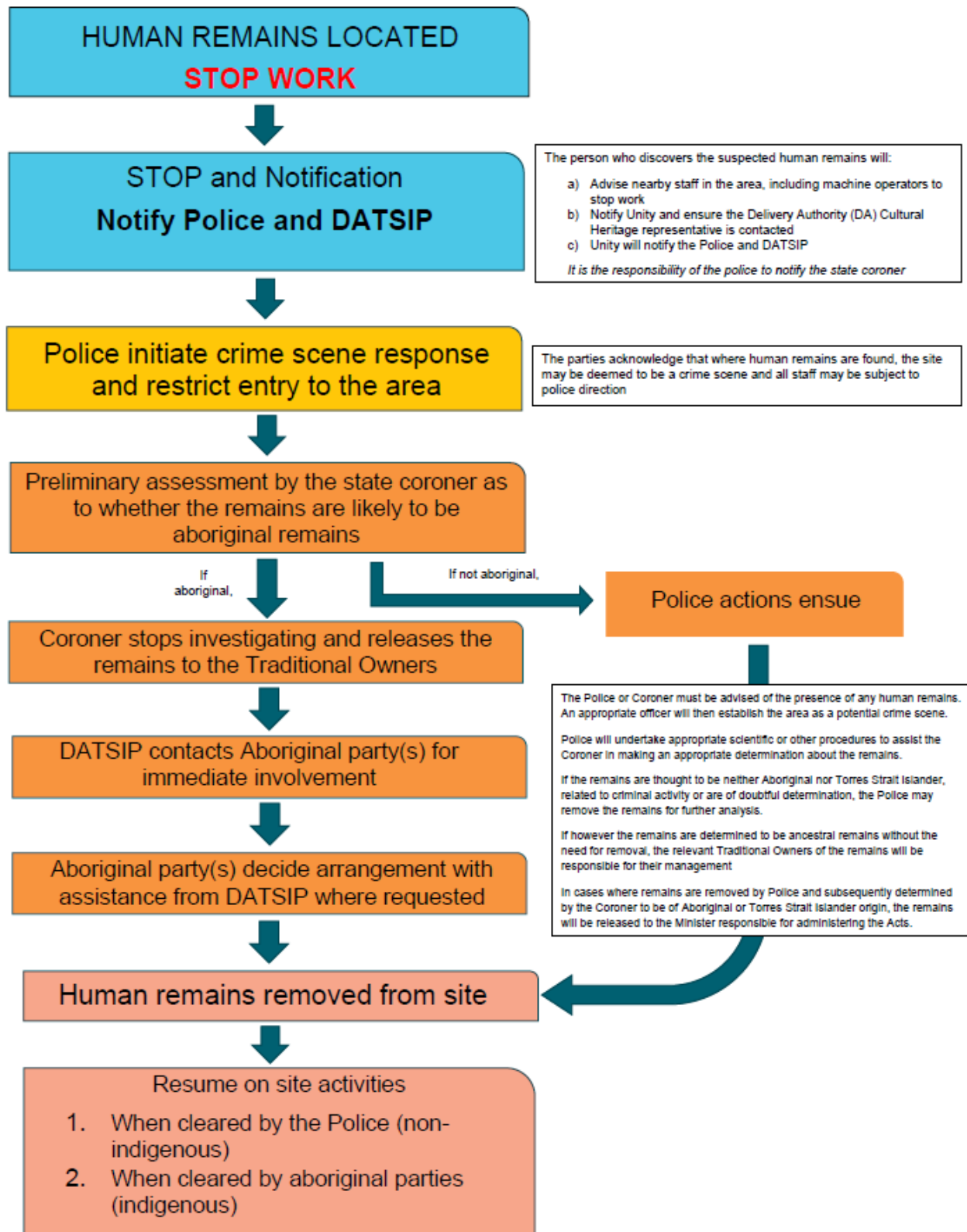
Component	Details
Environmental Outcome(s)	• Construction activities are managed to maintain cultural heritage values of sites, places and values within and adjacent to construction worksites.
Relevant Area	• Site wide • Key areas: Northern area in the vicinity of York's Hollow and Victoria Park, Exhibition Station and all waterways including: – Enoggera/Breakfast Creek – Moolabin Creek – Rocky Water Holes Creek.
Relevant Works / Activities	• Vegetation clearing • Subsurface disturbance associated with: – Bulk earthworks – Trenching for elements, such as PUP relocation and installation – Drainage works – Structure works, such as piling for bridge piers and signalling.
Performance Criteria	• Comply with the CHMPs prepared and approved in accordance with the Aboriginal Cultural Heritage Act 2003 • All personnel involved in or supervising significant disturbance works have completed the cultural heritage induction course specified in the approved CHMPs developed by the Delivery Authority with the Relevant Aboriginal Parties under Part 7 of the Aboriginal Cultural Heritage Act 2003 (Qld) Construction impacts, such as excessive dust deposition, excessive vibration or excessive settlement, do not affect places of Indigenous cultural heritage.
Sustainability	Her-1, Her-2, Sta-1 and Sta-4.
Mitigation Measure	• The project is constructed in accordance with the approved designs which must be compliant with the CGCR Environmental Design requirements as detailed in the Environmental Design report • The Environment Manager oversees cultural heritage management tasks and activities • The Environmental Manager has copies and maintains access to the Approved CHMPs • The Environmental Managers ensures the key obligations under the CHMPs are adequately communicated to all relevant staff and subcontractors • Prior to commencing significant ground disturbance in the vicinity of the Moolabin Creek and Breakfast Creek and in select locations in Clapham Yard, undertake archaeological test pitting in accordance with the Relevant Aboriginal Party Approved CHMP • All works must be undertaken in accordance with the Approved CHMP to ensure value of cultural sites adjacent to worksites is maintained • All personnel involved in, or supervising construction works will complete the heritage portion of the site induction and all high risk indigenous heritage areas will be identified in the workpack for any works that are in proximity to these areas. • Prior to works in close proximity to high risk indigenous heritage locations, toolbox talks will be organised in order to brief teams on the specific heritage of the areas and the find process. • All activities are undertaken in accordance with requirements of the approved CHMP for the project

Component	Details
	- In the event potential artefacts are discovered in areas outside the designated monitoring area, the works will be managed in accordance with the Unexpected Find Procedure - All employees, contractors and subcontractors working on the site are made aware of project heritage requirements through a training and induction process. This training and induction will be in accordance with the requirements specified in the approved CHMP - All employees are informed of their obligations to notify the Environment Manager of any cultural heritage finds - Work will cease upon discovery of any object that may be a heritage item within the meaning of the relevant legislation, including likely human remains. No works can continue until a permit or clearance has been received from the relevant authority. This does not include the test pitting works as monitors will be on site to clear finds as they are encountered. - All necessary approvals are to be obtained prior to commencing any works in areas of known or potential heritage items - All cultural heritage items and places to be preserved are clearly demarcated and shown on relevant site plans - Formal documented engagement are maintained with relevant heritage groups or traditional owners throughout the project.
Monitoring	Monitoring will be undertaken in accordance with the approved CHMP(s).
Reporting	- Reporting will be undertaken in accordance with the approved CHMP(s) - Alternative reporting will be in accordance with Section 8.2 of the C-EMP.
Corrective Action	- Management of corrective actions will be undertaken in accordance with the approved CHMP(s) - Alternatively, management of corrective actions will be as per Section 6 of the C-EMP.
Auditing	- Auditing will be undertaken in accordance with the approved CHMP(s) - Alternative auditing will be as per Section 7 of the C-EMP.

Attachment 1 Unexpected Finds Procedure



Attachment 2 Suspected Human Remains Finds Procedure



Construction Activities Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000275
Revision date:	27 October 2019
Revision number:	01

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY	IEM		IEM comments incorporated in Rev B
Signature:					
B	12/09/19	UNITY	IEM		IEM comments incorporated in Rev 00
Signature:					
00	19/09/19	UNITY	IEM	IEM	Endorsed for Early works and Enabling only Outstanding Haulage Management Comments addressed in updated HMP and Rev01 of this plan
Signature:					
01	27/10/19	UNITY	IEM	IEM	Endorsed for All Works on 11 October 2019
Signature:					

Plan Control

This Land Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates is in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Updated to incorporate IEM comments dated 13 September 2019
00	Updated to incorporate IEM comments dated 17 September 2019
01	Updated to incorporate IEM comments dated 20 September 2019

1 Purpose of this Plan

This sub-plan has been prepared to comply with:

- Coordinator-General's Conditions of Approval – Appendix 1 – Part C:
 - Condition 14 (a to e), 14(g), 14(h-i); 14(h-iiiA); 14(h-ivB&C); 14(i)
- Final Outline Environment Management Plan (O-EMP):
 - Outline Construction Worksite Management Plan
 - Outline Construction Traffic Management Plan.
 - Outline Construction Vehicle Management Plan
 - Outline Spoil Placement Management Plan.

Note: For the purpose of this plan, spoil is defined as:

“any soil or rock removed from a Project worksite or work area as a consequence of undertaking Project Works. Construction spoil does not include any material, such as liquid or solid waste material, contaminated soil or water, or hazardous or toxic material, that is subject to approvals or permitting requirements for its handling or removal”.

Generally, there is limited excess material to be removed from site as part of the RIS Works. Most of the excess material that cannot be re-used in the RIS Alliance's construction activities will be generated from the Queensland Rail corridor which is a brownfield corridor where material is, or is likely to be deemed, contaminated material. This material will be therefore managed in accordance with the Contaminated Land Management Sub-Plan and does not fall under the requirements of the Spoil Placement Management Requirements. The general strategy will be to keep any excess materials generated within the licenced construction area.

Only where material has been characterised as clean fill, and cannot be re-used as part of the RIS Alliance's construction activities, will the material fall under the definition of spoil.

The definition of clean fill is as per the definition of the Environmental Protection Regulations 2008 and the Waste Reduction and Recycling Act 2011 that is:

- Means earth that has trace elements and contaminant levels within the interim ecologically-based investigation levels for urban land use under the document 'Schedule B(1)—Guidelines on the Investigation of Soil and Groundwater', forming part of the National Environment Protection (Assessment of Site Contamination) Measure 1999, and
- Means earth that is not contaminated with waste or otherwise contaminated with a hazardous contaminant; but
- Does not include acid sulphate soil, other than acid sulphate soil that—
 - Is not contaminated with waste, or otherwise contaminated with a hazardous contaminant, other than naturally occurring iron sulphides that produce sulphuric acid when exposed to air; and
 - Has been treated in accordance with best practice environmental management, within the meaning of the Environmental Protection Act, section 21, for the treatment and management of acid sulfate soils, as stated in a guideline prescribed by regulation.

Component	Details
Environmental Outcome(s)	• 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 • During construction, workforce car parking must be provided and managed to avoid workforce parking on local streets • Access for emergency services to project worksites and adjoining properties must be maintained throughout construction • Practicable access must be maintained to adjacent properties throughout construction • Heavy construction vehicles must only use designated routes for spoil haulage and deliveries of major plant, equipment and materials, must be in accordance with the Construction Environmental Management Plan (C-EMP) • Designated haulage routes for each work site 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 (BCC) • Construction traffic must operate within the requirements of a construction traffic management sub-plan (ie. Construction Traffic Management Plan (CTMP)) incorporated within the C-EMP • The CTMP must include: – Proposed access to work sites, with local or minor roads only used where unavoidable – Local traffic management measures developed in consultation with Brisbane City Council (BCC) for key intersections in Bowen Hills, including Bowen Bridge Road, College Road and O'Connell Terrace – Specific traffic management measures developed in consultation with other key stakeholders, including: ■ Queensland Rail regarding maintaining access to railway stations ■ The department administering the <i>Transport Infrastructure Act 1994</i> and the BCC regarding maintaining operations for bus services along streets affected by the Project Works • Project Works must be designed, planned and implemented to maintain acceptable footpath and cycle paths in areas adjacent to project work sites in terms of capacity, legibility and pavement condition. The proponent must consult with the BCC and Queensland Rail about changes in pedestrian and cycle paths required to facilitate Project Works • Construction lighting is designed, constructed and operated to comply with the relevant standard and avoid nuisance from construction lighting on sensitive receivers and onto nearby roads, pedestrians and cycle paths, and parklands.
Relevant Area	• Key construction worksites: – Mayne Yard – RNA Showground – Victoria Park – Gilchrist Avenue in Herston – F2S stations – Clapham Yard • Main likely sources of spoil: – Mayne Yard – Clapham Yard.
Relevant Works / Activities	• Haulage of spoil off-site for disposal of unsuitable material • Materials delivery such as ballast, sleepers, fill, rail tracks • Equipment delivery such as heavy plant • Project personnel travelling to and from site.

Component	Details
Performance Criteria	- Construction work sites are planned, prepared and maintained in accordance with the Construction Management Plan and associated Construction Area Plans (CAPs) and Workpacks - Safe access is maintained near the construction work sites and Project Works, including to social infrastructure and business - A CTMP is endorsed by BCC - Emergency Services are consulted during the development of the CTMP - Haulage roads are clearly defined and communicated to the all haulage contractors.
Sustainability	Dis-4; Dis-5; Hea-1; Sta-1 and Sta-4
Mitigation Measure	- Construction traffic: - Undertake a Construction Traffic Assessment in accordance with the relevant manuals - Assess existing and forecast variations in traffic flow and travel time by using traffic survey data and traffic modelling - Address road user safety, including safety of pedestrians and cyclists, and CPTED in accordance with the relevant manuals - Develop Traffic Management Plans and Traffic Guidance Schemes (TGSs) for all each key areas to be reviewed and approved by the relevant stakeholders inclusive of BCC and TMR - Develop CTMP sub plans for each construction work site and work stage, detailing the management of road traffic, pedestrians, cyclists, active transport systems (including CityCycle stations), rail operations, rail passengers, busway operations, bus (on-road) operations, and bus passengers - Establish a Construction Traffic Management Liaison Group (CTMLG) - A nominated traffic Officer will be employed by UNITY to ensure requirements set out in the CTMP are met - Maintain access to RNA land in accordance with agreed and approved access agreements - Spoil haulage (refer to definition of spoil): - Develop a Haulage Management Plan (HMP) as part of the Construction Management Plan to be reviewed and approved by the relevant stakeholders, including BCC and TMR - The HMP must include a road Safety Assessment - The HMP must include measures regarding the management of Spoil Haulage Vehicles to mitigate impact on traffic - Spoil haulage routes are identified based on determining most direct routes to major arterials from the available site access points - Communicate the requirements of the haulage management plan to all haulage contractors - Haulage contractors must maintain their vehicle fleet - Any excess material which cannot be relocated or reused within site will be taken to a suitably licenced landfill to accept the material - Any spoil generated from a Fire Ants Biosecurity Zone must be managed in accordance with the Biosecurity Management Plan and must be taken to a suitable disposal location (on or off site) approved to accept potential fire ant carriers - Construction work sites: - Utilisation of existing Queensland Rail access points where possible - Develop site access and facilities layout for each construction work site compound - Provide sufficient car parking for project staff at all construction work sites - Install safety fencing, hoarding, gantries, barriers, signage and clear demarcation of restricted work areas - At the Exhibition Station work site, consult with public transport operators, including Queensland Rail and TransLink, on development of special event management plans to minimise the risk of disruption from construction activities

Component	Details
	- Night lighting, including security and safety lighting, is installed and positioned to avoid light spill onto residential properties where safe to do so for workers - Fencing and/or barricading is installed at work area boundaries to ensure safety for pedestrians and cyclists and minimise distraction for motorists - Siting of buildings, static plant and material storage at compounds is optimised to mitigate visual impact - Perimeter fencing treatments are applied at compounds to mitigate visual impacts where allowed - If authorised by Queensland Rail and safe to do so (eg. windload) materials such as saddlecloths may be retrofitted on the Rail corridor fencing to mitigate visual impact of construction activities • All aspects: - Communicate Approved Haulage Routes to all workers via the Project Induction - Undertake regular inspection and monitoring of the work areas and roads used as main haul routes near the project - Liaise with the Communication and Stakeholder Engagement Manager and the Environmental Manager on upcoming major traffic changes - Implement the management measures detailed in the Community Engagement Plan (CEP) to advise affected and potential affected stakeholders (eg. residents, Queensland Rail) - Impacts on Queensland Rail, BCC and TMR must be managed in accordance with the CTMP and CEP communication protocols - Planned impacts on Queensland Rail Operations (inclusive of station closures, passenger services) are managed in accordance with the interface agreements and through the embedded QR representatives within the Alliance - Planned impacts on Queensland Rail Operations must be approved by Queensland Rail prior to impacts occurring - Directly affected residents and surrounding businesses are provided advanced notice during project planning, and again prior to construction commencing, to provide information about the upcoming works, potential impacts, duration and proposed mitigation or minimisation measures - Comply with the approved working hours for spoil haulage and materials/ equipment delivery as detailed in the C-EMP.
Monitoring	Traffic and spoil haulage monitoring to be undertaken in accordance with the CTMP monitoring requirements. Construction worksite monitoring to be undertaken in accordance with Attachment 4 of the C-EMP and the Construction Management Plan and CTMP requirements.
Reporting	Reporting to be undertaken in accordance with the CTMP reporting requirements and Section 8.2 of the C-EMP.
Corrective Action	Corrective actions to be managed as per Section 6 of the C-EMP.
Auditing	Auditing to be undertaken as per the CTMP and Construction Management Plan auditing and review requirements.

Non-Indigenous Heritage Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000276
Revision date:	27 October 2019
Revision number:	00

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY	IEM		IEM's comments addressed in Rev B
Signature:					
B	07/10/19	UNITY	IEM	IEM	Endorsed for All Works on 11 October 2019
Signature:					
00	27/10/19	UNITY	IEM	IEM	Plan updated to Rev00 to reflect endorsed status
Signature:					
Signature:					

Plan Control

This Non-Indigenous Heritage Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates is in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Incorporation of IEM's review comments from 06 September 2019
00	Plan updated to Rev00 to reflect endorsed status

1 Purpose of this Plan

This sub-plan has been prepared to demonstrate how UNITY will comply with:

- Coordinator-General's Condition of Approval – Appendix 1 – Part C
 - Condition 11(d)
 - Conditions 12(b) and 12(c)
 as they relate to vibration impact to Heritage Structures
- Final Outline-Environmental Management (Plan O-EMP) – Outline Non-Indigenous Heritage Management Plan.

Component	Details
Environmental Outcome(s)	• Construction activities are managed to maintain cultural heritage values of identified places of historical value, within and adjacent to the construction worksites and tunnel alignment. • Construction activities are managed to maintain scientific values of any archaeological places uncovered during project works.
Relevant Area	• State Heritage: – Victoria Park (within the project boundaries) – RNA Showgrounds (within the project boundaries) – Potential for uncontrolled fill material in Mayne Yard to have archaeological value and as such, be of State heritage value – Old Museum Building (adjacent to project boundaries) – Bowen Bridge Park (adjacent to project boundaries) – Brisbane Grammar School (adjacent to project boundaries) • Queensland Rail Heritage: RNA Showground, Breakfast Creek (QR Heritage Listed Warren Truss Bridge) and F2S stations as below: – Fairfield Station (within the project boundaries) – Fairfield platform shelter (within the project boundaries) – Fairfield footbridge (within the project boundaries) – Yeronga footbridge (within the project boundaries) – Yeerongpilly Station (within the project boundaries) – Yeerongpilly trainmen's quarters (adjacent to project boundaries) – Rocklea platform shelter (within the project boundaries) – Rocklea Station Building (within the project boundaries) – Rocklea footbridge (within the project boundaries) – Salisbury Station (within the project boundaries) – Salisbury footbridge (within the project boundaries) • Brisbane City Council (BCC) Heritage: – Tufton House (adjacent to project boundaries) – BTS Building (within the project boundaries) - also known as the New Zealand Loan & Mercantile Agency Company Woolstore (former) – QR shed in the northern corridor directly west of Bowen Bridge Road (within the project boundaries) – also known as the New Zealand Loan & Mercantile Agency Company Woolstore (former) – Bowen Bridge & approach walls (adjacent to project boundaries) – Sneyd Street Drain in RNA showgrounds (within the project boundaries) – Brisbane Girls Grammar School (adjacent to project boundaries)

Component	Details
Relevant Works / Activities	- General construction activities with a focus on: - Earthworks involving excavations (eg. trenching, remove and replace) - Ground surface treatments involving vibratory equipment - Demolition of existing buildings - PUP relocation and installation - Surface and subsurface drainage works - High vibration impact activities such as: - Drilling - Piling - Jack and hydraulic hammering.
Performance Criteria	- Construction activities do not adversely impact on places of historical heritage value directly or indirectly through excessive dust deposition, excessive vibration or excessive settlement - A Heritage Management Plan (HMP) is prepared and approved for all places of State or local historical heritage significance likely to be impacted by works prior to these works commencing. An overarching management plan is prepared in respect of places of local heritage value - Any archaeological places uncovered are appropriately managed - Construction works must achieve the vibration goals as per Condition 11(d) – Table 3 for heritage structure, that is: - For continuous vibration – maximum 2mm/s PPV to prevent cosmetic damage - For blasting vibration – maximum 10mm/s PPV to prevent cosmetic damage - Where predictive modelling indicates the project works would lead to impacts above the vibration goals for cosmetic damage in Table 3 presented in the Noise and Vibration Management sub plan, UNITY must prepare and submit a property damage sub-plan, prior to commencement of such works, as part of the C-EMP. The property damage sub-plan must set out the procedure for: - Advance communication with potentially Directly Affected Persons - Procedures for building condition surveys, both in advance of and following project works, including provision for consultation with property owners and occupants - Monitoring to be undertaken for potential impacts to property - Mitigation measures.
Sustainability	Her-1, Her-2, Sta-1 and Sta-4.
Mitigation Measure	Prior to construction - Undertake predictive vibration modelling to identify State heritage-listed buildings that will be retained but that may be adversely affected by construction works. - Undertake a structural assessment of the: - State heritage-listed buildings to be retained but potentially affected by construction vibration based on the outcomes of the predictive vibration model - State heritage listed buildings in the RNA showgrounds, where the predictive vibration model does not identify that will be impacted by the proposed works but are located within 10m of vibration intensive works. the meaning of vibration intensive works is to be determined based on the advice of a Suitably Qualified Acoustic Specialist - Tufton House, Owner's consent pending - Heritage Platform Shelter at Fairfield Station to confirm whether the proposed temporary removal is feasible - Undertake a review of the predicted air quality impacts (in particular dust) to identify State heritage-listed buildings that may be adversely affected by construction works. - Undertake a review of the proposed construction activities and how they may directly or indirectly affect archaeological and built heritage values - Document the results of the assessment and associated mitigation measures in

Component	Details
	– an area-specific Heritage Management Plan (HMP) to be appended to the relevant workpacks and SEPs where impact management is not subject to statutory approvals¹. – a Heritage Impact Statement (HIS) to be incorporated into a statutory approval submission where impact management is subject to statutory approvals. – The HMP and the HIS must include management measures consistent with the DES endorsed Archaeological Management Plan (AMP) when archaeological values may be affected – For Built Heritage values, the HMP and the HIS must include management measures based on the outcomes of the Vibration Predictive Modelling, the recommendations from a Suitably Qualified Acoustic Specialist, the findings of the Structural Assessment and the associated recommendations of the a suitably qualified structural engineer • All personnel involved in, or supervising construction works will complete the heritage portion of the site induction • For all Impact to State Heritage Values, obtain the relevant approvals from the DES or the Queensland Heritage Council prior to the relevant works commencing • For all Impacts to QR Heritage Values obtain the relevant approval from the Queensland Rail Heritage Council prior to the relevant works commencing • Where State or QR Heritage permits condition the need to undertake archival recording this must be done prior to the relevant works commencing During Construction • Comply with the relevant State and Queensland Rail heritage approvals throughout the works • Comply with the relevant site specific HMP for the Local Heritage Matters • The construction requirements associated with the management of Heritage Values will be incorporated in the relevant workpacks and SEPs • Implement and comply with the DES endorsed Archaeological Management Plan during the duration of the works. • In the event of an unsuspected find the protocols detailed in Section 2 must be followed • Comply with the Air Quality sub-plan to protect places of historical significance from excessive dust deposition, • Comply with the noise and vibration management sub-plan to protect places of historical significance from excessive vibration
Monitoring	Monitoring will be undertaken in accordance with the approved Heritage Impact Statements and associated Heritage Permits Conditions.
Reporting	Reporting will be undertaken in accordance with the approved Heritage Impact Statements and associated Heritage Permits Conditions Reporting of Archaeological Finds will be in accordance with the requirements of the AMP Alternatively, reporting will be in accordance with Section 8.2 of the C-EMP.
Corrective Action	Management of corrective actions will be undertaken in accordance with the approved Heritage Impact Statements and associated Heritage Permits Conditions Alternatively, management of corrective actions will be as per Section 6 of the C-EMP.
Auditing	Auditing will be undertaken in accordance with the approved Heritage Permits Alternative auditing will be as per Section 7 of the C-EMP.

¹ Development of an HMP will only be relevant for Tufton House and potentially the Bowen Bridge Sandstone Abutments. No impact is anticipated for Brisbane Girls Grammar School. Were this to change an HMP will be prepared accordingly. Impact to Sneyd Drain will be addressed as part of the HIS for the RNA Showground Heritage Exemption Certificates and Development Application by the State. All other local heritage values (BTS Building, QR shed) will be demolished. The Delivery Authority is managing the Heritage Assessment and the collection of all relevant data to then be provided to BCC for their records

2 Discovery Decision Flowchart

In the event of an archaeological find the *Discovery Decision Flowchart* of the DES endorsed Archaeological Management Plan will be implemented.

It has been extracted from the AMP and is presented below for convenience.

7. Annex 1 – Discovery decision flowchart

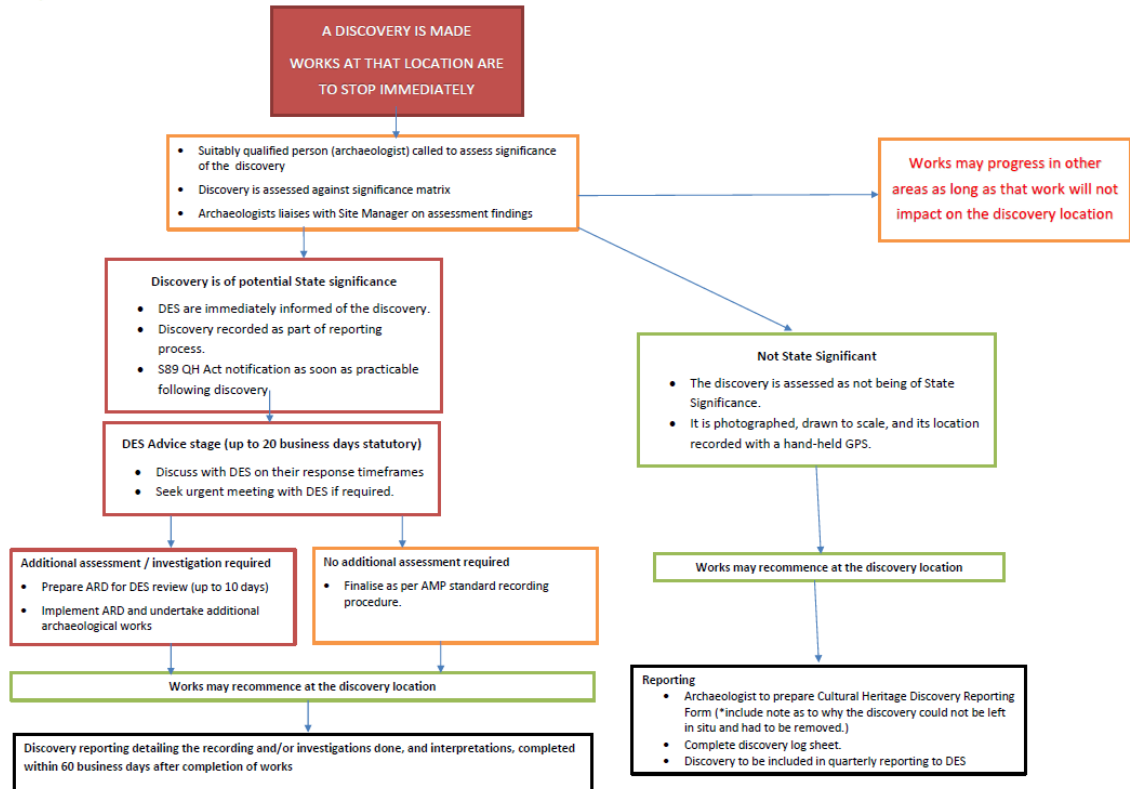


Figure 1: Discovery decision flowchart

3 Mapping of Heritage Values

3.1 Areas of Potential Archaeological Significance

In addition to Mayne Yard the following areas have been identified as having potential archaeological significance. The below maps have been extracted from the archaeological management plan commissioned by the Delivery Authority and subsequently approved by the Heritage Team from the Department of Environment and Science (DES) in June 2019.



Figure 2: Victoria Park area



Figure 3: Northern Corridor – between O'Connell Terrace and Mayne Yard



Figure 4: F2S Area – Fairfield Station (Zone 1) and Yeerongpilly Station (Zone 2)



Figure 5: F2S Area – Rocklea Station (Zone 3 – Northern section) and Salisbury Station (Zone 3 – Southern section)

3.2 Areas of Built Heritage Values

3.2.1 Qld State Heritage Register

The below map highlight the State Heritage Places recorded on the Qld State Heritage Register which are either intersected by the project boundaries or immediately adjacent.

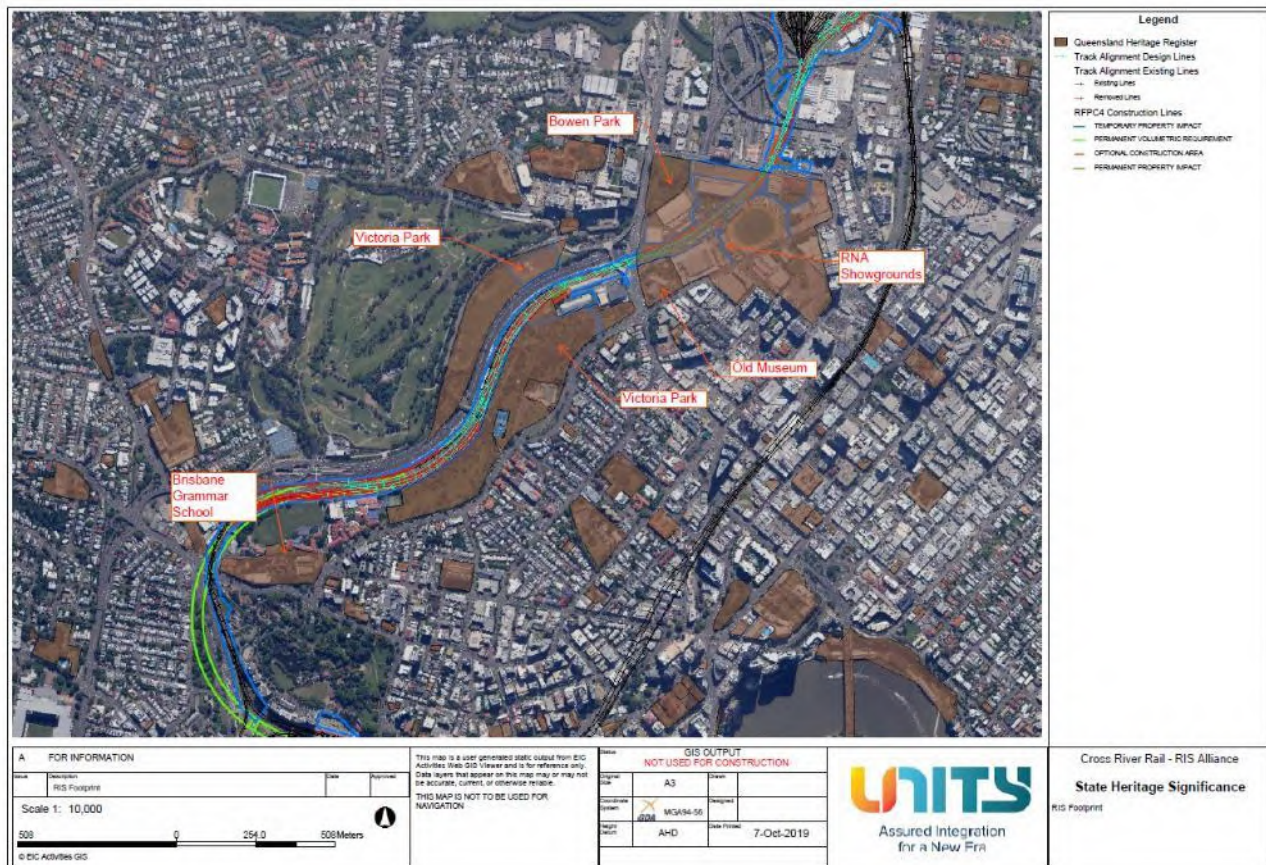
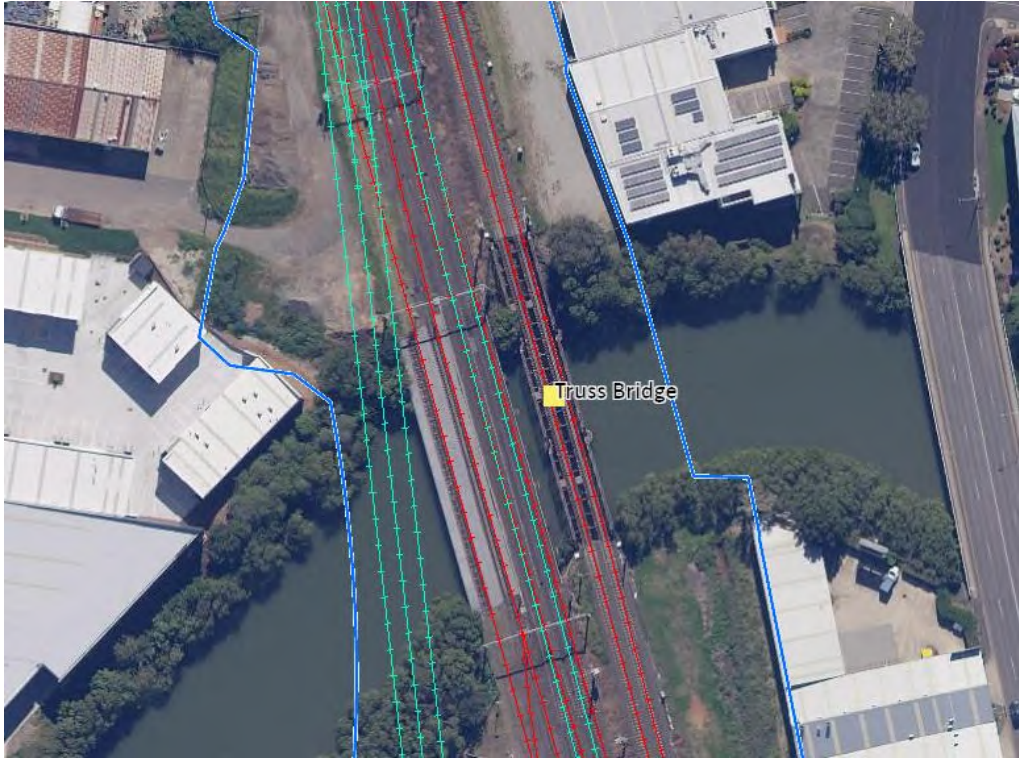


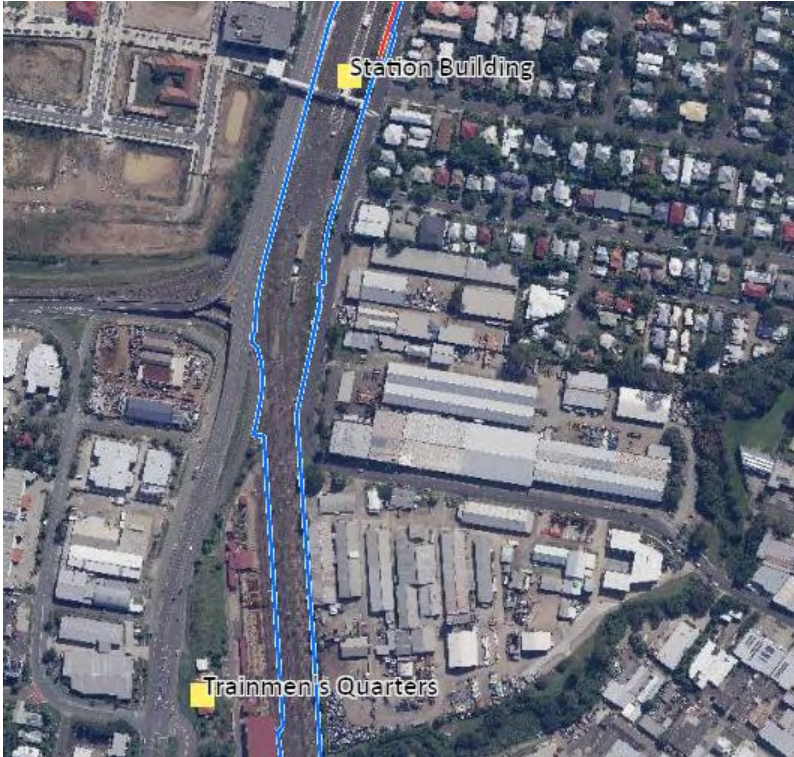
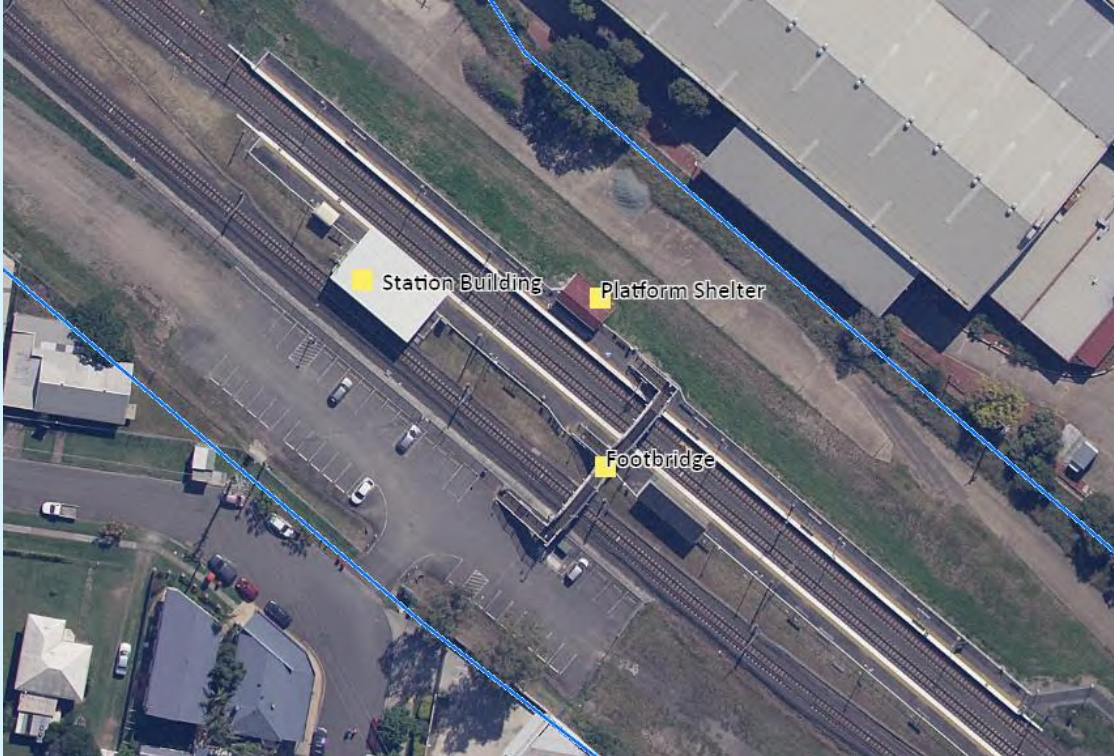
Figure 6: State Heritage Values

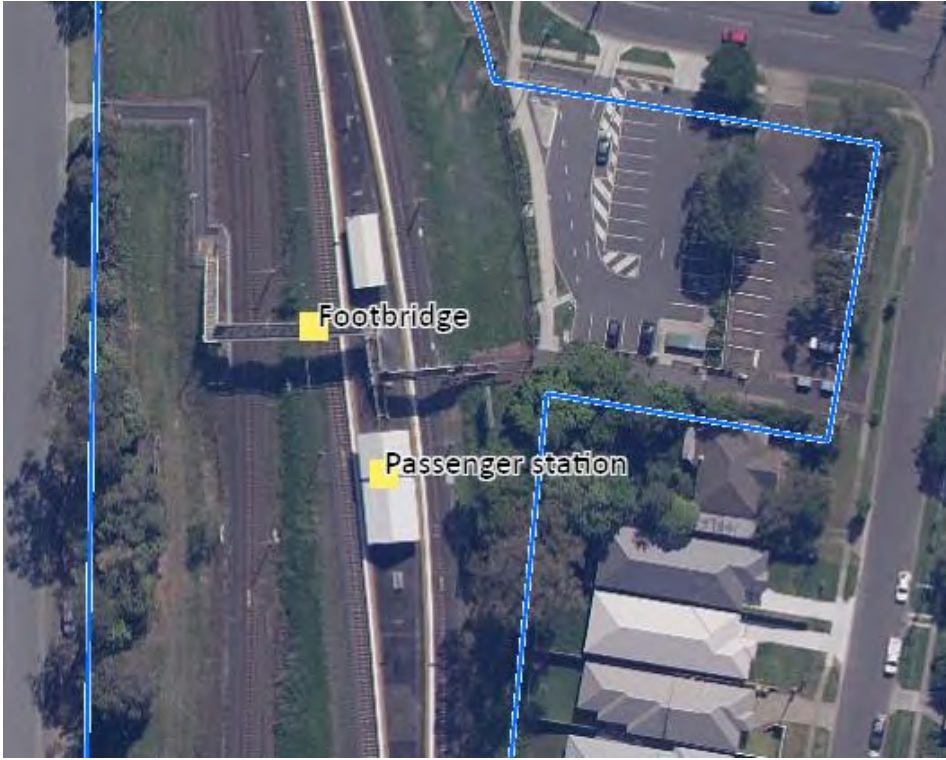
3.2.2 Queensland Rail Heritage Register

The below table summarises the location of the QR heritage sites recorded on the QR Heritage Register which are either intersected by the project boundaries or immediately adjacent.

Site	Map
Truss Bridge Over Breakfast Creek	
Exhibition rail station	

Site	Map
Fairfield Station	 An aerial photograph of Fairfield Station. A red outline highlights the station's footprint. Labels with arrows point to the 'PEDESTRIAN FOOTBRIDGE', 'STATION BUILDING', and 'WAITING SHED'. The surrounding area includes residential houses and streets labeled 'MIDWAY STREET' and 'LAGONDA STREET'.
Yeronga Station	 An aerial photograph of Yeronga Station. A blue outline highlights the station's footprint, which includes a 'Footbridge' labeled with a yellow box. The surrounding area is primarily residential with houses and trees.

Site	Map
Yeerongpilly Station	 This aerial map shows the Yeerongpilly Station area. A blue dashed line indicates the rail corridor. Two yellow labels with leader lines point to specific buildings: 'Station Building' at the top and 'Trainmen's Quarters' further down the corridor. The surrounding area includes residential houses and industrial structures.
Rocklea Station	 This aerial map shows the Rocklea Station area. A blue dashed line indicates the rail corridor. Three yellow labels with leader lines point to specific structures: 'Station Building' on the left, 'Platform Shelter' on the right, and 'Footbridge' crossing the tracks. The map also shows a parking lot with several cars and surrounding residential and commercial buildings.

Site	Map
Salisbury Station	

3.2.3 BCC Heritage Register

Despite the project being exempt from seeking approval from the BCC Heritage Team, the Delivery Authority has committed to providing information to BCC on the Project Impacts on Local Heritage Matters for their records.

The following places listed in the Local Heritage Register also have an overlap with State or QR Heritage Listings:

- Northern Area
 - Victoria Park
 - Brisbane Grammar School
 - RNA showgrounds (inclusive the Sneyd Drain)
 - Bowen Park
 - The Old Museum
- Southern Area
 - Yeronga Railway Station Footbridge
 - Trainmen's quarter at Yeerongpilly
 - Rocklea Railway Station & footbridge
 - Salisbury Railway Station ticket office & footbridge (part)

The below map highlights the Local Heritage Places which have a standalone listing as recorded on the BCC Local Heritage Register which are either intersected by the project boundaries or immediately adjacent. They include:

- Tufton House (adjacent to project boundaries)

- BTS Building (within the project boundaries) - also known as the New Zealand Loan & Mercantile Agency Company Woolstore (former)
- QR shed in the northern corridor directly west of Bowen Bridge Road (within the project boundaries) – also known as the New Zealand Loan & Mercantile Agency Company Woolstore (former)
- Bowen Bridge & approach walls (adjacent to project boundaries)
- Brisbane Girls Grammar School (adjacent to project boundaries).

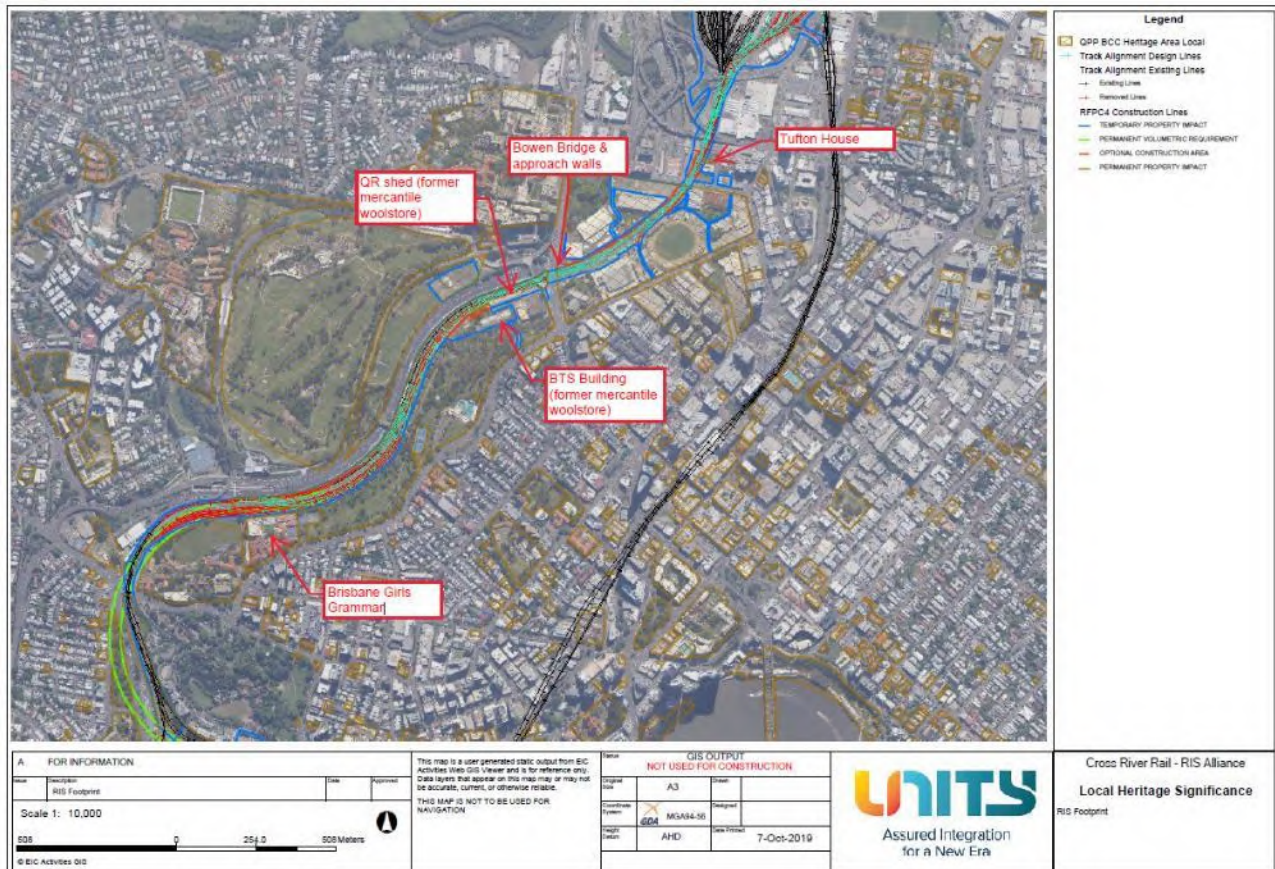


Figure 7: Local heritage values

Nature Conservation Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000277
Revision date:	27 October 2019
Revision number:	00

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY	IEM		IEM comments incorporated in Rev B
Signature:					
B	08/09/19	UNITY	IEM		IEM comments incorporated in Rev C
Signature:					
C	16/09/19	UNITY	IEM		IEM comments incorporated in Rev D
Signature:					
D	07/10/19	UNITY	IEM	IEM	Endorsed for All Works on 11 October 2019
Signature:					
00	27/10/19	UNITY	IEM	IEM	Plan updated to Rev00 to reflect endorsed status
Signature:					

Plan Control

This Nature Conservation Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates is in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Incorporation of IEM review comments from 16 August 2019
C	Incorporation of IEM's second review from 12 September 2019
D	Incorporation of IEM's third review from 20 September 2019
00	Plan updated to Rev00 to reflect endorsed status

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1 Purpose of this Plan

This sub-plan has been prepared to comply with

- Coordinator-General's Conditions of Approval – Appendix 1 – Part C
 - Condition 20(c)
- Final Outline – Environment Management Plan (O-EMP) – Outline Nature Conservation Management Plan.

Component	Details
Environmental Outcome(s)	• 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 • Ecological, habitat and natural asset values of open space areas near the project, are maintained. • No net loss of habitat* occurs as a result of the design and construction of the Project
Relevant Area	Site wide Key areas (refer mapping section): • Gilchrist Avenue construction work site in Victoria Park • Mayne Yard – marine plants associated with Enoggera/Breakfast Creek as per the meaning of the Fisheries Act 1994 • Mayne Yard – potential for Black Flying Foxes. • Areas mapped with NALL vegetation – Breakfast creek – RNA Showgrounds – Victoria Park – Parts of the Fairfield to Salisbury (F2S) corridor. • Riparian Vegetation along Moolabin and Rocky Water Holes Creeks which have been determined Watercourses as per the meaning of the Water Act 2000 • Vegetation contributing to the State Heritage Listing of Victoria Park and the RNA Showgrounds
Relevant Works / Activities	• Vegetation clearing and trimming • Trenching and excavation activities (entrapment risk) • Rehabilitation • All works that are in proximity of flora and fauna.
Performance Criteria	• Habitat for significant vegetation removed during construction is restored and rehabilitated to the extent reasonable and practical, consistent with a rehabilitation plan agreed with the relevant stakeholders • Necessary clearing permits or approvals for vegetation clearing are obtained and clearing is undertaken in accordance with these permits or approvals.
Sustainability	Eco-1.
Mitigation Measure	• Undertake a pre-construction fauna survey within and around worksites to identify any species for which a species management plan needs to be developed • Undertake a pre-construction ecological survey to confirm presence and extent of: – Marine plants – Regional ecosystems – Flora EVNT species, particularly as it pertains to species under the <i>Nature Conservation Act 1992</i> – Other protected plants (least concern and special least concern) – Pest species under the <i>Biosecurity Act 2014</i> • Obtain the relevant flora clearing and exemption permits /approvals as detailed in the Approvals Register for:

Component	Details
	- NC Act 1992 - Marine plants - Riparian Vegetation of Moolabin and Rocky Water Holes Creeks • For areas of Marine Plants: - Minimise the extent of permanent and temporary disturbance to a reasonable and practical level - UNITY will develop a Marine Plant rehabilitation strategy in consultation with DAF as part of the development approval application process prior to construction works - Rehabilitate the temporary Marine Plants disturbance in accordance with the relevant Approvals Conditions set by DAF - Disturbance extents, whether temporary or permanent, will be controlled using <i>Permit to Clear Land or Vegetation</i> with adequate barriers installed to identify limits of disturbance - Provide the Delivery Authority with a register summarising the extent of clearing of Marine Plants to support the Delivery Authority's in identifying whether net loss of habitat¹ has occurred across the Overall Project • For areas of Riparian Vegetation: - Minimise the extent of permanent and temporary disturbance to a reasonable and practical level - Comply with the minimum requirement of the <i>Riverine protection permit exemptions requirements</i> (DNRME) - In the unlikely event compliance with the <i>Riverine protection permit exemptions requirements</i> is not possible, obtain a Riverine Protection Permit - Rehabilitate the temporary riparian vegetation disturbance with trees, shrub and grasses endemic to the area, sufficient to re-establish a riparian environment and protect bed and banks from erosion - Provide the Delivery Authority with a register summarising the extent of clearing of Riparian Vegetation to support the Delivery Authority's in identifying whether net loss of habitat² has occurred across the Overall Project • For exempt vegetation clearing (NALL) - Provide the Delivery Authority with a register summarising the extent of clearing of Natural Assets Local Law 2003 (NALL) vegetation. - The register must also clearly identify where enforceable State Statutory Requirements overlap NALL vegetation to support the Delivery Authority's commitment to develop a Project Wide Offset Strategy³ in consultation with BCC. - Engage and consult a suitably qualified arborist to provide advice on the management of NALL vegetation to be retained. The management measures are to be incorporated in the relevant documentation such as Workpacks and SEPs. • For clearing of vegetation which contributes to the State Heritage Significance of a Place - Undertake a Heritage Assessment in accordance with the Non-Indigenous Cultural Heritage Management Plan. This must include an assessment of the Heritage Value of the vegetation - Obtain the relevant permits / approval from the DES and / or Heritage Council - Comply with the requirements of the permits /approvals⁴

¹ The Marine Plants located along the projects are not Prescribed MSES. The Project is therefore exempt from the Marine Plants offset provisions under the Environmental Offsets Regulation 2014. The Delivery Authority as the Project Owner is therefore not required to develop and implement a Marine Plant Offset Strategy in consultation with DAF. Development and implementation of such a strategy outside of the legislative framework is at the discretion of the Project Owner.

² The Riparian Vegetation located along the projects is not a Prescribed MSES. The Project is exempt from the Regulated Vegetation offset provisions under the Environmental Offsets Regulation 2014. The Delivery Authority as the Project Owner is therefore not required to develop and implement an Offset Strategy in consultation with DNRME. Development and implementation of such a strategy outside of the legislative framework is at the discretion of the Project Owner.

³ The implementation of the requirements of the NALL Offset Strategy is the responsibility of the Delivery Authority unless otherwise agreed.

⁴ Where vegetation replacement options are imposed through the State Heritage permits / approval which may conflict with the Offset Agreement negotiated by the Delivery Authority for NALL vegetation in the same area, the State requirements prevail.

Component	Details
	- Findings of the Ecological Survey for Pest Species to be incorporated in the relevant documentation as relevant such as the Biosecurity Management Plan, Workpacks and SEP - Develop the necessary Species Management Programs (SMPs) based on the findings of the pre-construction surveys - Implement the requirements of the SMP - Minimise disturbance to significant vegetation and habitat during construction through: - Installation of No-Go exclusions zones around protected / significant vegetation including marine plants with access controlled using <i>Permit to Enter No-Go Zone</i> - Installation of Tree Protection Zones for NALL trees as required through pre-existing data or else as identified using UNITY's qualified arborist assessment prior to construction works - Ensure a qualified fauna spotter/catcher is present prior to and during the removal of vegetation of habitat value or breeding places, to capture and relocate any disturbed native fauna - Ensure the fauna spotter/catcher has necessary and current Rehabilitation or Damage Mitigation Permits - Ensure appropriate mitigation measures in Victoria Park are implemented to manage light spills that may adversely impact native fauna, while maintaining safe driving conditions for motorists on adjacent roads
Monitoring	- Monitoring is in accordance with Attachment 4 of the C-EMP by way of the Weekly Scheduled Inspection Checklist. This checklist, where required, may be expanded to incorporate site-specific monitoring requirements identified throughout the Pre-construction Ecology surveys - Where NALL vegetation may be impacted by construction works, monitoring requirements as per the findings of the Arborist take precedence - Where Species Management Programs are triggered, the SMP monitoring requirements take precedence.
Reporting	- Reporting will be in accordance with Section 8.2 of the C-EMP - Reporting for FSC activities will be in accordance with the DES requirements and will be the responsibility of the FSC - Where SMPs are triggered, the SMP reporting requirements take precedence over the C-EMP requirements.
Corrective Action	Management of corrective actions will be undertaken as per Section 6 of the C-EMP.
Auditing	Auditing will be undertaken as per Section 7 of the C-EMP.

2 Significant Habitat Sites and Vegetation Mapping

The below mapping depicts the areas of significant habitat and significant vegetation on State and Local Legislative layers.

2.1 Significant Habitat - Flying Fox Roost Sites

Flying Foxes are listed species under the Nature Conservation act 1992. There are species of flying foxes

- Black flying-fox, *Pteropus Alecto*. This species is listed as Least Concern in Queensland
- Grey-headed flying-fox, *Pteropus poliocephalus*. This species is listed as Least Concern in Queensland
- Little red flying-fox, *Pteropus scapulatus*. This species is listed as Least Concern in Queensland
- Spectacled flying-fox, *Pteropus conspicillatus*. This species is listed as Vulnerable in Queensland

The grey-headed flying fox and the spectacled flying-fox are also listed as Vulnerable under the EPBC Act 1999.

Due to the anecdotal evidence of flying foxes visiting the mangroves in the vicinity of Mayne Yard, Unity has reviewed publicly available information to identify whether known roosts are present in the area.

Based on the DES mapping the nearest known roost to the RIS footprint is the Windsor Roost along Enogerra Creek, and therefore whilst there is a potential for flying foxes to be present in the vicinity of Mayne Yard, there is no recognised Roost (Habitat) within or directly adjacent the RIS Footprint.

The fauna survey has therefore focused on the area of Mayne Yard to confirm the presence of an actual roost to inform species management program and associated permitting.

The fauna survey confirmed that there are no roosts along the banks of Mayne Yard.

Flying fox camps within Local Government Areas of Queensland

Map 1: Brisbane City Council

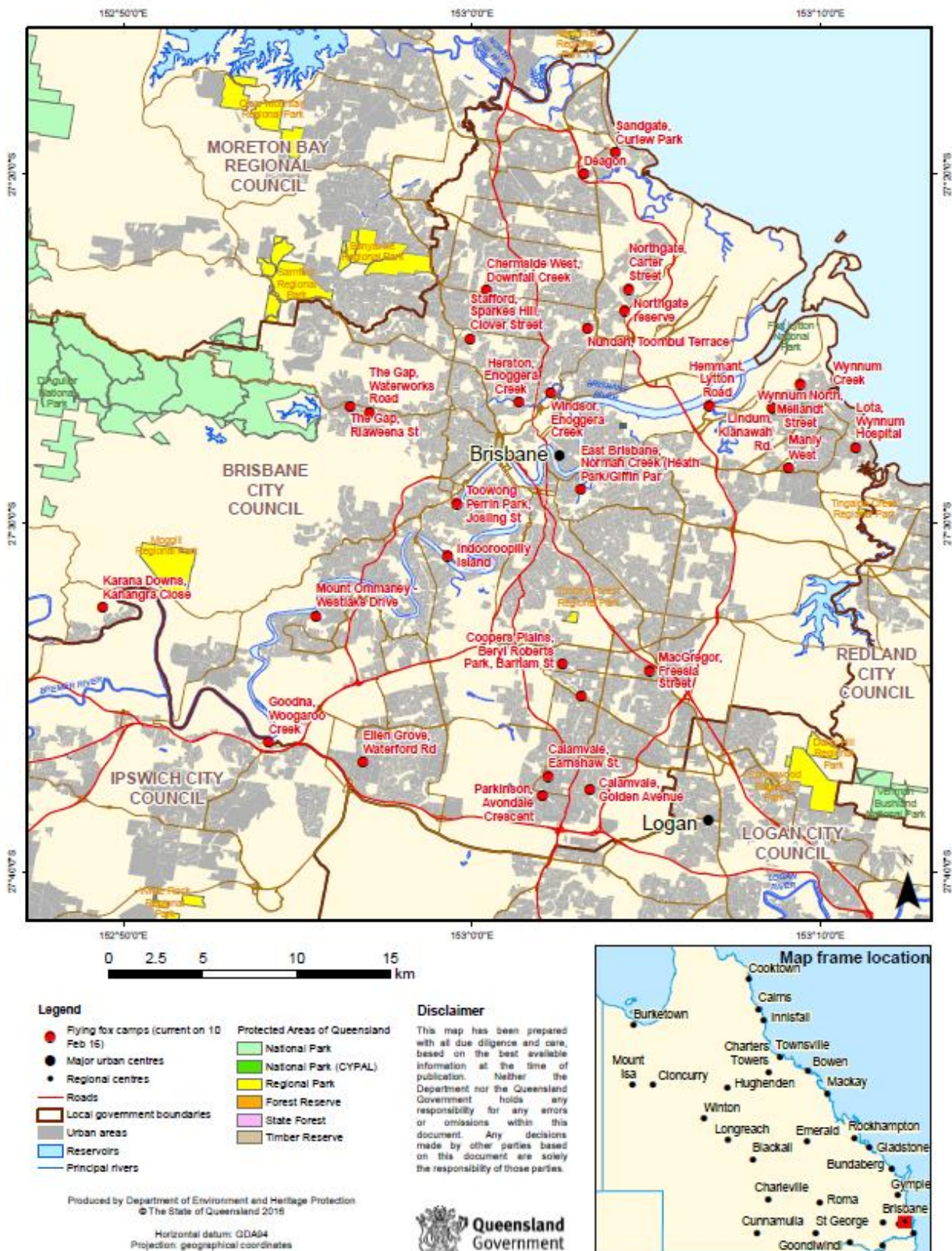


Figure 1: DES mapping of flying fox roosts (accessed 16 September 2019)

2.2 Significant Vegetation

Unity has reviewed publicly available information to identify key state and local vegetation, whether mapped as an ecosystem or as vegetation of significance (on an individual tree count basis).

The following information has been reviewed:

- Matters of State Environmental Significance (MSES) are prescribed by Schedule 2 of the Environmental Offsets Regulation 2014. Prescribed Environmental matters require to be offset when clearing occurs. They include Regulated vegetation, Wetlands and watercourses, inclusive of regulated vegetation intersecting a watercourse and Protected wildlife habitat (e.g. Koala Habitat, Fish Habitat Areas) amongst others. The following MSES are mapped as being intersected by the project
 - Regulated vegetation intersecting a watercourse at Breakfast Creek
 - Regulated vegetation intersecting a watercourse at Moolabin Creek
 - Regulated vegetation intersecting a watercourse at Rocky Water Holes Creek
 - Despite the State mapping, these vegetation communities are not prescribed environmental matters. Therefore, the offset provisions under the Environmental Offsets Regulation do not apply.
- The Vegetation Management Act Spatial mapping which identifies the location of Potential Regional Ecosystems
 - RE 12.1.3 is mapped along Breakfast Creek at Mayne Yard. RE 12.1.3 is a least concern RE for Estuarine Wetlands (e.g. mangroves)
 - RE 12.3.11 is mapped along Breakfast Creek at Mayne Yard. RE 12.3.11 is an of concern RE for palustrine wetland (e.g. in swales), which may contain *Eucalyptus tereticornis* +/- *Eucalyptus siderophloia*, *Corymbia intermedia* open forest on alluvial plains usually near coast
 - There is no other Regional ecosystem mapped in the vicinity of the works
 - The project is exempt of obtaining approvals under the VMAct when clearing vegetation as it is deemed 'exempt clearing work'. Indeed, the clearing is not deemed operational works as it is for the construction of transport infrastructure that is government supported transport infrastructure.
- The Nature Conservation Act Spatial High Risk Flora Trigger mapping which identified the location of potential EVNT species (Endangered, Vulnerable and Near Threatened Flora). The project footprint does not intersect or is not located within 100m of a mapped High Risk Flora trigger area.
- The BCC NALL mapping which identifies trees under a VPO (Vegetation protection order) and Significant Council Vegetation (Native, Urban (generally street vegetation), Waterways and Park Vegetation). Where the BCC NALL mapping overlaps State Matters which are subject to State Statutory Requirements, the State requirements prevail.

The below maps show an overlay of each type of vegetation against the project footprint.

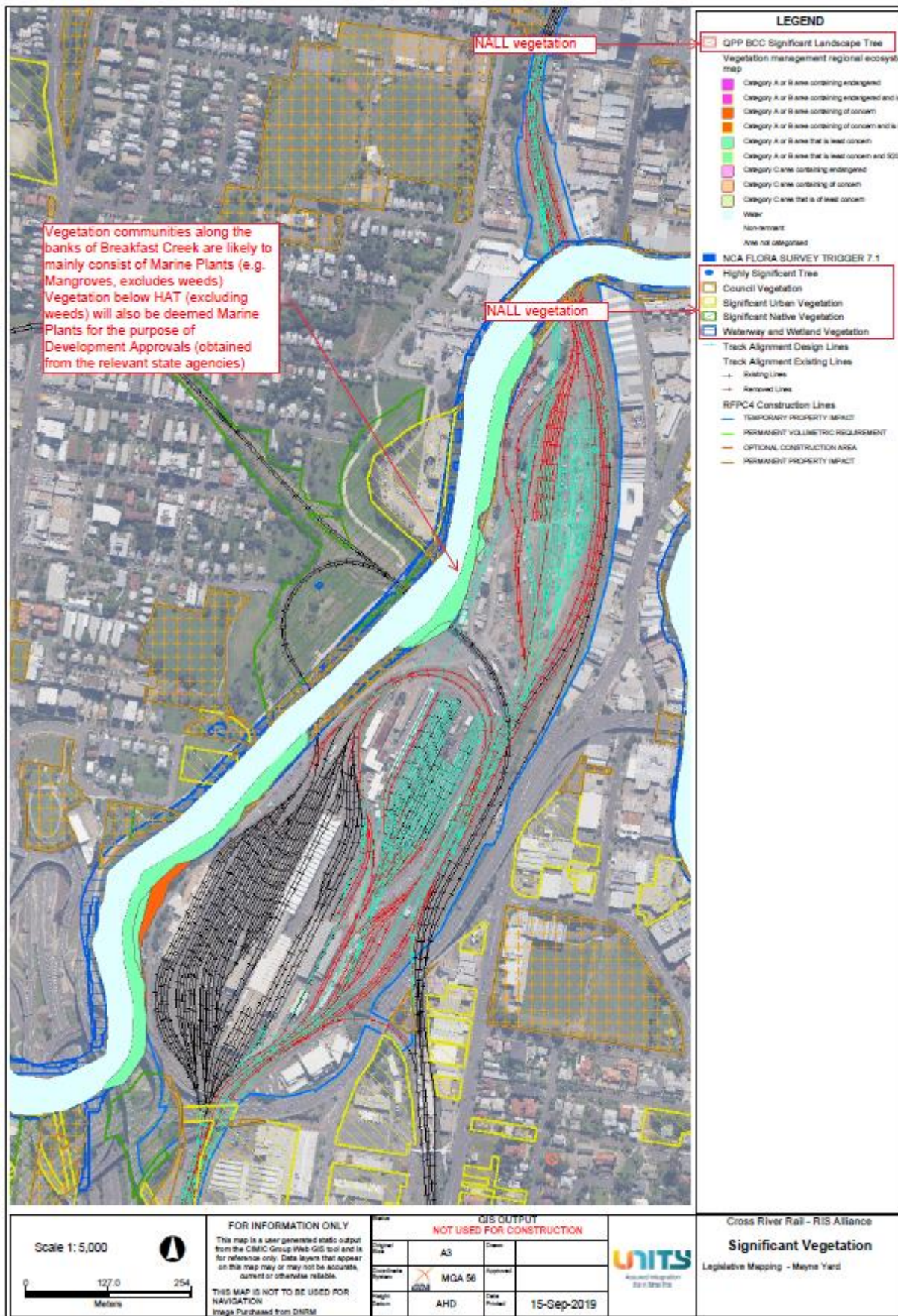


Figure 2: Significant vegetation – Mayne Yard

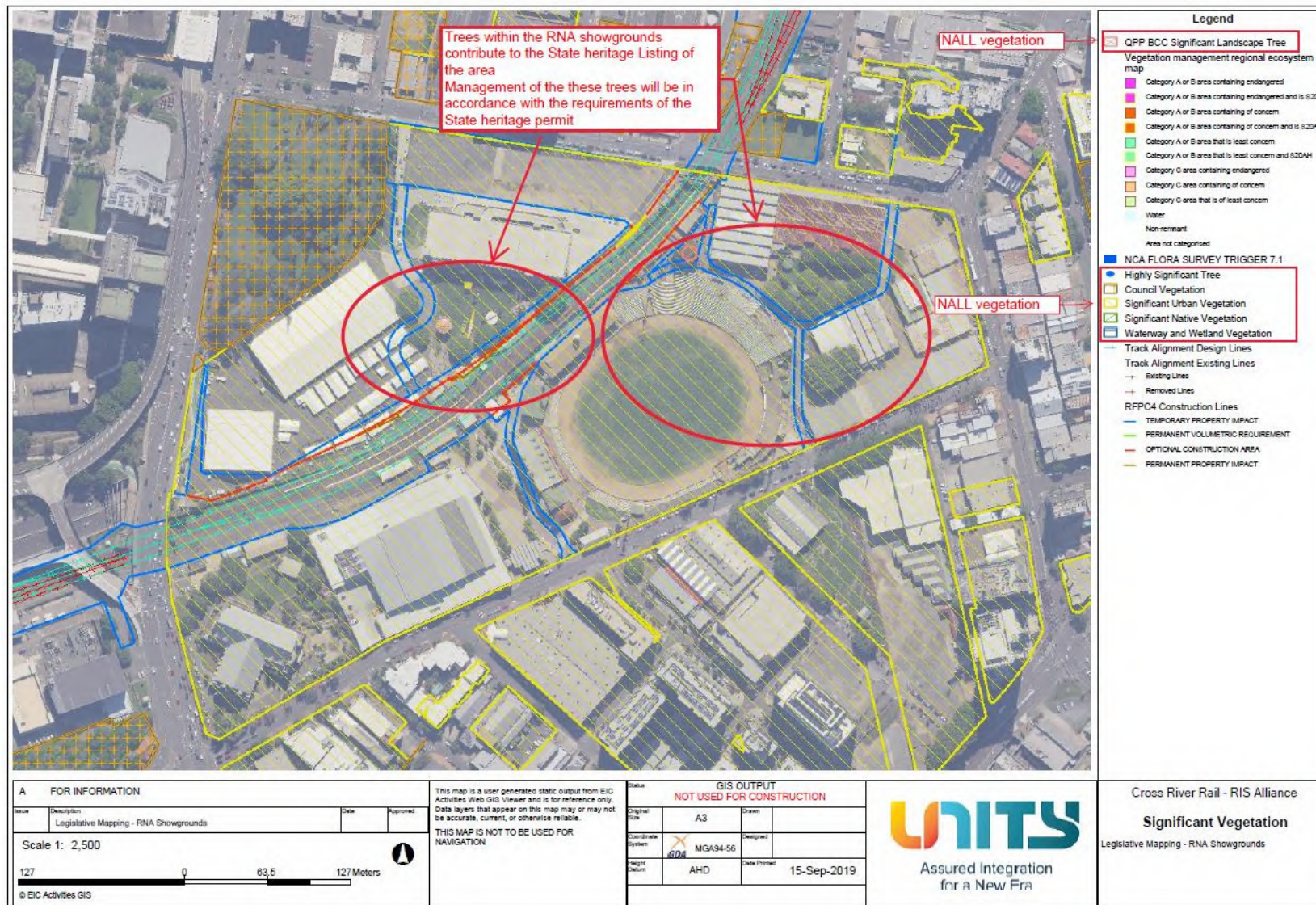


Figure 3: Significant vegetation – RNA Showgrounds

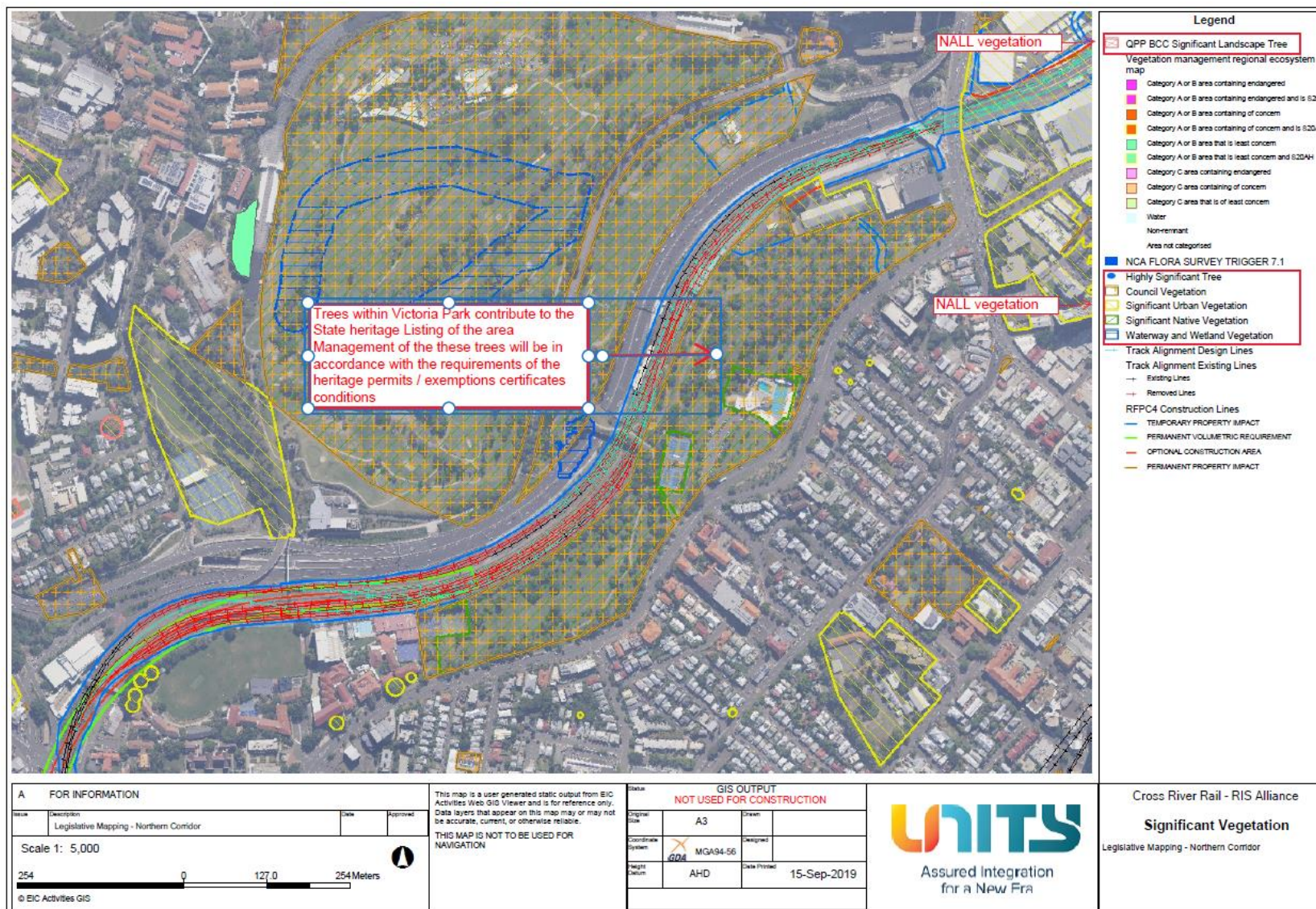


Figure 4: Significant vegetation – Northern Corridor (Victoria Park Area)

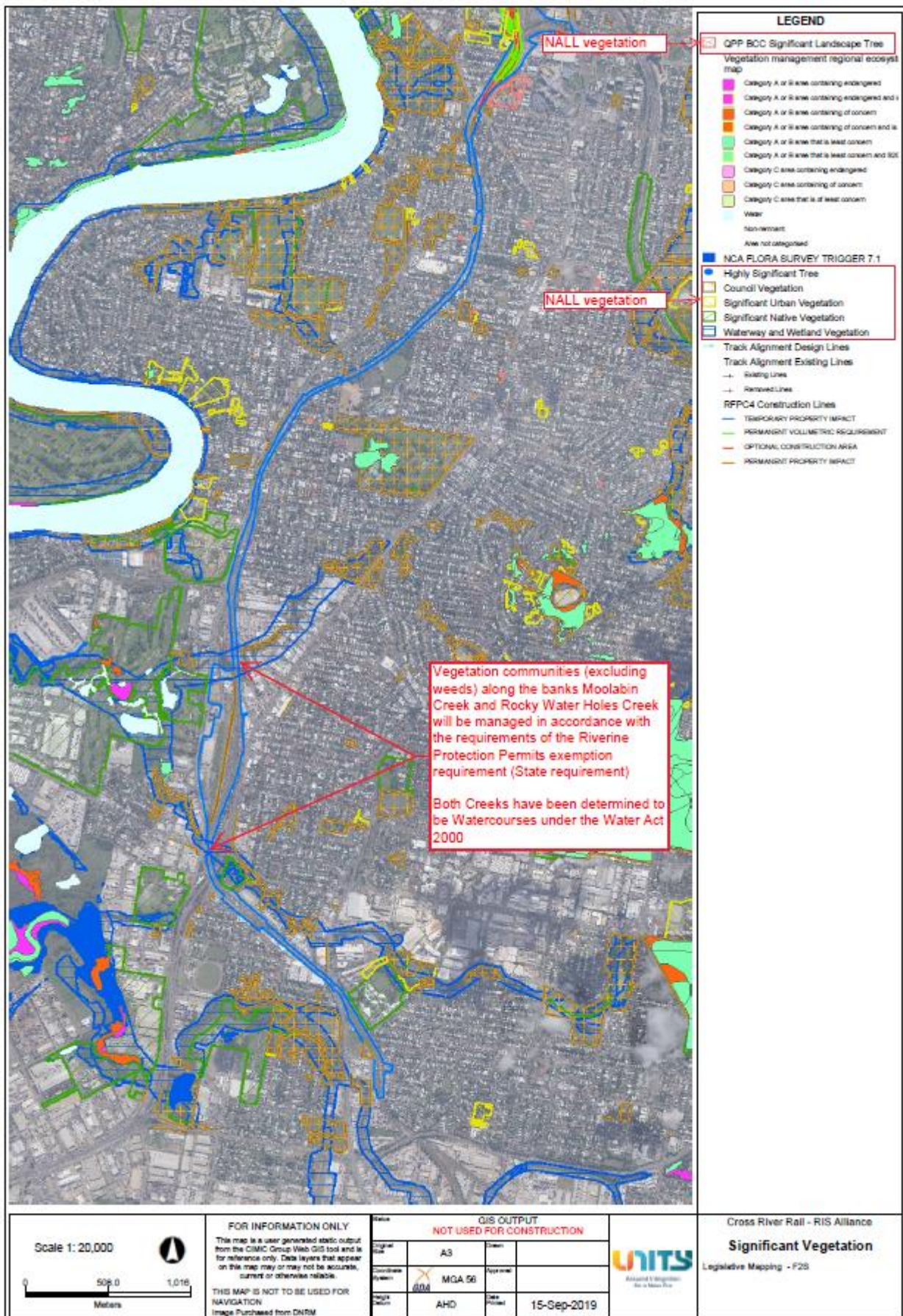


Figure 5: Significant vegetation – F2S

Noise and Vibration Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	
Document number:	RIS-UNA-000-001-MPL-000278
Revision date:	19 September 2019
Revision number:	00

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY	IEM		IEM comments addressed in Rev B
Signature:					
B	08/09/19	UNITY			
Signature:					
C	15/09/19	UNITY	IEM		IEM close out comments addressed in Rev 0
Signature:					
00	19/09/19	UNITY	IEM		
Signature:					

Plan Control

This Noise and Vibration Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates is in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Updated Plan to incorporate the IEM's comments from 19 August 2019
C	Updated Plan to incorporate clarification received on 12 September 2019 on the interpretation of condition 11.c
00	Updated Plan to incorporate the IEM's comments from 18 September 2019

1 Purpose of this Plan

This sub-plan has been prepared to comply with:

- Coordinator-General's Condition of Approval:
 - Condition 11 (all)
 - Condition 12(b)
 - 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 C-EMP
- Final Outline – Environment Management Plan (O-EMP) – Outline Noise and vibration Management Plan
- Vibration Monitoring Limits – Clem7.

Note that Unity currently does not intend to undertake any blasting as part of the works. In the even that blasting is required this plan must be reviewed, updated as required and endorsed by the Independent Environmental Monitor in accordance with Condition 4(g) or Condition 4(h) of the Coordinator General Change Report.

Component	Details
Environmental Outcome(s)	• Project works must aim to achieve the project noise goals for human health and wellbeing in Table 2 below • Project works must aim to achieve the construction vibration goals in Table 3 below • The management measures are adaptive to the sensitive receivers impacted by construction noise and vibration • During construction, monitor and report on noise and vibration • Construction activities are designed, planned and implemented to maintain human health and wellbeing, to the extent reasonable and practical • Construction activities generally are designed, planned and implemented to maintain daily patterns of activity, and to minimise sleep disturbance at night • Construction activities are managed to avoid vibration-related structural damage on all properties, including listed heritage places, to minimise other vibration-related impacts on properties and any vibration-sensitive plant and equipment (e.g. transmission electron microscopes) • For works and activities (including demolition) that are carried out in the close vicinity of the Clem7 tunnel structure and have an impact on it, Transurban requires tunnel vibration monitoring to be undertaken with consideration of trigger levels as per DTMR's Design Criteria for Bridges and Other Structures February 2018.
Relevant Area	Site wide Key areas: • Exhibition Station and Old Museum – impact to heritage structures in particular the John McDonald Stand • O'Connell Terrace – vibration impact to Clem7 • F2S – impact to Queensland Rail heritage structures and residents • Clapham yard – impact to residents.
Relevant Works / Activities	• Night works • Construction traffic on the local road network • High impact activities: – Bulk earthworks involving heavy vehicles and equipment – Piling works – particularly driven piles for noise and bored piles for vibration – Ground surface treatments using vibratory rollers – Hydraulic or jack hammering activities (rock breaking activities) – Tamping works.

Component	Details															
	Demolition Works															
Performance Criteria	Noise: - Construction works are designed, planned and implemented to achieve noise goals, where reasonable and practicable - Where predictive modelling is conducted prior to commencement of works in a locality where it is indicated that the noise goals are likely to be exceeded: - Potentially affected entities must be identified and consulted regarding the potential impacts and the mitigation measures proposed to address the impacts - When mitigation measures are developed in consultation with potentially affected entities on a 'case-by-case' basis prior to commencement of the works, agreed mitigation measures are included in a mitigation register and implemented prior to undertaking construction works Table 2. Noise goals (internal) for Project Works <table><tr><th></th><th>Monday – Saturday 6.30am – 6.30pm</th><th>Monday – Friday 6.30pm – 10.00pm (Gabba, CBD only)</th><th>Monday – Saturday 6.30pm – 6.30am Sundays, Public Holidays</th><th>For Blasting Monday – Saturday 7.30 am – 4:30 pm only</th></tr><tr><td>Continuous ($LA_{eq\ adj}$)(1hr)</td><td>AS 2107 Maximum design level</td><td>40 dBA $LA_{eq\ adj}$ (1hr)</td><td>35 dBA $LA_{eq\ adj}$ (1hr)</td><td>130 dB Linear Peak</td></tr><tr><td>Intermittent ($LA_{10\ adj}$)(15min)</td><td>AS 2107 Maximum design level + 10 dBA</td><td>50 dBA $LA_{10\ adj}$</td><td>42 dBA $LA_{10\ adj}$</td><td></td></tr></table> Notes - All goals are internal noise levels for human health and well-being outcomes. - Where internal noise levels are unable to be measured or monitored, the typical noise reductions presented in Guideline Planning for Noise Control, Ecoaccess, DEHP, January 2016 apply. Vibration: - Construction works designed, planned and implemented to achieve the vibration goals, where reasonable and practicable - Where predictive modelling is conducted prior to commencement of works in a locality where it is indicated that the vibration goals are likely to be exceeded: - Potentially affected entities must be identified and consulted regarding the potential impacts and the mitigation measures proposed to address the impacts - When mitigation measures are developed in consultation with potentially affected entities on a 'case-by-case' basis prior to commencement of the works, agreed mitigation measures are included in a mitigation register and implemented prior to undertaking construction works - Where vibration goals are provided in respect of sensitive building contents, predictive modelling must take into account the manufacturer's specifications for tolerance to vibration and adopt such specifications as goals for construction to avoid or minimise impacts on the normal operation of such equipment:		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)	130 dB Linear Peak	Intermittent ($LA_{10\ adj}$)(15min)	AS 2107 Maximum design level + 10 dBA	50 dBA $LA_{10\ adj}$	42 dBA $LA_{10\ adj}$	
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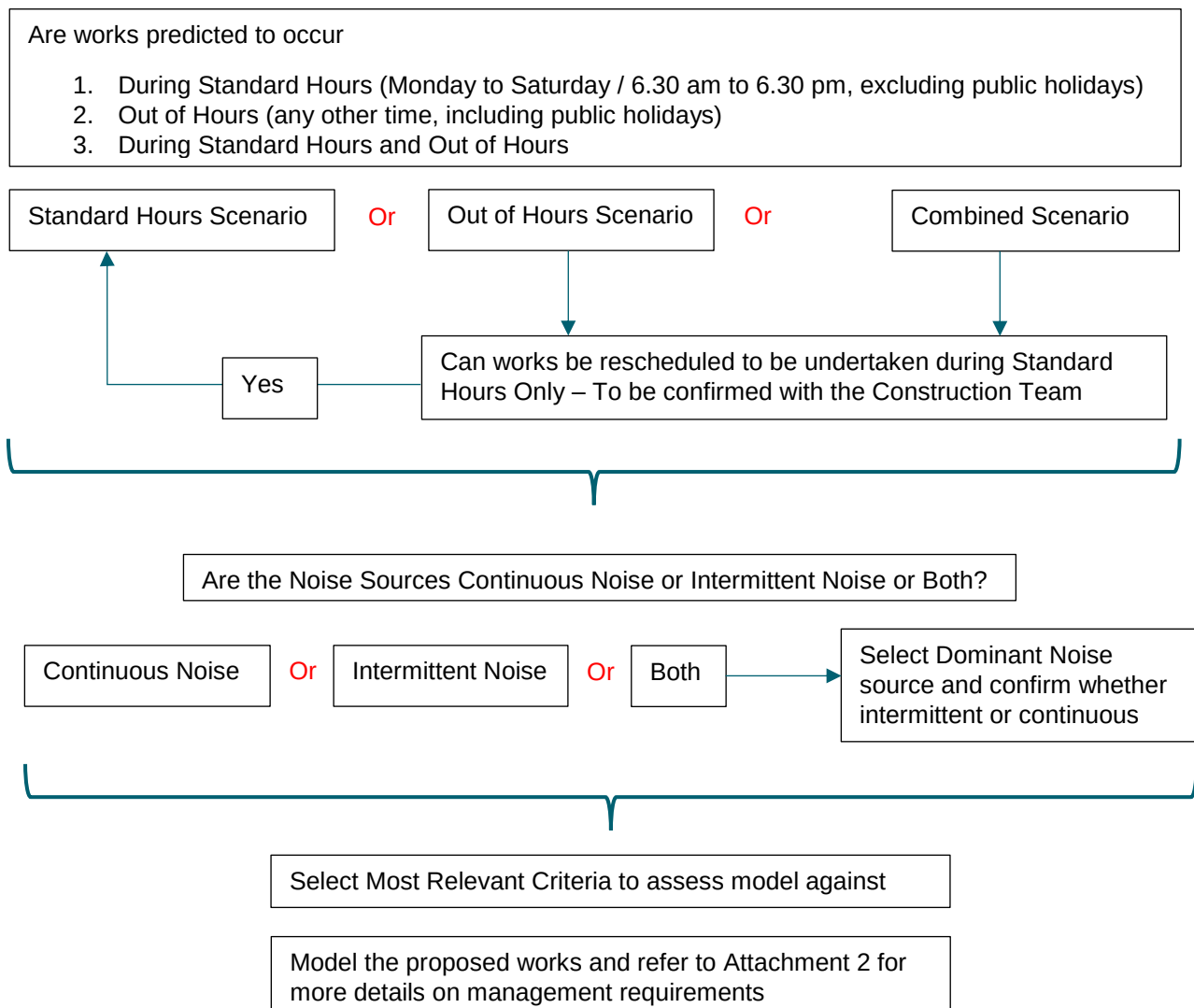
Component	Details																																										
	<table><tr><th colspan="7">Table 3. The construction vibration goals</th></tr><tr><th>Receiver type</th><th colspan="3">Cosmetic Damage</th><th colspan="2">Human comfort (mm/s PPV)</th><th>Sensitive building contents (mms/PPV)</th></tr><tr><th></th><th>Continuous vibration (mm/s PPV)</th><th>Transient vibration (mm/s PPV)</th><th>Blasting vibration (mm/s PPV)</th><th>Day</th><th>Night</th><th></th></tr><tr><td>Residential</td><td>According to BS7385 reduced by 50%⁴</td><td>According to BS7385</td><td>50¹</td><td>According to AS2670</td><td>0.5²</td><td></td></tr><tr><td>Commercial</td><td>According to BS7385 reduced by 50%⁴</td><td>According to BS7385</td><td>50</td><td>According to AS2670</td><td>-</td><td>0.5³</td></tr><tr><td>Heritage structures</td><td>2</td><td>-</td><td>10</td><td>-</td><td>-</td><td></td></tr></table> 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	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	-	-	
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Heritage structures	2	-	10	-	-																																						
	DTMR requirements and trigger levels: • The developer is required to install vibration monitoring equipment using triaxial geophones (4.5 Hz) to capture vibration in the tunnel roof and or walls prior to commencement of any demolition, excavation or construction work. The devices shall be calibrated against a traceable event. The devices shall be installed as per manufacturer's installation guidelines. The output result shall also include waveforms of extreme events • A suitable measurement frequency to be specified by the instrumentation designer, such that all events are captured, to avoid the two scenarios – low and high measurement frequencies. The first will lead to data overflow and the second will miss critical events • Background monitoring and baseline reading shall determine and correct external influences on monitoring results (for example, temperature, traffic and atmospheric pressure) which can lead to errors in reported data. Hence a two-month baseline reading regime is imposed • System reliability is important as a lack of monitoring results may result in limitations on works or even suspension of construction operations. Where the consequences of monitoring system failure are unacceptable to a project, there shall be sufficient redundancy built into the system so that losses of discrete elements do not cause loss of the entire monitoring system • Monitoring systems require routine checks and maintenance. Most monitoring systems require some access for maintenance. The monitoring designer must consider how this can be achieved. A log of maintenance undertaken on the system is recommended. This log shall record the date, nature of the work and who undertook it. This is useful for error tracing and a change in control procedures • The location and number will be accepted on a project basis • A PCPV (Peak Component Particle Velocity) threshold of 1.5 mm/sec is to be set in the logger • A warning trigger level between 1.5 mm/s to 5 mm/sec is to be set in the logger • The trigger level to close the tunnel to buses or traffic and immediate ceasing of all excavation is to be set at a PCPV exceeding 5 mm/s • Responses to trigger levels of bored/driven tunnel lining vibration monitoring shall comply with those listed in Table 9.4.8.2.1:																																										

Component	Details												
	Table 9.4.8.2.1 – Vibration: alarm limits and responses for bored/driven tunnel <table><tr><th>Trigger Levels</th><th>Tunnel Lining Vibration Monitoring</th><th>Responses</th></tr><tr><td>Green</td><td>PCPV < 1.5 mm/s</td><td>No action required</td></tr><tr><td>Orange</td><td>1.5 mm/s < PCPV < 5 mm/s</td><td>Notify the Developer's Supervising Engineer and Transport and Main Roads. Review monitoring frequency and construction procedures.</td></tr><tr><td>Red</td><td>PCPV > 5 mm/s</td><td>Stop all buses or traffic from using tunnel. Place hold on excavation. Notify the Developer's Supervising Engineer and Transport and Main Roads. Resumption of work to be approved by the department.</td></tr></table> Any changes to the above trigger based on the background information or at any time during the adjacent development is to be accepted by the Transport and Main Roads, Director (Structures Review and Standards). Typically "Vibration Geophone" accuracy is ± 0.1 mm/s	Trigger Levels	Tunnel Lining Vibration Monitoring	Responses	Green	PCPV < 1.5 mm/s	No action required	Orange	1.5 mm/s < PCPV < 5 mm/s	Notify the Developer's Supervising Engineer and Transport and Main Roads. Review monitoring frequency and construction procedures.	Red	PCPV > 5 mm/s	Stop all buses or traffic from using tunnel. Place hold on excavation. Notify the Developer's Supervising Engineer and Transport and Main Roads. Resumption of work to be approved by the department.
Trigger Levels	Tunnel Lining Vibration Monitoring	Responses											
Green	PCPV < 1.5 mm/s	No action required											
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Red	PCPV > 5 mm/s	Stop all buses or traffic from using tunnel. Place hold on excavation. Notify the Developer's Supervising Engineer and Transport and Main Roads. Resumption of work to be approved by the department.											
Sustainability	Dis-2, Dis-3, Hea-1, Sta-4.												
Mitigation Measure	- Adopt the principles of the 'Transport Noise Management Code of Practice: Volume 2 - Construction Noise and Vibration' to inform planning, consultation and construction activities - Undertake predictive modelling to ascertain extent of potential impact to human receivers, structures (in particular heritage structures) and Clem7 prior to works commencing. Refer to - Attachment 1 and Attachment 2 for Noise Impact management and - Attachment 3 and Attachment 4 for Vibration Impact Management to Habitable structures. - The mitigation measures agreed with the construction team because of the modelling outputs are to be documented in the workpacks and the SEPs, and communicated to the Community and Stakeholder engagement team to support their notification and consultation process. - Where residual exceedances of the vibration goals are predicted to affect Local, QR or State Heritage Structures that will not be demolished as part of the construction works - Obtain the relevant Approvals from the Queensland Heritage Council and Department of Environment Science for the works near the structure and abide by the Approvals / Permit Conditions for State Heritage Places - Ensure that upon completion of the predictive modelling at RNA Showgrounds consultation with RNA and O'Connell Residents and businesses is undertaken prior to works commencing, inclusive of demolition works. - Obtain the relevant Approvals from the Queensland Rail Heritage Council for the works near the structure and abide by the Approvals / Permit Conditions for QR Heritage Places - Consult with BCC with the support of an Acoustics Specialist and a Structural Engineer to confirm whether additional specific mitigation measures are required. - Implement the Non-Indigenous Cultural Heritage Management Plan for heritage structures when the predicted exceedances may present a risk to the structure - Predicted vibration modelling and residential properties - Where residual exceedances of the vibration goals are predicted, liaise with the Community & Stakeholders Engagement Team to confirm whether DAPs may be sensitive to sleep disturbance - Predictive vibration modelling and sensitive building contents - Where residual exceedances of the vibration goals are predicted, liaise with the Community & Stakeholders Engagement Team to confirm whether DAPs have sensitive building contents (e.g. sensitive laboratory equipment)												

Component	Details
	– Where sensitive building contents exists to the extent that is reasonable and practicable review the predicted exceedances against the manufacturer's specifications for tolerance to vibration. – 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. • Undertake the necessary building condition surveys prior to works commencing where predictive modelling indicates potential for cosmetic damage • Undertake the necessary consultation with Directly Affected Persons to maintain a working relationship with the community in accordance with the Community Engagement Plan (CEP) • Project Notifications will be provided in the areas regardless of whether residents or business are predicted to be affected with sufficient information to enable them to understand the likely nature, extent and duration of noise and vibration impacts during various construction activities. • Keep the community informed regarding the project schedule and potential impacts, particularly in regard to unavoidable weekend and night works, in accordance with the timeframes nominated in the CEP. This includes a phone call, email and/or written notification for directly impacted stakeholders prior to the event • Design a procedure for complaints (including a point of contact for information) and respond to complaints in accordance with the procedure described in the CEP and the C-EMP • For Clem7, undertake monitoring in accordance against the agreed trigger levels if different to aforementioned performance criteria • Standard Mitigation Measures for Noise Management – Unnecessary sources of noise should be avoided. – Swearing or unnecessary shouting or loud stereos/radios on site should not be tolerated. – Materials should not be dropped from height; metal items should not be thrown and doors should not be slammed. – Vehicle radios and engines should be turned off wherever possible. – Minimise mobile equipment reversing movements and use alternative beepers, such as broadband beepers – Appropriately sized equipment should be selected for the task, such as vibratory compactors and rock excavation equipment. – Avoid the use of horns within the construction area, except in the case of emergency – Set site entry and egress points as far from sensitive receptors as practically possible – Utilise main roads for site vehicle access, wherever possible – Avoid using plant and equipment simultaneously adjacent to sensitive receptors where reasonably practical. The combined noise/vibration levels could be significantly less when sources operate separately – Use mufflers and engine cover/screens, where reasonable and practicable – Restrict the number of nights per week that works are undertaken, or schedule in respite measures, unless it can be adequately demonstrated that the sequencing of works to a shorter timeframe will result in reduced exposure duration to high noise levels. – Where possible, the duration of simultaneous operation of noise or vibration-intensive plant should be minimised. Plant and equipment used intermittently or no longer in use should be throttled or shut down. – Where feasible, the location for site access points and roads, gathering points, shift changes, parking, etc will be sited away from sensitive receptors. – Equipment should be operated in the correct manner and correctly maintained including replacement of engine covers, repair of defective silencing equipment, tightening of rattling components and repair of leakages in compressed air lines.

Component	Details
	– Construction plant, vehicles and machinery should be maintained and operated in accordance with manufacturer's instructions to minimise noise and vibration emissions. – Non-tonal reversing beepers (or an equivalent mechanism) should be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work. Without compromising site safety, unnecessary reversing should be avoided and turning circles used instead. – The drop height of materials will be minimised, for example, while loading and unloading vehicles or in storage areas. – The speed of construction traffic should be minimized near noise sensitive receptors, including acceleration. • For any works to be undertaken outside Standard Hours (as defined in the C-EMP) an Out of Work Hours permit is to be raised by the Engineering Team and Approved by the Environment and Approvals Manager and the Community and Stakeholder Engagement Manager.
Monitoring	Monitoring will be undertaken in accordance with the Construction Monitoring Program (Attachment 4 of the C-EMP). The monitoring locations are informed based on the outcomes of the predictive modelling and will be detailed in the SEP
Reporting	Reporting will be undertaken in accordance with Section 8.2 of the C-EMP. Reporting protocols and responsibilities of exceedances with DTMR vibration limits for Clem7 are yet to be agreed.
Corrective Action	Management of corrective actions will be undertaken as per Section 6 of the C-EMP.
Auditing	As per Section 7 of the C-EMP.

Attachment 1 Predicted Noise Goals Modelling – Criteria selection



Attachment 2 Predicted and Actual Noise Exceedances Management

Condition 11.a and Condition 11.c must be read in conjunction with Condition 10 (Approved Hours of Work) and Condition 9.c (consultation with DAPs).

Condition 11a and condition 11c provide for Lower Noise Limits and Upper Noise Limits to inform

- Level of consultation required with DAPs prior to works commencing
- Mandatory Work restrictions that will be imposed on the construction activities prior to them starting
- Mandatory stop work triggers during construction

Where Lower Noise Limits are predicted to be exceeded, consultation with Directly Affected persons must occur. The most suitable method of consultation will be selected by the Community and Stakeholder Engagement Manager or his team following a review the predicted exceedances and include periodic Generic Notifications to more Specific Notifications such as emails, phone calls and doorknocking to particular areas.

The below tables summarise the Lower (LL) and Upper (UL) Noise Limits based on Noise Types for Standard Work Hours and Out of Hours Work.

Standard Work Hours are defined as follows:

- Monday to Saturday - 6.30 am to 6.30pm
- Excludes Public Holidays

Out of Hours are defined as follows

- Monday to Saturday – 6.30pm to 6.30 am
- Sundays
- Public Holidays

Table 1: Standard Work Hours – Monday to Saturday 6.30 am to 6.30 pm (excluding Public Holidays)

Noise Type	Noise Levels (indoors / outdoors)	Noise <LL Management	LL < Noise <UL Management	Noise >UL Management
Continuous	- LL: up to¹ 55dBA indoors (est. 65 dBA outdoors²) - UL: up to 75dBA (est. 85 dBA outdoors)	Prior to Construction - Works are deemed Managed Works and therefore can be undertaken 24 hours, 7 days a week - Generic Notifications to be issued along the Corridor a minimum of 1 week before the works commence. Whilst consultation is not required – this is good practice - Implement generic Noise mitigation measures detailed in this subplan	Prior to Construction - Consultation with DAP via means of Generic Notifications a minimum of 2 weeks before the works commence - For DAPs the most likely to be affected specific notifications may be sent - Implement generic Noise mitigation measures - Review construction methodologies (see below for more details) to confirm whether additional noise mitigation measures can be implemented	Prior to Construction - Review construction methodologies to confirm whether additional measures can be implemented to reduce predicted Noise to below the UL - advance notification and consultation his undertaken with Directly Affected Persons or potentially Directly Affected Persons about the particular predicted impacts and the approach to mitigation of such impacts - developed mitigation measures on a 'case by case' basis in consultation with Directly Affected Persons - Implement relevant case by case mitigation measures prior to works starting - Ensure the mitigation measures developed with the DAP are communicated to the IEM and the CRM and included in the mitigation register maintained by the IEM
Intermittent	- LL: up to 65dBA (est. 75 dBA outdoors) - UL: up to 85dBA (est. 95dBA outdoors)	During Construction - Undertake spot check monitoring to confirm works are still Managed Works - Enact Complaints Response Protocol if triggered	During Construction - Undertake noise monitoring as per attachment 4 of the C-EMP - Enact Complaints Response Protocol if triggered - Stop work if the actual noise >UL ad re-assess construction methodologies	During Construction - Undertake noise monitoring as per attachment 4 of the C-EMP - Enact Complaints Response Protocol if triggered - Keep the DAPs informed of the construction progress - Only work during the hours 7:00am to 6:00pm Monday to Friday, with a respite period between 12:00noon and 2:00pm each day

¹ The actual limit is dependent on the type of occupancy of the buildings as per AS2107 and will vary along the project area. Unity's Acoustic Specialist will determine which are the most suitable AS2017 design sound levels to be used as part of the predictive modelling

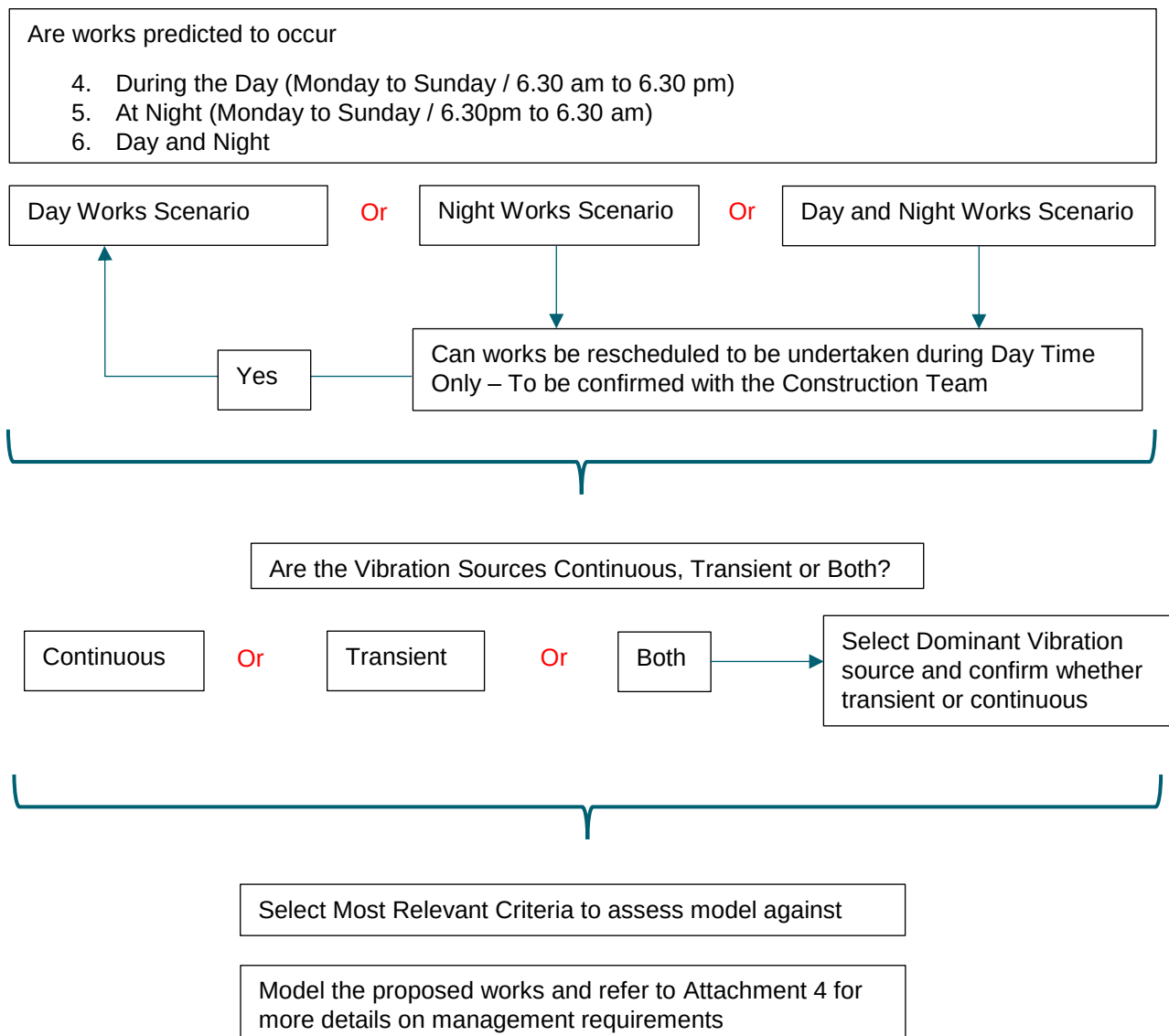
² This is based on a conservative façade reduction of 10 dBA for a typical Queenslander with single glazed windows shut. Review of the buildings settings (e.g. masonry buildings, double glazed windows) will inform whether further façade noise reductions can be applied

Table 2: Out of Hours Works

Noise Type	Noise Levels (indoors / outdoors)	Noise <LL Management	LL < Noise <UL Management	Noise >UL Management
Continuous	- LL: 35 dBA indoors (est. 45 dBA outdoors) - UL: 55 dBA (est. 65 dBA outdoors)	Prior to Construction - Works are deemed Managed Works and therefore can be undertaken 24 hours, 7 days a week - Generic Notifications to be issued along the Corridor a minimum of 1 week before the works commence - Implement generic Noise mitigation measures	Prior to Construction - Consultation with DAP via means of Generic Notifications a minimum of 2 weeks before the works commence - For DAPs the most likely to be affected specific notifications may be sent - Implement generic Noise mitigation measures - Review construction methodologies to confirm whether additional noise mitigation measures can be implemented - Engineering team to raise an Out of Hours Work Permit to be approved by the CSET and the Environment Manager	OUT OF HOURS WORKS CANNOT OCCUR IF THE UPPER LIMIT IS PREDICTED TO BE EXCEEDED
Intermittent	- LL: 42 dBA (est. 52 dBA outdoors) - UL: 62 dBA (est. 72 dBA outdoors)	During Construction - Undertake spot check monitoring to confirm works are still Managed Works - Enact Complaints Response Protocol if triggered	During Construction - Undertake noise monitoring as per attachment 4 of the C-EMP - Enact Complaints Response Protocol if triggered - Stop work if the actual noise >UL and re-assess construction methodologies	

- Review construction methodologies must include:
 - Loudness and character of the construction equipment's noise emissions (such as tonality and impulsiveness)
 - Proximity of noise generating equipment to receptors
 - The sensitivity of individual receptors near the works based on the community consultation knowledge database
- Based on the outcomes of the review, nominate and agree with the construction team the type and extent of the mitigation controls to be implemented on site in accordance with the following the order of precedence where reasonable and practicable:
 - Avoid
 - Substitute
 - Engineer

Attachment 3 Predicted Vibration Goals Modelling – Criteria selection



Attachment 4 Predicted and Actual Vibration Exceedances Management

Condition 11.d and Condition 11.f must be read in conjunction with Condition 10 (Approved Hours of Work) and Condition 9.c (consultation with DAPs).

Condition 11d and condition 11f provide for Lower Vibration Limits and Upper Vibration Limits to inform

- Level of consultation required with DAPs prior to works commencing
- Mandatory Work restrictions that will be imposed on the construction activities prior to them starting
- Mandatory stop work triggers during construction

Where Lower Vibration Limits are predicted to be exceeded, consultation with Directly Affected persons must occur. The most suitable method of consultation will be selected by the Community and Stakeholder Engagement Manager or his team following a review the predicted exceedances and include periodic Generic Notifications to more Specific Notifications such as emails, phone calls and doorknocking to particular areas.

The below table summarises the Lower (LL) and Upper (UL) Vibration Limits based on Occupancy Types for Day and Night Work.

Day Works are defined as follows:

- Monday to Sunday - 6.30 am to 6.30pm

Night Hours are defined as follows

- Monday to Sunday – 6.30pm to 6.30 am

Table 3: Vibration Goals Exceedances Management

Vibration Type	Vibration levels (mm/s PPV) ³	Vibration <LL Management	LL < Vibration <UL Management	Vibration >UL Management NIGHT WORKS CANNOT OCCUR IF THE UPPER LIMIT IS PREDICTED TO BE EXCEEDED
Continuous	- LL: up to⁴ 0.56mm/s - UL: 2 mm/s	Prior to Construction Works are deemed Managed Works and therefore can be undertaken 24 hours, 7 days a week	Prior to Construction - Consultation with DAP via means of Generic Notifications a minimum of 2 weeks before the works commence - For DAPs the most likely to be affected specific notifications may be sent to confirm - Review construction methodologies (see below for more details) to confirm whether additional noise mitigation measures can be implemented	Prior to Construction - Review construction methodologies to confirm whether additional measures can be implemented to reduce predicted Noise to below the UL - advance notification and consultation his undertaken with Directly Affected Persons or potentially Directly Affected Persons about the predicted impacts and the approach to mitigation of such impacts - develop <u>and agree</u> mitigation measures on a 'case by case' basis in consultation with Directly Affected Persons - Implement relevant case by case mitigation measures prior to works starting - Ensure the mitigation measures developed <u>and agreed</u> with the DAP are communicated to the IEM and the CRM and included in the mitigation register maintained by the IEM
Transient	- LL: up to 8.6 mm/s - UL: 10 mm/s	Generic Notifications to be issued along the Corridor a minimum of 1 week before the works commence. Whilst consultation is not required – this is good practice During Construction - Undertake spot check monitoring to confirm works are still Managed Works - Enact Complaints Response Protocol if triggered	During Construction - Undertake vibration monitoring as per attachment 4 of the C-EMP - Enact Complaints Response Protocol if triggered - Stop work if the actual vibration >UL and re-assess construction methodologies	During Construction - Undertake vibration monitoring as per attachment 4 of the C-EMP - Enact Complaints Response Protocol if triggered - Keep the DAPs informed of the construction progress Only work during the hours 7:00am to 6:00pm Monday to Friday, with a respite period between 12:00noon and 2:00pm each day

³ In lieu of AS2670 (which is superseded and does not provide for human comfort vibration goals in PPV), Appendix C of the NSW DEC *Assessing Vibration - A Technical Guideline (2006)* has been used to identify Lower Vibration Limits

⁴ The actual limit is dependent on the type of occupancy of the buildings and will vary along the project area. Unity's Acoustic Specialist will determine which are the most suitable vibration levels to be used as part of the predictive modelling

- Review construction methodologies must include:
 - Size and type the construction equipment's noise emissions
 - Proximity vibration generating equipment to receptors
 - The sensitivity of individual receptors near the works based on the community consultation knowledge database
- Based on the outcomes of the review, nominate and agree with the construction team the type and extent of the mitigation controls to be implemented on site in accordance with the following the order of precedence where reasonable and practicable:
 - Avoid
 - Substitute
 - Engineer

Biosecurity Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000280
Revision date:	07 October 2019
Revision number:	00

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY	IEM		IEM comments addressed in Rev B
Signature:					
B	08/09/19	UNITY	IEM		IEM comments addressed in Rev C
Signature:					
C	16/09/19	UNITY	IEM	IEM	Rev C endorsed by IEM Close out of CRRDA's observation in Rev 00
Signature:					
00	07/10/19	UNITY	IEM	IEM	Rev C endorsed by IEM Close out of CRRDA's observation in Rev 00
Signature:					

Plan Control

This Biosecurity Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan Approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates is in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Incorporation of IEM review comments from 16 & 20 August 2019
C	Incorporation of IEM's second round of review comments from 13 September 2019
00	Incorporation of CRRDA's Observation

1 Purpose of this Plan

This sub-plan has been prepared to comply with the:

- Final O-EMP – Outline Nature Conservation Management Plan.

Component	Details
Environmental Outcome(s)	• Construction activities do not cause the introduction of new restricted or prohibited matters or spread of new or existing restricted or prohibited matters.
Relevant Area	• Site wide for prohibited and restricted biosecurity matters (except red imported fire ants) • Earthworks within fire ant biosecurity – Zone 2 (Yeronga, Yeerongpilly, Moorooka and Salisbury) for Red Imported Fire Ants (RIFA). – Zone 1: Rocklea
Relevant Works/Activities	• Clear and grub activities • Import of materials with potential to be carriers (eg. topsoils, fill material, mulches) • Disposal of material off site • Internal movement of potential fire ants carrier • Use of green waste for Erosion and Sediment Controls • Rehabilitation and landscaping • Plant mobilisation and demobilisation.
Performance Criteria	• All project sites receiving fire ant carriers must ensure the supplier provides a Biosecurity Instrument Permit or a Biosecurity Queensland certified inspection certificate for fire ant carriers • Ensure appropriate soil hygiene procedures are followed to prevent spread of pest plants and animals, and potential soil pathogens • Pest species declared under the <i>Biosecurity Act 2014</i> are not spread or introduced during construction.
Sustainability	Eco-1
Mitigation Measure	• Undertake an ecological survey to identify matters of biosecurity concern. • For Prohibited matters (pest fauna and flora), Unity will – report it to Biosecurity Queensland on 13 25 23 within 24 hours of becoming aware of the findings, unless Unity is aware that it has already been reported. – take all reasonable steps to minimise the risks of the prohibited matter and not make the situation worse. The extent of the actions to be taken will be based on advice from BQ • For Category 1 or 2 restricted matters, (pest fauna and flora), unity will – report the matter to Biosecurity Queensland on 13 25 23 within 24 hours of becoming aware of the findings, and seek advice on actions required to be implemented – In the event of Fire Ants within the Rail Corridor also report the matter to Queensland Rail – not take any action likely to exacerbate the biosecurity risk. – only take action when it is likely to minimise the biosecurity risk posed by the category 1 or category 2 restricted matter. The extent of the actions to be taken will be based on advice from BQ • For Categories 3, 4, 5, 6 and 7 restricted flora matters – the below management measures will be implemented – Where viable flora species are identified within the disturbance footprint, Unity will review their classification under the Biosecurity Regulation 2016. – Unity will also review the spread and type (e.g. grass vs tree) of the species to confirm the management measures to be implemented. Management measures may include isolation of the species, chemical treatment, removal and other hygiene procedures required.

Component	Details
	- Where viable pest flora species are to be disturbed within the QR corridor due to the Project Works, Unity will contact QR to discuss any upcoming weed treatment (routine or as required re-growth management) within the rail corridor. - Where viable pest flora species are identified outside of the proposed disturbance footprint, Unity will contact the relevant asset owners (e.g. BCC, QR, Others) to advise them of the findings. - Management measures will be detailed in the SEP - In the event of other pest fauna species are identified in the project footprint, notify the Delivery Authority so appropriate escalation to the Brisbane City Council pest management team can occur (eg. feral dog) - All machinery / equipment will be inspected and declared weed seed and Fire Ant free prior to arriving on site, using Unity Plant and Equipment Clean Down Declaration which will be kept with Plant Department - Obtain relevant Biosecurity Instrument Permits for material movements within the corridor and off site - Where materials movement restriction apply within the corridor and offsite, detail restrictions in the Workpacks and SEPs - Ensure that movement restrictions and details associated with RIFA mapping from Biosecurity Queensland is covered in the site inductions all staff, personnel and subcontractors must attend - Comply with movement restrictions for potential Fire Ants Carrier as detailed in section 2 - Work closely with any subcontractors and suppliers to ensure that the import of potential RIFA carrier is managed in accordance with the <i>Biosecurity Act 2014</i> requirements, including where relevant that suppliers have a current Biosecurity Instrument Permit/s issued by DAF - Ensure the Materials Import Restriction from RIFA zones is detailed in material import contracts - Where fire ants nest(s) are identified - Report any sighting of fire ants to Biosecurity Queensland - Quarantine the area to prevent any further ground disturbance works from occurring within at least 1 m from the nest - Where a significant infestation is identified - Biosecurity Queensland will determine any further quarantine requirements.
Monitoring	Monitoring is undertaken in accordance with the Construction Monitoring Program (Attachment 4 of the C-EMP). Monitoring for fire ants is to be undertaken by personnel suitably trained / qualified in the identification of fire ants. Where monitoring requirements for fire ants are a condition of a BIP, these requirements will take precedence.
Reporting	Reporting is undertaken in accordance with Section 8.2 of the C-EMP. Where reporting requirements for fire ants are a condition of a BIP, these requirements will take precedence.
Corrective Action	Management of corrective actions will be undertaken as per Section 6 of the C-EMP.
Auditing	- As per Section 7 of the C-EMP - RIFA – UNITY will undertake regular subcontractor audits to confirm compliance with biosecurity requirements.

2 Red Imported Fire Ants Movement Restrictions

2.1 Publicly Available Information

The Department of Agriculture and Fisheries website has extensive information regarding fire ants

The website contains information on

- How to report sightings of fire ants. The environment team will coordinate and manage any reports of sightings of fire ants within the project boundaries
- Mapping of fire ants biosecurity zones. The below mapping for F2S is based Qld government spatial data set sourced from the Queensland Spatial Catalogue (QSpatial) which was last published on 01 July 2016
- Fire ants identification training. Selected unity Staff will undertake the training. Awareness training will be provided to the broader project team, including of sub-contractors via means of toolbox talks and project induction.
- Movement restrictions (see below summary table)

The website must be consulted at regular intervals to remain appraised of any key changes to the management of fire ants: <https://www.daf.qld.gov.au/business-priorities/biosecurity/invasive-plants-animals/ants/fire-ants>

Table 1: Fire Ants Carriers Movement Restrictions

Fire ant carrier	Fire ant biosecurity zone 1	Fire ant biosecurity zone 2	Fire ant biosecurity zone 3
Soil (includes fill, clay, scrapings, and any material removed from the ground at a site where earthworks / ground disturbance are being carried out)	To move soil from a property within biosecurity zone 1, you must have a biosecurity instrument permit , unless: • the soil remains within zone 1 or • the soil is moved to a waste facility within zone 1 or zone 2	To move soil from a property within biosecurity zone 2, you must have a biosecurity instrument permit , unless: • the soil remains within zone 2 or is moved to zone 1 or • the soil is moved to a waste facility within zone 1 or 2	To move soil from a property within biosecurity zone 3, you must have a biosecurity instrument permit , unless: • the soil remains within zone 3 or • the soil is moved to a waste facility within zone 3
Mulch Animal manures Baled hay or straw Potted plants Turf	To move these fire ant carriers from a property within any of the 3 fire ant biosecurity zones, you must either: • follow movement and storage procedures outlined in the Biosecurity Regulation 2016. Refer to the guidelines for managing fire ant carriers or • move the material directly to a waste facility (zone restrictions apply) or • move the material within 24 hours of it being on the property If you are unable to fulfil the above conditions, then you must request a biosecurity instrument permit from an inspector		
Other fire ant carriers (including mining or quarrying products or by-products, compost)	To move these fire ant carriers from a property within any of the 3 fire ant biosecurity zones, you must either: • move the material directly to a waste facility (zone restrictions apply) or • move the material within 24 hours of it being on the property or • obtain a biosecurity instrument permit from an inspector		

2.2 Biosecurity Instrument Permits in F2S

A Biosecurity Instrument Permit is required in Zone 1, unless:

- The soil remains within zone 1; or
- The soil is moved to a waste facility within zone 1 or 2.

A Biosecurity Instrument Permit is required in Zone 2, unless:

- The soil remains within zone 2 or is moved to zone 1; or
- The soil is moved to a waste facility within zone 1 or 2.

The DAF website maintain a list of waste disposal facilities within fire ant biosecurity zones in South East Queensland can accept fire ant carriers: <https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/health-pests-weeds-diseases/pests/movement-controls/waste>

Unity will ensure that the waste disposal facilities selected for taking potential fire ants carriers (e.g. contaminated soils) can accept such material prior to sending the material off-site for lawful disposal.



Figure 1: schematic representation of BIP triggers

2.3 F2S Mapping

The below mapping depicts the fire ants' biosecurity zones boundaries along the F2S corridor.

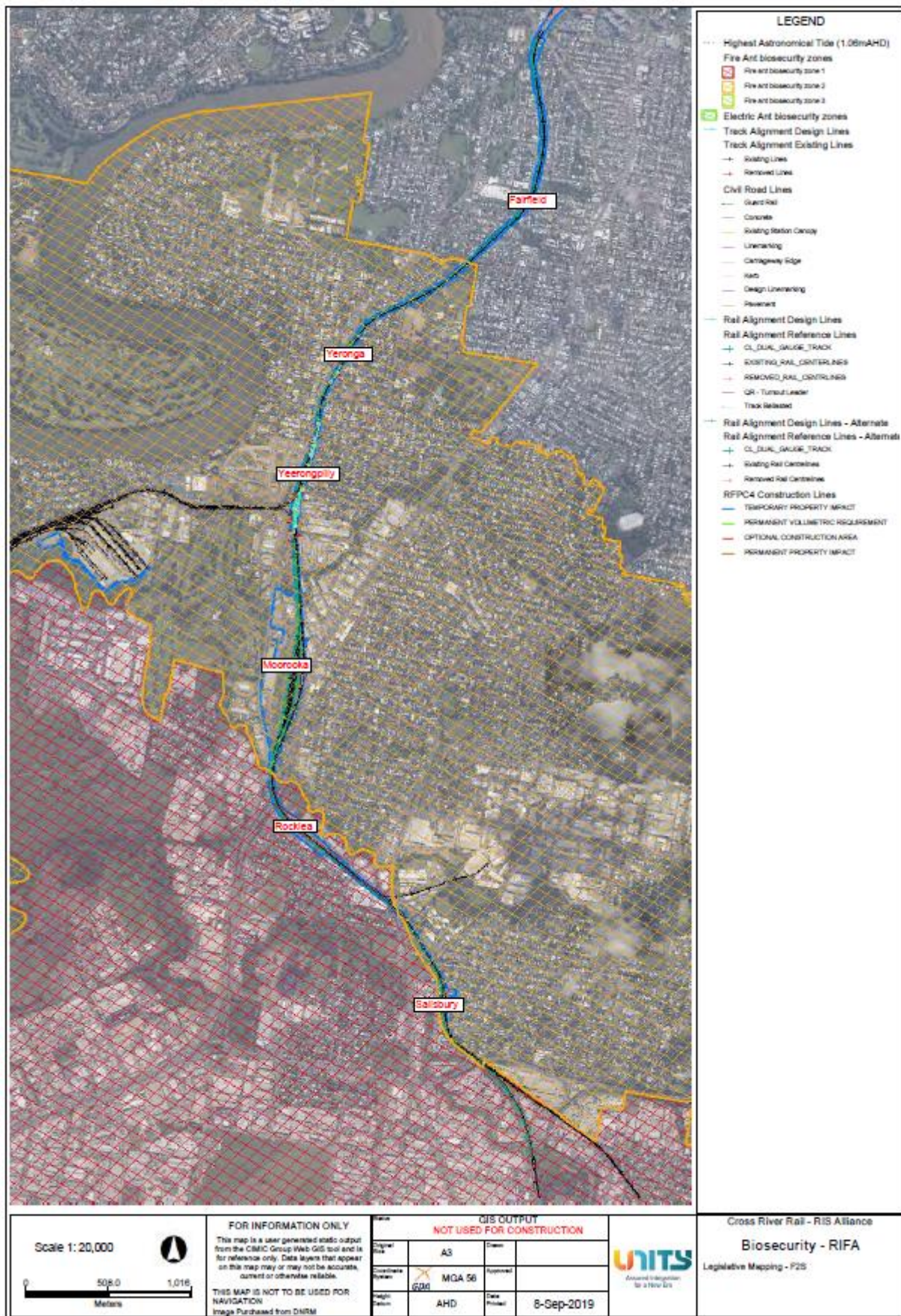


Figure 2: Biosecurity Queensland RIFA Mapping - F2S

Contaminated Land Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000270
Revision date:	24 January 2020
Revision number:	00

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY	IEM		IEM comments addressed in Rev B
Signature:					
B	11/10/19	UNITY	IEM		IEM comments addressed in Rev C
Signature:					
C	26/11/19	UNITY	IEM	IEM	Conditional endorsement from IEM on Rev C. Plan updated to include Hold Point process for unrestricted endorsement
Signature:					
00	24/01/2020	UNITY	IEM		
Signature:					

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Plan Control

This Contaminated Land Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates is in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Updated to address review comments from the Environmental Monitor dated 30 September 2019
C	Updated to address review comments from the Environmental Monitor dated 4 November 2019
00	Plan updated to include Hold Point process for unrestricted endorsement

1 Purpose of this Plan

This sub-plan has been prepared to comply with:

- Coordinator-General's Conditions of Approval – Appendix 1 – Part C:
 - Conditions 15 (a) and (b)
 - Conditions 16 (a), 16(b) and 16(c)
 as they relate to water management and quality of potentially contaminated surface and groundwater
- Final Outline-Environment Management Plan (O-EMP) – Outline Contaminated Land Management Plan.

Component	Details
Environmental Outcome(s)	• Ensure that contaminated land is managed and removed to approved disposal sites in accordance with the provisions of the <i>Environmental Protection Act 1994</i> (EP Act) • Discharge of surface water and groundwater from project works must comply with the relevant water quality objectives established for the project • During construction, monitor and report on water quality in accordance with the Water Quality Management Plan, a sub-plan of the C-EMP • Prior to commencement of project works involving excavation, predictive modelling of the potential for groundwater drawdown must be undertaken. 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 • 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 • UNITY must monitor the inflow of groundwater to the project works and compare monitoring data with predictive modelling. If the rate of groundwater inflow exceeds 1L/sec in any worksite, the Alliance must revise work methods and devise and implement mitigation measures as soon as practical • Construction activities should avoid or minimise the environmental and public health risks from contaminated soil, groundwater or soil gas intercepted during construction works.
Relevant Area	Site wide as most of the works are located within the Queensland Rail corridor which is listed on the EMR. Key areas include: • Mayne Yard due to known ground and groundwater contamination • Salisbury (former landfills) • Yeerongpilly (foundry operations) • Clapham Yard (railyards operations)
Relevant Works / Activities	• Subsurface disturbance works resulting in the removal of spoil material in known or suspected areas of contamination, such as excavations, piling, trenching, ground surface treatment works. • Offsite disposal of spoil • Beneficial reuse of material within the work areas • Dewatering works (especially groundwater or trapped surface water in open excavations) required in known or suspected areas of PASS / AASS material.
Performance Criteria	• Works are conducted in accordance with – the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1) (the NEPM) (National Environment Protection Council 2013), and – the Queensland Auditor Handbook for Contaminated Land 2018; and – the Queensland Guideline for Contaminated Land Professionals (DEHP, 2012), and

Component	Details
	– Works are conducted in accordance with requirements of the EP Act and subordinate legislation • Site investigations for contaminated sites inform detailed design and are completed prior to the commencement of works • Construction activities involving disturbance of contaminated land do not cause contamination of previously uncontaminated sites or adjoining land • Handling of asbestos occurs in accordance with the EP Act and the <i>Work Health and Safety Regulation 2011</i>, and relevant Queensland codes of practice • Storage, handling and transport of hazardous materials does not cause contamination of land or waters or if contamination does occur, remediation of the contaminated land or waters occurs in accordance with the relevant legislation, standards and procedures • Runoff and discharges from worksites are consistent with the project environmental objectives established in accordance with the <i>Environmental Protection (Water) Policy 2009</i> (EPP (Water)) and <i>Qld Water Quality Guidelines</i> and do not negatively affect the background conditions of the receiving waters.
Sustainability	Lan-1, Lan-3 and Dis-1
Mitigation Measure	• Intrusive site investigations are undertaken prior to works commencing, in accordance with relevant laws. • The details of the investigation program are documented in a Sampling and Analysis Quality Plan (SAQP) • Upon completion of the site investigation, results are be used to inform the management measures such as: – prescribing management of soils and waters, treatment methods and monitoring requirements to supplement this CLMP and to be detailed in the SEPs – additional considerations such as groundwater risks and contamination types that may lead to soil gas risk (e.g. volatiles / putrescibles) to be incorporated into and safety risk assessments and Work Packs – avoidance of disturbance of contamination areas wherever possible through design and construction planning. • A supplementary Contaminated Land management plan (CLMP or equivalent) is developed that includes part or all the following information: – summary of land characterisation (based on more detailed technical reports) – management options of the material (e.g. unrestricted use, restricted re-use, offsite disposal) – requirements for testing stormwater runoff / groundwater above and beyond the standard suite – Consideration for additional soil testing • During development of Workpacks and SEPs, the relevant management measures from the supplementary CLMP (or equivalent) are incorporated in the SEPs and Workpacks • Prior to the Relevant Project Works commencing a supplementary CLMP (or equivalent) prepared by a Suitably Qualified Person is provided to the Environmental Monitor to demonstrate compliance with Conditions 4c(ii) via an Environmental Hold Point Process. • The Relevant Project Works are not be authorised to commence until the Environmental Hold Point Process has been completed. • Should areas of unidentified contamination be identified through construction activities, the Supervisor will immediately notify the Environmental Manager to assist in further investigation, and to prescribe interim control measures until actual risks are quantified. • Where Site Management Plans (SMP) exist over a parcel of land, comply with the requirements of the SMP • If required based on the findings of the investigations, additional SMP(s) will: – be developed by a Suitably Qualified Person (SQP); – include any required Remediation Plans if triggered; – be certified by a Contaminated Land Auditor; and

Component	Details
	– be approved by DES. • Disposal Permits are obtained for contaminated material required to be disposed of offsite to ensure appropriate and lawful disposal and avoidance of contamination to previously uncontaminated sites / adjoining lands • Suitably licensed contractors are used for the lawful transport of contaminated soils and waters • Suitably licensed disposal facilities are used for disposal of contaminated soils and waters • Contaminated materials disposed of offsite are tracked • Disturbance of contaminated areas that may expose workers and the public to risks is managed in accordance with requirements of the relevant legislation • Contaminated soils are segregated from other non-contaminated materials and temporarily stored in such a manner that accidental impact to the receiving environment and adjoining lands is practicably and reasonably mitigated. Controls implemented may include: – Signage of designated temporary stockpiling locations – Storing within designated receptacles where only dealing with minor quantities – Bunding or covering stockpiles where there is risk of impacts to surface water – Tracking process for materials that are deemed suitable for re-use in site filling activities. • Storage, handling and transport of other hazardous materials is to be in accordance with the Waste Management Plan and the WHSMP (refer to Section 2 below) • Management of asbestos or asbestos-containing materials are managed in accordance with the relevant WHS legislation and the WHS Management Plan (WHSMP) (refer to Section 2 below), particularly during demolition activities • Storage of hazardous substances, will be in accordance with the relevant Australian Standards (e.g. AS1940, AS3833) to mitigate the risk of contamination to land and waters. • Should a contamination event occur (e.g. loss of containment), the Environment Manager will be immediately notified. Where the event response requires remediation actions more significant than standard spill response measures, the contaminated land SQP will be engaged to advise on clean up and disposal requirements. • Implement relevant control measures to divert any surface runoff away from the contaminated land, and capture and treat any surface runoff contaminated by exposure to the contaminated land • Trapped waters proposed to be released to the receiving environment are managed in accordance with the WWMP and are: – Tested prior to release – Released under an internal Permit to Dewater approved by the Environmental Team. • In the event of a loss of containment, the incident response, associated investigation (which may include sampling) and associated remedial activities will be managed under the incident management process detailed in the C-EMP
Monitoring	Monitoring is undertaken in accordance with the Construction Monitoring Program (Attachment 4 of the C-EMP).
Reporting	Reporting is undertaken in accordance with Section 8.2 of the C-EMP.
Corrective Action	Management of corrective actions will be as per Section 6 of the C-EMP.
Auditing	As per Section 7 of the C-EMP.

2 Other Considerations

2.1 Asbestos Management

The WHSMP addresses the requirements of asbestos management insofar as it relates to human health and workplace health and safety. It covers:

- Key risks associated with asbestos:
 - The actual presence of asbestos is not identified
 - Asbestos is inhaled
 - Asbestos is not properly contained
- Associated mitigations/controls:
 - The requirement for all personnel to come into contact with asbestos has been eliminated wherever possible
 - All asbestos in the workplace has been identified, recorded, risk-assessed and exposure controlled in accordance with applicable laws
 - Personnel performing asbestos-related work or asbestos removal will be trained and licensed in accordance with legislation
 - Equipment selected for asbestos-related work will be suitable
 - In the event that asbestos is identified unexpectedly:
 - All disturbance work will cease
 - Workers will be instructed not to move or handle suspected asbestos containing material
 - A 10m exclusion zone must be established with barricading and signage
 - The Delivery Manager and the WHS Manager must be notified to arrange a competent person to take samples
 - The competent person (occupational hygienist or holder of an asbestos assessor licence) must provide a written report that includes certified test reports from a NATA accredited laboratory
 - If asbestos is identified, an Asbestos Management Plan is to be developed and include:
 - The identification of asbestos and the location of signs and labels
 - The decisions and justification for the decisions about the management, removal, safe work practices and decontamination for asbestos removal work
 - Inspection schedules
 - The nomination of the workers who will undertake the asbestos removal works
 - How asbestos risks will be managed
 - The program or timeline for the works to be undertaken
 - The identification of each person's responsibilities
 - Health monitoring/surveillance requirements.
 - In the event of asbestos removal, the asbestos-removal contractor will prepare an Asbestos Removal Control Plan that identifies the specific control measures the contractor will use to ensure workers and other persons are not exposed to risks during asbestos removal work. The Licensed Asbestos Removal Contractor must notify the WHS regulatory authority in writing at least five days prior to licensed asbestos removal work (Class A or B works) being undertaken. An exclusion zone must be established for all licensed asbestos removal works, including physical barricades and signage to prevent unauthorised entry. When carrying out licensed asbestos removal work,

decontamination facilities must be provided for any plant used in that area and workers carrying out the asbestos removal work. Air monitoring must be undertaken in accordance with the Manage Asbestos Procedure. On completion of any asbestos removal works and prior to any other works or workers gaining access to the nominated area, a qualified occupational hygienist (and licensed asbestos assessor where required by the Regulator) must issue a Clearance Certificate. Potential asbestos containing material must be tested in a NATA accredited laboratory to determine type and concentration of asbestos and disposed of at a licensed landfill facility.

2.2 Hazardous Substances Management

The WHSMP addresses the requirements of hazardous substances management insofar as it relates to human health and workplace health and safety. It covers:

- Key risks associated with hazardous substances, which include:
 - A hazardous substance comes into contact with a person's skin or eyes
 - A harmful substance is consumed or accumulates
 - Fumes are inhaled
 - A hazardous substance combusts in an uncontrolled environment
 - A harmful substance leaches into the local environment
- Associated mitigations/controls:
 - Hazardous Chemicals Procedure, which:
 - Provides a framework for the management of hazardous substances to minimise any risk to personnel or the environment and to ensure compliance with legislative requirements
 - Details the process to identify hazards and ensure the risk is managed as low as reasonably practicable
 - Covers the approval, use, labelling, transport, storage, handling and disposal of hazardous chemicals used or intended for use on the project
 - Requires that:
 - The risks associated with the use of any chemical will be documented in the SWMS using the Safety Data Sheet (SDS), including any specific personal protective equipment requirements
 - SDSs are available to workers using the chemical
 - Chemicals are stored in accordance with the SDS and Australian Standards; incompatible hazardous chemicals will not be stored together
 - Spills and chemical disposal are managed in accordance with the C-EMP
 - Maintenance of a Chemaalert subscription and project-specific hazardous chemical register.

2.3 UXO Management

Unexploded ordnance (UXO) is ammunition such as artillery shells, mortar bombs and grenades that did not explode when used. UXO is a potential safety risk because it may detonate if disturbed. It may also release chemicals that pose a risk to human health and the environment.

In Queensland, most UXO is found on land formerly used by Australian and Allied Defence Forces for the live firing of explosive ordnance, particularly during World War II.

While explosive ordnance that has been found on land used for the temporary storage and disposal of ammunition has not normally been fired, it is also treated the same as UXO.

Unity has undertaken a review of the Commonwealth's Department of Defence website which lists all land in Queensland that has been identified and assessed as having been used by the military in a way that may result in residual UXO on the land.

The search did not identify any land parcel within the Alliance Footprint mapped on the Department of Defence database. Excerpt of the search are presented below.

In the unlikely event that an UXO or a suspicious item is uncovered during the works the following action plan will be implemented:

- If a suspect UXO item is found - **DO NOT TOUCH**, disturb or tamper with the item in any way. This includes making any attempt to move the item to a 'safe' location.
- Carefully note the appearance of the item and the location. Take a photograph if it is possible to do so without further approaching or disturbing the item.
- If possible, mark the location so that it can be found later. Coloured tape or paint make easily recognised marker material. Note the route to the item.
- Inform the property owner, environmental team, site foreman or supervisor of the find.
- Inform the Police that a possible ammunition item has been found. They will instigate a request for Defence personnel to attend and dispose of the item.

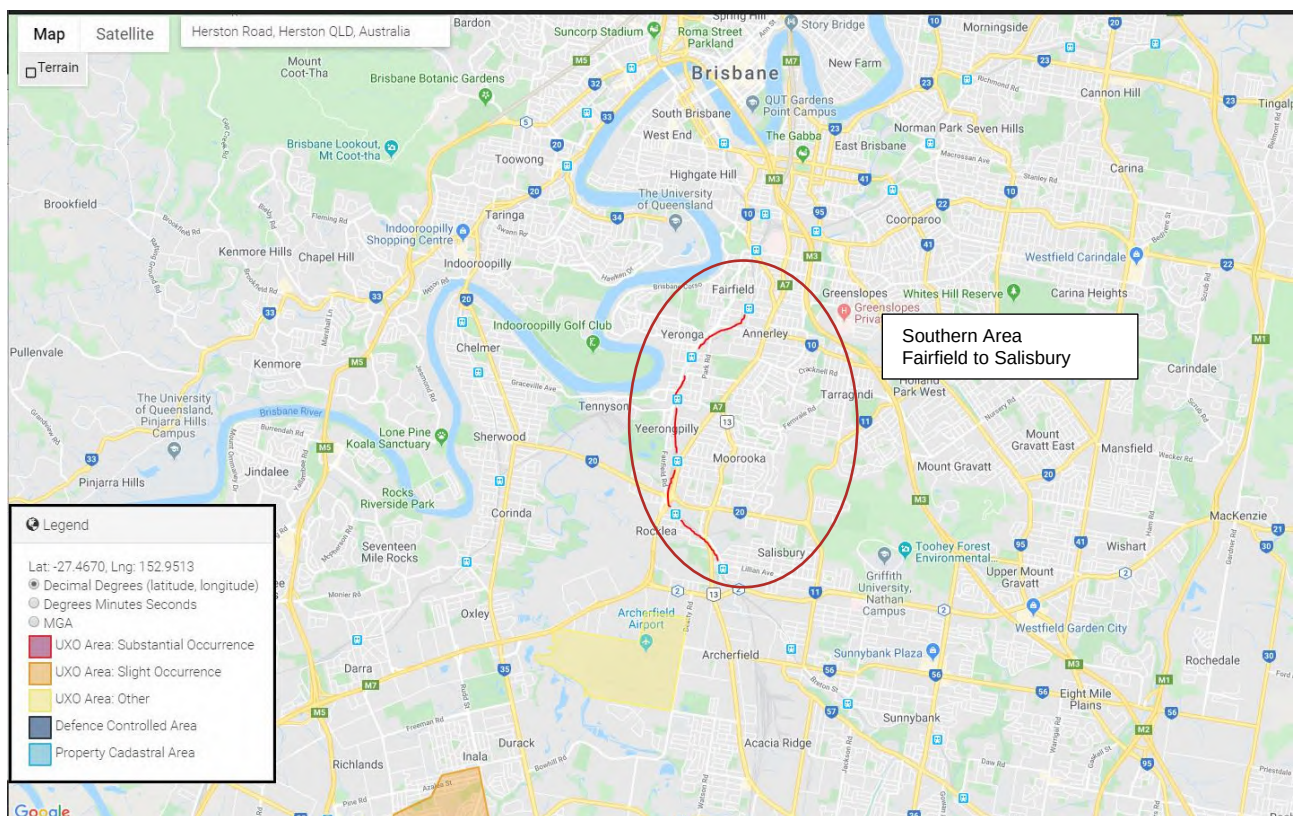


Figure 1: F2S - Department of Defence UXO Database Search Results (accessed 27 October 2019)

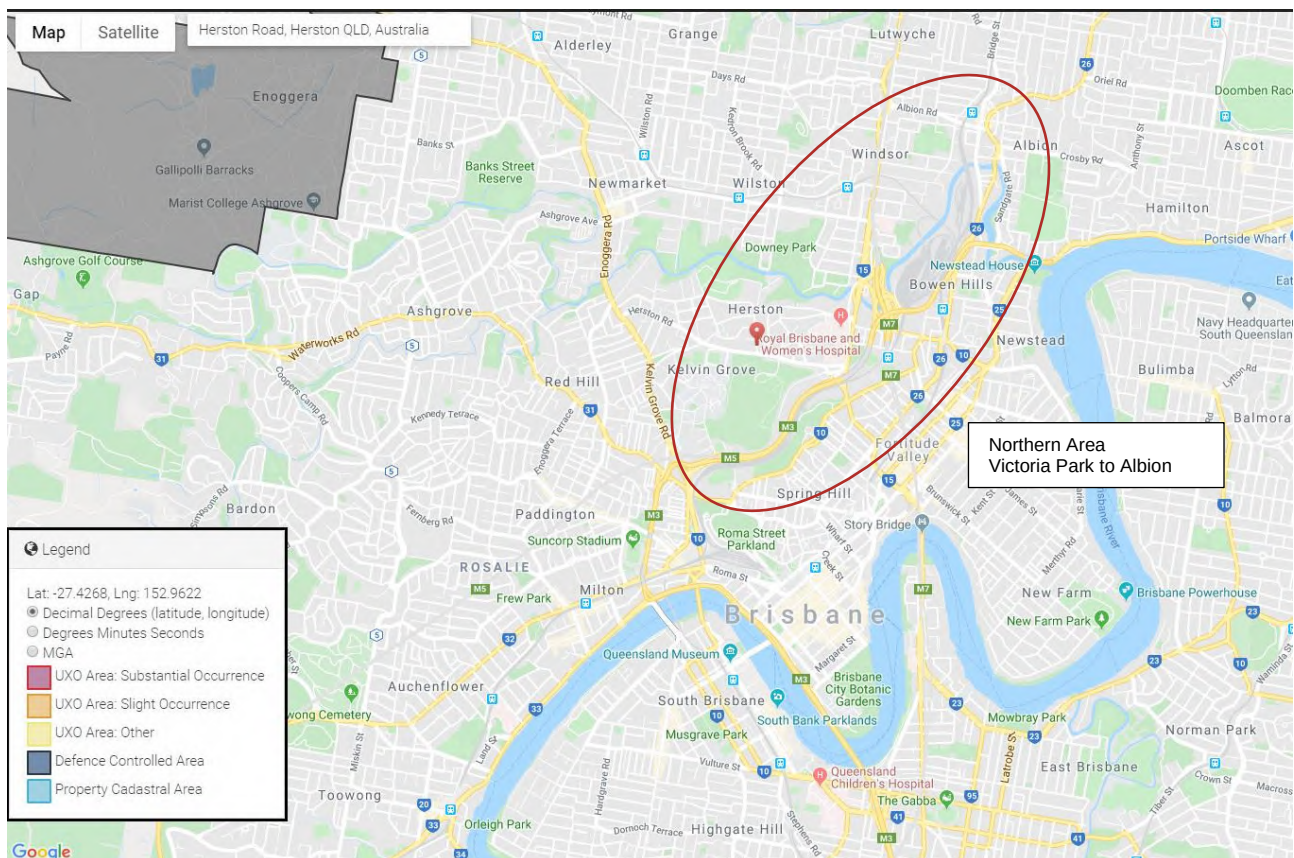


Figure 2: Northern - Department of Defence UXO Database Search Results (accessed 27 October 2019)

Waste Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000271
Revision date:	24 January 2020
Revision number:	00

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY	IEM		IEM comments addressed in Rev B
Signature:					
	15/10/19	UNITY	IEM		IEM comments addressed in Rev C
Signature:					
C	26/11/19	UNITY	IEM		IEM comments addressed in Rev D
Signature:					
D	19/12/19	UNITY	IEM	IEM	Conditional endorsement from IEM on Rev D. Plan updated to address
Signature:					
00	24/01/2020	UNITY	IEM		
Signature:					

Plan Control

This Waste Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates is in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Updated to incorporate IEM comments dated 06 September 2019
C	Updated to incorporate IEM comments dated 04 November 2019
D	Updated to incorporate IEM comments dated 13 December 2019
00	Plan updated to include minor clarification on monitoring and reporting process for unrestricted endorsement

1 Purpose of this Plan

This sub-plan has been prepared to demonstrate how UNITY will to comply with:

- Final Outline-Environment Management Plan (O-EMP) – Outline Waste Management Plan.

Component	Details
Environmental Outcome(s)	• Construction activities, including demolition, are designed planned and implemented to minimise the generation of waste materials • Storage, handling, transportation and disposal of waste materials generated during construction are carried out to avoid environmental harm and adverse impacts on communities • Reuse and recycling of construction waste materials generated by project construction activities is optimised.
Relevant Area	Site wide.
Relevant Works / Activities	• Construction processes generated waste streams such as: – Contaminated spoils – General waste – Recyclable and recoverable waste • Plant maintenance • Operation and maintenance of offices and crib huts.
Performance Criteria	• Construction activities are conducted in accordance with an approved Waste Recycling and Recovery Management Plan that includes: – Waste management principles (avoid, reduce, reuse and recycle) and sustainable disposal strategies – Targets to recover and reuse construction waste, including demolition waste for all classes or categories of waste – All reasonable and practicable steps are taken to minimise the impacts of handling and disposal of construction waste at the worksites, and at the disposal sites • Hazardous waste is handled and disposed of in accordance with specific management plans approved by Workplace Health and Safety Queensland • Waste generated by the project is managed in accordance with the statutory requirements and recovery targets set out in the <i>Queensland Government's Waste – Everyone's Responsibility Queensland Waste Avoidance and Resource Productivity Strategy (2014- 2024)</i>.
Sustainability	Was-1 and Was-2.
Mitigation Measure	• The project will adopt and implement the principles of the Waste Management Hierarchy wherever possible to contribute to meeting the <i>Queensland Waste Management and Resource Recovery Strategy (the Strategy)</i>. The hierarchy follows: 1. Waste avoidance 2. Waste reuse 3. Waste recycling 4. Energy recovery from waste 5. Waste disposal • Opportunities are investigated during the detailed design phase for the use of recycled materials during construction, including for Project infrastructure produced from concrete, road base, asphalt and other construction materials. • The feasibility of reusing materials from the project will be investigated during the design phase, using the design review process in addition to sustainability workshops initiated as part of the ISCA framework (e.g. "Waste materials / circular Economy workshops"). • Classify, store, track, transport, dispose and treat all wastes in accordance with regulatory requirements, including the use of licensed transporters and treatment facilities

Component	Details
	- Construction activities are to take into consideration the minimisation of waste materials with reuse of materials where possible, - Recovery and reuse targets for waste are included within the Sustainability Management Plan with specific reference to achieving ISCA scoring. - Targets will be specified within the sustainability Management Plan and success demonstrated through monthly reporting streams. - The relevant licences of waste transporters and disposal facilities used for the disposal or handling of waste are reviewed to ensure they are legally compliant - Storage containers (bins, skips, tanks, etc.) are provided at each work area in sufficient numbers to facilitate segregation of waste at the source of generation, wherever possible. The correct bin type must be used to avoid contamination - Containers are sign-posted if required to inform all project personnel of the correct material to be placed within each bin type - Containers are emptied at a frequency sufficient to ensure their correct use - An adequate number of adequately constructed concrete washout pits will be maintained on the site at all times during concreting activities - Excess concrete and concrete washout will not to be discharged to land or stormwater; a concrete washout facility must always be used - Any contaminated material needing disposal off site will be disposed of at a licensed facility in compliance with legal requirements, and accompanied by a Waste Tracking Certificate or else Soil Disposal Permit (refer Contaminated Land Sub-plan) when triggered - The handling, storage and disposal of hazardous materials (such as dangerous goods and asbestos) is in accordance with the Project Approved WHS Management Plan (RIS-UNA-SAH-MPL-00200)
Monitoring	Monitoring is undertaken in accordance with the Construction Monitoring Program (Attachment 4 of the C-EMP) The waste register is reviewed monthly to monitor success against the waste reduction targets set in the Sustainability Management Plan
Reporting	Tracking and reporting of trackable regulated waste will be undertaken in accordance with statutory requirements under the <i>Environmental Protection Act 1994</i>. All waste data (trackable regulated and non-trackable) will be recorded in the Master Waste Register (included in the Monthly Alliance Report). Alternative reporting is in accordance with Section 8.2 of the C-EMP.
Corrective Action	Management of corrective actions will be undertaken as per Section 6 of the C-EMP.
Auditing	UNITY will undertake regular subcontractor audits, inclusive of waste transporters, to confirm compliance with waste management requirements Additional auditing is as per Section 7 of the C-EMP.

2 Waste Stream Management Strategy

The below table summarises the potential materials / waste streams to be generated by the project.

The Unity Team has identified strategies for the minimisation of waste going to landfill inclusive of opportunities to re-use some of the materials on site where lawful to do so.

The Unity team will work closely with the Department of Environment and Science Waste and Contaminated Land teams to ensure the waste hierarchy can be implemented without compromising the legal obligations the Project must abide by.

Some of the waste detailed in the strategy are proposed to be re-used within the QR network.

The Unity team will work closely with Queensland Rail to ensure that this strategy:

- Is aligned with Queensland Rail EMS requirements
- Does not create a negative operational legacy issue (legal compliance or management)

Materials / Waste stream description	Project Strategy for Management (in order of preference)
Filter cake (other than filter cake waste generated from the water treatment plants)	• Landfill Disposal
Profilings (asphalt)	• Re use profiling in fill • If profiling cannot be reused - send to a recycling facility • Landfill Disposal
Slurries from non-destructive digging operations	• Re use separated water as dust suppression (or let evaporate) and dried out solids in fill • Disposal to water treatment plant
Acidic Basic (alkaline) solutions such as concrete washout water Concrete washout waters, residual liquids in containers / drums etc including hydro acid	• Disposal to landfill
Asbestos Waste <u>excluding</u> asbestos contaminated spoil	• Disposal to landfill
Lead acid batteries (intact)	• Send to a reconditioning facility • Disposal to landfill
Oil and water mixtures or emulsions, or hydrocarbons and water mixtures or emulsions (e.g. washdown bay water)	• Send to a reconditioning /recovery facility • Send to wastewater treatment plant
Septic, sewage sludge and residues	• Connect to trade waste • Send to wastewater treatment plant
Tyres	• Send the recycling facility • Disposal to landfill
Waste Oil	• Send to a reconditioning /recovery facility • Send to wastewater treatment plant
Waste chemicals and their containers such as dangerous goods and hazardous chemicals	• Disposal to landfill
Hydrocarbon Spill Clean-up Material	• Re-use on site following some bioremediation • Disposal to landfill
Oily filters / Rags	• Send to a reconditioning /recovery facility • Disposal to landfill

Materials / Waste stream description	Project Strategy for Management (in order of preference)
Excess Spoil excluding CLEAN EARTH (excluding ASS, Asbestos presence, and other contaminated soils) from non EMR / CLR listed lots	- Re-use on site - Send to landfill for re-use as day cover material - Send to landfill for disposal
Excess Spoil - CLEAN EARTH ONLY	- Re-use on site - Re-use at another site - Send to landfill for re-use as day cover material - Send to landfill for disposal
Contaminated Spoil material (including ballast) from EMR / CLR Listed lots	- Re-use on site - Send to landfill for re-use as day cover material - Send to landfill for disposal
Acid Sulfate Soil	- Re-use on site - Send to landfill for re-use as day cover material - Send to landfill for disposal
Chemically Treated Solid Timber (e.g. rail sleepers / poles)	- Re-use by Queensland Rail - Send to recycling facility (if comply with EoW code) - Landfill disposal
Timber (excluded treated timber)	- Re-use by Queensland Rail - Send to recycling facility - Landfill disposal
Steel (e.g. track, mast foundations)	- Re-use by Queensland Rail - Send to recycling facility - Landfill disposal
Other Metals	- Re-use by Queensland Rail - Send to recycling facility - Landfill disposal
HDPE / Plastics (including composite sleepers)	- Re-use by Queensland Rail - Send to recycling facility - Landfill disposal
Cardboard	- Send to recycling facility - Landfill disposal
Office Waste – Recycling (or comingled)	- Send to recycling facility - Landfill disposal
Green waste	- Reuse on site as part of ESC - Send to composting facility - Landfill disposal
Concrete, including concrete washout waste	- Reuse on site - Send to recycling facility - Landfill disposal
Office Waste – General	Landfill disposal

Erosion and Sediment Control Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000273
Revision date:	24 January 2020
Revision number:	00

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY	IEM		IEM comments addressed in Rev B
Signature:					
B	24/10/19	UNITY	IEM		IEM comments addressed in Rev
Signature:					
C	02/12/19	UNITY	IEM	IEM	Conditional endorsement from IEM on Rev C. Plan updated to include Hold Point process for unrestricted endorsement
Signature:					
00	24/01/2020	UNITY	IEM		Additional content added for unrestricted Endorsement
Signature:					

Plan Control

This Erosion and Sediment Control Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates is in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Plan update to incorporate of comments from the Independent Environment Monitor dated 30 September 2019
C	Plan update to incorporate of comments from the Independent Environment Monitor dated 04 November 2019
00	Plan updated to include Hold Point process for unrestricted endorsement

1 Purpose of this Plan

This sub-plan has been prepared to comply with:

- Coordinator-General's Conditions of Approval – Appendix 1 – Part C:
 - Conditions 15(a) and 15(b)
 - Condition 17(b)
 - Condition 18
- Final Outline-Environmental Management Plan (O-EMP) – Outline Erosion and Sediment Control Plan.

Component	Details
Environmental Outcome(s)	• Project water quality objectives are consistent with the frameworks established by the <i>Environmental Protection (Water) Policy 2009</i> (EPP (Water)) or <i>Qld Water Quality Guidelines</i> in relation to background conditions • Discharge of surface water and groundwater from RIS Works aim to achieve the relevant water quality objectives established for the project, in order to protect the environmental values of receiving waters • Project works must be designed and implemented as far as reasonably practicable to not worsen afflux or cause the redirection of uncontrolled surface water flows, including stormwater flows, outside of worksites during construction • An erosion and sediment control sub-plan that is consistent with the <i>Guidelines for Best Practice Erosion and Sediment Control (International Erosion Control Association, 2008)</i> and the Department of Transport and Main Roads' <i>Technical Standard MRTS51 – Environmental Management</i> must be submitted as part of the C-EMP • Construction activities should minimise soil erosion and sedimentation and avoid adverse impacts on the environmental values of receiving waters • Avoid or manage impacts from soil erosion and sedimentation from project works on the environmental values of the Brisbane River and other waterways within the project corridor.
Relevant Area	Base case, MOSI-1, MOSI-2 and MOSI-3: all areas Key areas: • Mayne Yard and associated Enoggera/Breakfast Creek • Northern area in vicinity of Victoria Park and associated sensitive receptor York's Hollow • Moorooka Station and Clapham Yard and associated sensitive receptor Moolabin Creek • Rocklea Station and associated sensitive receptor of Rocky Water Holes Creek • Salisbury Station and associated sensitive receptor of Stable Swamp Creek.
Relevant Works / Activities	• Vegetation clearing • Earthworks: – Topsoil Strip – Trenching and spoil excavation – Remove and replace of unsuitable material – Temporary stockpiling of spoil and imported fill material • Temporary and permanent drainage works • Works in water, such as piling for bridge structures • Dewatering activities • Rehabilitation and revegetation • Storage and use of hazardous goods • Waste management.
Performance Criteria	• The project does not result in soil erosion beyond the boundaries of worksites; soil erosion within the worksite is rectified as soon as practicable after a rainfall event to prevent the release of sediment offsite

Component	Details
	• Soil erosion and sediment control plans are implemented and maintained for each worksite in accordance with the guidelines for <i>Best Practice Erosion and Sediment Control (International Erosion Control Association, 2008)</i> and DTMR's <i>Technical Standard MRTS52 Erosion and Sediment Control</i> • Runoff and discharges from worksites are consistent with project environmental objectives established in accordance with the <i>Environmental Protection (Water) Policy 2009 (EPP (Water))</i> or <i>Qld Water Quality Guidelines</i> and do not negatively affect the background conditions of the receiving waters • During construction, water quality is monitored and reported in accordance with the Water Quality Management Sub-Plan, and Construction Environmental Monitoring Program included within the C-EMP • To the extent that is reasonable and practicable and relevant to the work area, construction activities and work sites do not worsen afflux for a one-in-five year AEP flood event or greater on the floodplain of any waterways or overland flow paths • To the extent that is reasonable and practicable, construction activities, including any temporary works and spoil placement, do not cause flood water to be redirected over other private property • To the extent that is reasonable and practicable, construction worksites and spoil placement sites are protected from inundation by flood waters, including overland flows, from a 1 in 20 AEP flood event. • To the extent that is reasonable and practicable, bulk storage facilities for hazardous substances used in construction are protected from inundation by flood waters from a 1-in-50 AEP flood event.
Sustainability	Dis-1
Mitigation Measure	• Erosion and Sediment Control Plans (ESC-P) are developed for all areas, including temporary worksites by a Suitably Qualified Person (SQP) and are included in the Workpacks and the SEPs • ESC-Ps are developed taking into consideration Best Practice Management Guidelines (BPMs) Principles as detailed in: – IECA manuals – MRTS 52 • ESC-Ps must detail – The Erosion Hazard of the proposed disturbance, using soil loss prediction tools such as RUSLE – Types and sizing of the preferred controls – The relevant design performance criteria (e.g. Condition 17 of the CGCR, any other applicable criterion) for the controls to be implemented – Guidance notes on the staging of installation and minimum maintenance requirements – The relevant drawings inclusive of the progressive plans detailing the types and location of controls to be installed • Selection of Erosion and Sediment Control (ERSED) measures takes into consideration the site constraints to prevent: – Project footprint creep that would affect existing operational activities – Increase of impact to other environmental and heritage values – Relevant planning / positioning of devices relating to varying AEP flood design inputs (discussed above). • The ESC-Ps clearly state the Rainfall Design Criteria of each ERSED measure to be installed to support effective and timely assessment of compliance of each measure, particularly following a rain event that may have resulted in an offsite discharge. Implement the site-specific ESC-Ps • Prior to the Relevant Project Works commencing the Site Specific ESCP prepared by a Suitably Qualified Person is provided to the Environmental Monitor to demonstrate compliance with Conditions 4c(ii) and 18 via an Environmental Hold Point Process. • The Relevant Project Works are not be authorised to commence until the Environmental Hold Point Process has been completed.

Component	Details
	- Review and update site-specific ESC-P prior to significant changes to drainage flow or sediment treatment locations (e.g. Type 2 sediment traps), to manage any new potential environmental risks - Implement all reasonable and practical measures to control flow velocities that prevent soil erosion along drainage paths - Where safe to do so, divert surface water runoff around the perimeter of work areas as much as possible - Select appropriate treatment measures for the lining of temporary diversion drains that minimise or prevent erosion and sedimentation - The installation of drainage and erosion and sediment control measures considers site conditions and risk, based on but not limited to: - Natural and constructed drainage patterns - Proximity to water features such as waterways, soil types and erodibility potential - Latent conditions, such as shallow groundwater, contaminated soils and ASS, which would prevent or limit the use of sediment basins (whether traditional or high efficiency) - Slope - Seasonal rainfall frequency and intensity together with the construction schedule - Locations of temporary stockpile areas in relation to flow paths - Location of sources of potential contaminants (such as hazardous substances storage areas) in relation to flow paths - Review the construction schedule to identify key areas where duration and magnitude of disturbance exposure could be limited - Key personnel, such as site supervisors and earthworks team, are adequately trained in the installation and maintenance of ERSER measures - ERSER structures are monitored for compliance during weekly inspections with non-compliances or actions to address ineffective capability or capacity recorded in the Environment Action Register. - ERSER measures remain in place and are maintained to ensure effectiveness until the area has been stabilised following completion of construction - Trapped waters proposed to be released to the receiving environment are: - Tested prior to release - Released under an internal dewatering permit (<i>Permit to Dewater</i>) approved by the Environmental Team.
Monitoring	Monitoring is undertaken in accordance with the Construction Monitoring Program (Attachment 4 of the C-EMP).
Reporting	Reporting is undertaken in accordance with Section 8.2 of the C-EMP.
Corrective Action	Management of corrective actions is undertaken as per Section 6 of the C-EMP.
Auditing	As per Section 7 of the C-EMP.

Waterways and Water Quality Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000279
Revision date:	24 January 2020
Revision number:	00

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY	IEM		IEM comments addressed in Rev B
Signature:					
B	18/09/19	UNITY	IEM		IEM comments addressed in Rev C
Signature:					
C	02/12/19	UNITY	IEM	IEM	Conditional endorsement from IEM on Rev C. Plan updated to include Hold Point process for unrestricted endorsement
Signature:					
00		UNITY	IEM		
Signature:					

Plan Control

This Waterways and Water Quality Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates is in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Updated to address review comments from the Environmental Monitor dated 30 September 2019
C	Updated to address review comments from the Environmental Monitor dated 04 November 2019
00	Plan updated to include Hold Point process for unrestricted endorsement

1 Purpose of this Plan

This preliminary sub-plan has been prepared to comply with:

- Coordinator-General's Condition of Approval – Appendix 1 – Part C:
 - Condition 15
- Condition 16 Final Outline – Environmental Management Plan (O-EMP) – Outline Water Quality Management Plan.

Component	Details
Environmental Outcome(s)	• Project water quality objectives are consistent with the frameworks established by the <i>Environmental Protection (Water) Policy 2009 (EPP (Water))</i> and <i>Qld Water Quality Guidelines</i> in relation to background conditions • Discharge of surface water and groundwater from RIS works aims to achieve the relevant water quality objectives established for the project, in order to protect the environmental values of receiving waters • Project works must be designed, planned and implemented to avoid, where practical, and otherwise minimise the inflow of groundwater to the project works, including excavations, having regard for the predictive modelling.
Relevant Area	Site wide Key areas: • Mayne Yard and associated Enoggera/Breakfast Creek (mid-estuary – Brisbane River estuary) • Northern Area in the vicinity of Victoria Park and associated sensitive receptor of York's Hollow (lowland freshwater – Brisbane River Estuary catchment waters) • Moorooka Station and Clapham Yard and associated sensitive receptor Moolabin Creek (lowland freshwater – Oxley Creek catchment waters) • Rocklea Station and associated sensitive receptor of Rocky Water Holes Creek (lowland freshwater – Oxley Creek catchment waters) • Salisbury Station and associated sensitive receptor of Stable Swamp Creek (lowland freshwater – Oxley Creek catchment waters).
Relevant Works / Activities	• Vegetation clearing • Bulk earthworks exposing subsoils • Trenching and excavations that have the potential to entrap surface water run off or intercept shallow groundwater • Spoil and fill material stockpiling • Site dewatering • Dust suppression • Storage and use of hazardous goods • Water take • Waste management.
Performance Criteria	• Groundwater: – Contamination of groundwater by construction materials is avoided by complying with the Waste, Contaminated Land and Acid Sulphate Soils Management Plans – Groundwater quality measured within construction worksites is within 10% of background quality established prior to disturbance for the duration of construction – Quality of groundwater released from construction worksites is consistent with the project environmental objectives established in accordance with the EPP (Water) and Qld Water Quality Guidelines, and does not negatively affect the background conditions of the receiving waters – The inflow of groundwater to the project works is monitored and compared with the predictive modelling – with modelling undertaken prior to construction activities commencing that are likely to intercept substantial groundwater (geotechnical studies will be a source of data to decide on likely groundwater presence) – Groundwater inflow to construction worksites is minimised

Component	Details
	- Groundwater quality is maintained at pre-disturbance levels during and after construction - Groundwater drawdown from dewatering at worksites is monitored - Surface water: - Water, including stormwater, wastewater and groundwater discharges released from the construction worksites to receiving surface waters either comply with the EPP (Water and Wetland Biodiversity) (refer Table 1 below) - Stormwater drainage is intercepted and diverted around exposed works within worksites in accordance with the site specific ESC-P. - Contaminants, chemicals, toxicants and litter from Project worksites are prevented from entering receiving surface waters, including stormwater drains, roadside gutters and waterways. - ASS is avoided, or if intercepted, is managed to ensure no adverse impact on surface waters
Sustainability	Dis-1, Wat-1 and Wat-2.
Mitigation Measure	- Predictive groundwater modelling is used to identify potential inflow rates in work areas likely to intercept groundwater. Where modelling shows rates potentially exceeding 1L/sec, and taking into consideration drawdown risks associated with the duration / extent of works, suitable work alterations / methods will be implemented to reduce inflows. These may include: - Use of blinding - Use of sheet piling - Using driven or sleeved piling techniques - Prioritisation of precast structures as opposed to in-situ concrete pours. - Develop and implement requirements of the following site-specific plans developed prior to construction activities commencing: - Site-Specific Erosion and Sediment Control Plans - ASS Management Plan (ASSMP) - Contaminated Land Management Plan - The nomination of the surface water monitoring locations (and associated relevant analytical suite) is informed by SQPs in the fields of Contaminated Land, Acid Sulphate Soils and Ecology. - Prior to the Relevant Project Works commencing a supplementary Water Quality Monitoring Plan (or equivalent) prepared by a Suitably Qualified Person is provided to the Environmental Monitor to demonstrate compliance with Conditions 4c(ii) and 15 via an Environmental Hold Point Process. - The Relevant Project Works are not be authorised to commence until the Environmental Hold Point Process has been completed - Contamination of groundwater by construction materials is avoided by complying with the Waste, Contaminated Land and Acid Sulphate Soils Management Plans - Prior to any discharge of surface or groundwater being authorised from the site, the UNITY Environment Team will monitor the water using appropriately calibrated water quality monitoring equipment and will authorise water releases from the site using the Permit to Dewater process - Only water that meets the Site Water Release Hierarchy below (as well as applicable requirements from the ASSMP or the Contaminated Land Management Plan) will be authorised for release. - Where an active site release is identified to no longer meet the permit to dewater conditions, the release is to be stopped and the relevant actions to be implemented to assess, and minimise impact (if any identified to have occurred) Site Water Release Hierarchy - Shoulder there be no risk of successive rain events that pose risk of overwhelming/over-topping basins / sediment retention devices, all efforts will be made to achieve water quality parameters of the EPP (Water and Wetland Biodiversity) (refer Table 1 above);

Component	Details
	– else, as a minimum release offsite will achieve the water quality parameters of the Queensland Water Quality Guidelines (refer Table 2 above), – All passive release will occur through design and fit-for-purpose sediment devices designed in accordance with IECA 2008 as per the ESC Sub-Plan. • Where required, site specific ESCP's will be developed and implemented to ensure that surface waters immediately downstream of construction worksites are not adversely affected by Project works. • Regular water quality monitoring will be undertaken as outlined in the Construction Environmental Monitoring Program included in the C-EMP to ensure compliance with water quality requirements as per hierarchy provided above. • Details of the locations, frequency and scope of the monitoring (analytical suite) for surface and groundwaters will be included in the SEP. • Key personnel, such as site supervisors, may also be authorised to test waters and authorise discharges, only after they have been appropriately trained in water testing procedures. • UNITY's Environment Team will undertake dewatering training of key construction personnel. This training will include the following content (as a minimum): – Legal obligations – Description of key prescribed water contaminants and construction activities and/or latent conditions that may result in water impacts – Description of the key sensitive receptors around the project – Description of suitable dewatering techniques • Waste will be managed in accordance with requirements of the Waste Management Sub-Plan, with particular focus on liquid wastes such as concrete washout waters. • The location of sources of potential contaminants (such as hazardous substances storage areas, waste disposal areas, etc) are considered in relation to flow paths. Waste receptacles of appropriate size and servicing regime, along with segregation opportunities will be located suitably to minimise litter sources. Weekly inspections are used to verify performance or address issues.
Monitoring	Monitoring is undertaken in accordance with the Construction Monitoring Program (attachment 4 of the C-EMP). Where additional monitoring is triggered based on the supplementary WQMP (or equivalent) attachment 4 of the C-EMP may be updated or the details of the monitoring will be included in the relevant Workpacks and SEPs
Reporting	Reporting is undertaken in accordance with Section 8.2 of the C-EMP.
Corrective Action	Management of corrective actions will be undertaken as per Section 6 of the C-EMP.
Auditing	As per Section 7 of the C-EMP.

2 Project Water Quality Objectives

Table 1: Water quality objectives – Brisbane River Estuary EV's & WQO's (Basin no. 143) SOURCE: EPP (Water and Wetland Biodiversity).

Water Area/Type	Management Intent	Water Quality Objectives
Mid Estuary	Aquatic ecosystem – moderately disturbed	Turbidity: <8 NTU Suspended Solids: <20 mg/L Chlorophyll a: <4 µg/L Total Nitrogen: <300 µg/L Oxidised N: <10 µg/L Ammonia N: <10 µg/L Organic N: <280 µg/L Total phosphorous: <25 µg/L Filterable reactive phosphorus (FRP): <6 µg/L Dissolved Oxygen: 85-105% saturation pH: 7.0 – 8.4 secchi depth: >1.0m

3 Catchment Mapping

The below mapping has been sourced from the DES Website - interactive map of EPP (Water and Wetland Biodiversity) scheduled data - surface water which can be access at the following link:

<https://apps.des.qld.gov.au/protection-policy-water/>

Table 2: Catchment Mapping

Area and EPP details	Map
Mayne Yard – Enoggera Creek Schedule document name: Brisbane River Estuary Schedule map identifier WQ1431 Subcatchment name Lower Brisbane River Management intent type Moderately Disturbed Water type middle estuary	
York's Hollow – Northern Area Schedule document name Brisbane River Estuary Schedule map identifier WQ1431 Subcatchment name Lower Brisbane River Management intent type Moderately Disturbed Water type lowland streams	

Area and EPP details	Map
Moorooka Station and Clapham Yard and associated sensitive receptor Moolabin Creek Rocklea Station and associated sensitive receptor of Rocky Water Holes Creek Salisbury Station and associated sensitive receptor of Stable Swamp Creek Schedule document name Oxley Creek Schedule map identifier WQ1434 Subcatchment name Lower Oxley Creek Management intent type MD Water type lowland streams	

Air Quality Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000269
Revision date:	24 January 2020
Revision number:	00

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	UNITY	IEM		IEM's Comments addressed in Rev B
Signature:					
B	08/09/19	UNITY	IEM		IEM's Comments addressed in Rev C
Signature:					
C	17/10/19	UNITY	IEM		IEM's Comments addressed in Rev D
Signature:					
D	26/11/2019	UNITY	IEM	IEM	Conditional endorsement from IEM on Rev D. Plan updated to include Hold Point process for unrestricted endorsement
Signature:					
00	24/01/2020	UNITY	IEM		
Signature:					

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Plan Control

This Air Quality Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates are in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Incorporation of IEM review comments from 20 August 2019
C	Incorporation of IEM review comments from 16 September 2019
D	Incorporation of IEM review comments from 04 November 2019
00	Plan updated to include Hold Point process for unrestricted endorsement

1 Purpose of this Plan

This sub-plan has been prepared to comply with:

- Coordinator-General's Conditions of Approval – Appendix 1 – Part C –
 - Condition 2
 - Conditions 13(a) and 13(b)
- Final Outline-Environmental (O-EMP) – Outline Air Quality Management Plan.

Component	Details																				
Environmental Outcome(s)	• Project works must aim to achieve the goals in Table 4 of the CGCR • During construction, monitor and report on air quality in accordance with the Air Quality Management Plan, a sub-plan of the C-EMP • Nuisance from dust, odour and emissions arising from construction activities is minimised at nearby sensitive receptors.																				
Relevant Area	• Site wide with key areas being: – Clapham Yard, and – Mayne Yard.																				
Relevant Works/ Activities	• General construction activities with a focus on: – Earthworks involving the excavation and storage of spoil material – Import and placement of fill material (excluding ballast) – Demolition of existing buildings – Concrete cutting/sawing activities – Spoil haulage to offsite location.																				
Performance Criteria	Table 4. Air quality criteria and goals <table><tr><th>Criterion</th><th>Air quality indicator</th><th>Goal</th><th>Averaging period</th></tr><tr><td rowspan="3">Human Health</td><td>Total Suspended Particulates (TSP)</td><td>90 µg/m³</td><td>1 year</td></tr><tr><td rowspan="2">Particulate matter ((PM₁₀)¹</td><td>50 µg/m³</td><td>24 hours</td></tr><tr><td>25 µg/m³</td><td>1 year</td></tr><tr><td rowspan="2">Nuisance</td><td>TSP²</td><td>80 µg/m³</td><td>24 hours</td></tr><tr><td>Deposited dust³</td><td>120 mg/m²/day</td><td>30 days</td></tr></table> • Where construction emissions are predicted to exceed the construction air quality goals, mitigation measures are designed and implemented to mitigate the impacts for nearby sensitive receptors.	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
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																		
Sustainability	Ene-1, Ene-2, Dis-4; Hea-1 and Sta-4																				
Mitigation Measure	• Undertake predictive modelling prior to relevant construction activities commence to ascertain locations where exceedances of air quality objectives may occur. • The details of the modelling are documented in a modelling report • The results from predictive modelling are incorporated into both design (i.e. operational emissions, etc.) as well as construction planning (i.e. site-specific mitigation measures for construction activities included in in Work Packs and SEPs) • The results from predictive modelling are be used to identify Directly Affected Person/s and enabled consultation to occur via processes outlined within the Community Engagement Plan. • Predictive modelling is be updated to incorporate significant changes to detailed design and/or construction methodologies, unless the change involves a reduction in potential air quality risk to sensitive receivers • Prior to the Relevant Project Works a supplementary AQMP (or equivalent) prepared by a Suitably Qualified Person is provided to the Environmental Monitor to demonstrate compliance with Condition 13 and Condition 4c(ii) via an Environmental Hold Point Process.																				

Component	Details
	• Air quality monitoring locations and type are designated based on the advice from a Suitably Qualified Person and are detailed in the relevant SEPs • The Relevant Project Works will not be authorised to commence until the Environmental Hold Point Process has been completed. • Implement appropriate dust control measures which may include: – minimising the amount of exposed areas where possible, – implementing dust suppression (e.g. water carts) at a suitable frequency to prevent migration of visible dust outside project boundaries – ensuring heavy vehicles carting loose bulk material (e.g. fill) are adequately restrained in accordance with the National Transport Commission Requirements – determining and enforcing speed limits to minimise dust generation, and – fast-tracking stabilising / rehabilitation in exposed areas where possible. • Construct the main access road within Victoria Park in accordance with the BCC requirements • Comply with the Haulage Management Plan and associated nominated Haulage Routes • Comply with the Vehicle management Plans included in the Workpacks • Traffic Areas within RIS worksite that have a dust risk will be the rail formation areas. Given these areas are narrow / restricted access, and therefore does not afford the ability to construct dedicated long-term haul roads, management of these areas will include: – Use of established QR access roads and RMAR's (compacted gravel maintenance access tracks) as primary access – Maintain and repair any damage to the RMAR caused by the Project Works in accordance with QR's track formation standards – Enforcing the QR speed limits (Typically 10km /hr when passing a work crew / Typically max 20 km/hr any other time) – Conduct routine inspections of the work areas to identify whether above controls are effective are mitigating dust and implement adaptive management were the mitigation measures be found to ineffective – Traffic routes within worksites over the formation that is being actively constructed and therefore disturbed ground will be progressively sealed with rollers and water carts used to control dust during construction. – The formation subgrade will be capped with gravel to form the final surface in a relatively short timeframe (given shallow embankments are only required). Once compacted, the gravel capping forms a tight paved surface for any ongoing traffic movements. – Stabilise in progress traffic areas / earthworks formations in accordance with the Site-Specific ESC-P and / or the Shutdown Procedure during extended periods of inactivity (e.g Christmas Shutdown). • Internal Primary Traffic within the Stabling Yards to follow the existing paved access road networks to access active work areas • Implement appropriate odour control measures which may include: – using existing land use data as well as contaminated land and acid sulfate soil investigation results to identify areas of potential odour based on proximity to sensitive receivers, – should odorous materials be identified, where possible conducting works when prevailing wind directions are unlikely to affect sensitive receivers, and – as needed, cover odorous spoil materials including stockpiles that may result in off-site impacts or expedite the disposal of said material. • Monitor predicted meteorological conditions to provide an early warning system to the construction on upcoming adverse conditions • Mitigate the migration of fine soil particles on open roads that may become remobilised via means of stable internal access roads • Enforce requirements for haulage trucks travelling on public roads to comply with the load restraints legislative requirements (refer Load restraint guide as amended from time to time) • Stabilise stockpiles of material that may be subject to wind dispersion, such as lime used for the treatment of ASS

Component	Details
	- Undertake regular plant and equipment inspections to ensure they are in good working order - Monitor, record and report on energy and resource use in line with the <i>National Greenhouse and Energy Reporting Act 2007</i> (NGER).
Monitoring	- Monitoring is undertaken in accordance with the Construction Monitoring Program (Attachment 4 of the C-EMP) for the Relevant Works/ Activities listed in this AQMP and at a sufficient frequency to confirm the mitigation measures are suitable to manage air quality to the acceptable standard . - Where additional monitoring is triggered based on the supplementary AQMP (or equivalent) attachment 4 of the C-EMP may be updated or the details of the monitoring will be included in the relevant Workpacks and SEPs as detailed above. - Air quality monitoring devices will be made available to allow response / campaign monitoring to occur - Air quality monitoring devices, including weather stations, will be calibrated in accordance with manufacturer's requirements. - For deposited dust monitoring, installation of the deposition gauges shall be in accordance with AS/NZS 3580 - Monitoring will be undertaken by trained and competent persons with records retained to demonstrate competencies.
Reporting	Reporting is undertaken in accordance with Section 8.2 of the C-EMP.
Corrective Action	- Management of corrective actions is undertaken as per Section 6 of the C-EMP. - Complaints will be addressed as outlined within the Community Engagement Plan. Where necessary, complaint investigations will review the need to implement additional air quality monitoring, as well as visual inspections, with the findings reported to the Independent Environment Monitoring and the complainant.
Auditing	As per Section 7 of the C-EMP.

2 Other Considerations

The WHSMP will address the following CG recommendation of Appendix 2 of the Change Report:

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:

- *Hazard and Risk sub-plan and/or*
- *Air Quality sub-plan.*

The WHSMP will include the following content:

- Key risks associated with Respirable Crystalline Silica (RCS):
 - Brick, concrete/stone cutting or drilling
 - Labouring tasks involving use of RCS-containing material
 - Demolition work on RCS containing materials
 - Mobile plant operating with open cabins on RCS-containing materials
 - Using hand held plant such as Wakka Packas and jackhammering on RCS-containing materials
 - In- ground construction such as trenching in modified fine crushed rock
- Mitigations Measures:
 - RCS will be managed in accordance with the Manage Occupational Health Procedure and Knowledge: Respirable Crystalline Silica. RCS will be managed through the hierarchy of controls including:
 - Where possible, procuring and using products that do not contain crystalline silica/quartz, based on the product's Safety Data Sheet (SDS)
 - Where possible, designing out or otherwise eliminating materials, processes and tasks that can generate RCS
 - Substituting a substance with another substance with a lower RCS content
 - Where practicable, fully sealing cabins for operators of earthmoving plant
 - Establishing a physical barrier that contains the RCS dust to a single location and prevents or restricts access to the area
 - Establishing exclusion zones/barriers around high dust areas to prevent workers and other persons in the vicinity from exposure to hazardous dust
 - Where possible, using local exhaust ventilation (eg. on-tool extraction) or water suppression at the source (ie. wet cutting methods). If one of these engineering controls cannot be used, fit testing must be completed and respiratory protection equipment must be worn by the worker (eg. half mask, P2 filter is the minimum standard). Half mask requires 'clean shaven' workers
 - Where possible, vacuuming (class H as per AS/NZS 60335.2.69 with a HEPA Filter Class H as per AS 4260:1997) dust rather than sweeping
 - Competent hygienist to conduct personal exposure sample monitoring for RCS dust
 - Conducting RCS awareness training
 - Conducting fit testing and respiratory protection equipment training
 - Undertaking health surveillance for any tasks exceeding 50% of the workplace exposure standard.

Acid Sulfate Soil Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-000-001-MPL-000272
Revision date:	24 January 2020
Revision number:	00

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/2019	UNITY	IEM		IEM comments addressed in Rev B
Signature:					
B	24/10/19	UNITY	IEM		IEM comments addressed in Rev C
Signature:					
C	28/11/19	UNITY	IEM	IEM	Conditional endorsement from IEM on Rev C. Plan updated to include Hold Point process for unrestricted endorsement
Signature:					
00	24/01/2020	UNITY	IEM		
Signature:					

Plan Control

This Acid Sulfate Soil Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates are in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Incorporating review comments from the Independent Environment Monitor dated 30 September 2019
C	Incorporating review comments from the Independent Environment Monitor dated 04 November 2019
00	Plan updated to include Hold Point process for unrestricted endorsement

1 Purpose of this Plan

This sub-plan has been prepared to comply with:

- Coordinator-General's Conditions of Approval – Appendix 1 – Part C:
 - Condition 19(a)
 - Conditions 15(a) and 15(b)
 - Conditions 16(a), 16(b) and 16(c)
- Final Outline-Environment Management Plan (O-EMP) – Outline Acid Sulfate Soil Management Plan.

Component	Details
Environmental Outcome(s)	- Acid sulfate soils (ASS) must be managed in accordance with the methods and requirements of the latest edition of the Queensland Acid Sulfate Soil Technical Manual (QASSIT) - Project water quality objectives are consistent with the frameworks established by the <i>Environmental Protection (Water) Policy 2009 (EPP (Water))</i> and <i>Qld Water Quality Guidelines</i> in relation to background conditions - Discharge of surface water and groundwater from RIS works aim to achieve the relevant water quality objectives established for the project in order to protect the environmental values of receiving waters - Project works must be designed, planned and implemented to avoid, where practical, and otherwise minimise the inflow of groundwater to the project works, including excavations having regard for the predictive modelling - Construction activities should avoid or minimise environmental and public health risks associated with disturbance of potential ASS encountered during construction works. - Construction activities do not impact on the environmental values of the Brisbane River and other waterways within the study corridor
Relevant Area	- Mayne Yard - Breakfast/Enoggera Creek enhanced alignment - Alluvial Channels in Exhibition Station - Clapham Yard - Moolabin Creek Area
Relevant Works / Activities	- Subsurface disturbance works resulting in the removal of spoil material in known or suspected areas of PASS/AASS material, such as excavations, piling, trenching, remove and replace - Dewatering works (especially groundwater or trapped surface water in open excavations) required in known or suspected areas of PASS/AASS material
Performance Criteria	- ASS is avoided where practical, or if intercepted is managed to avoid adverse impact to environmental values, infrastructure, construction equipment, construction personnel or the public - Runoff and discharges from worksites are consistent with project environmental objectives established in accordance with the <i>Environmental Protection (Water) Policy 2009 (EPP (Water))</i> and <i>Qld Water Quality Guidelines</i>, and do not negatively affect the background conditions of the receiving waters - Monitor and report on water quality during construction, in accordance with the Water Quality Management Plan, a sub-plan of the C-EMP.
Sustainability	Dis-1; Eco-1.
Mitigation Measure	- An ASS investigation is undertaken in accordance with QASSIT guidelines. - The details of the investigation program are documented in a Sampling and Analysis Quality Plan (SAQP) - Upon completion of the ASS investigation, results are used to: - prescribe treatment methods and monitoring requirements detailed in a supplementary ASSMP and transferred into the relevant SEPs and Workpacks - avoid disturbance of Potential / Actual ASS materials wherever possible through design and construction planning. - A supplementary ASS management plan (ASSMP or equivalent) is developed that includes part or all the following information: - Site setting details, such as topography, sensitive receiving environments, groundwater, geology, previous investigations, groundwater assessment - Summary of the location of AASS, PASS and naturally acidic soils and a risk rating of the area - Presence of acidic groundwater and risk rating of the groundwater zones - General requirements - Identified ASS materials

Component	Details
	– Confirmed non-ASS materials – Dewatering and water discharge – Responsibilities of key construction personnel in the management of ASS – Non-conformance and corrective actions – Auditing requirements – Community relation requirements – Training requirements of site personnel in the basic recognition of ASS – Procedures such as: ○ Characterisation of suspected ASS material ○ Stockpiling, handling and transportation of ASS ○ Treatment and verification of excavated ASS ○ Dewatering management/monitoring ○ Discharge water quality monitoring. • During development of Workpacks and SEPs, the relevant management measures from the supplementary ASSMP (or equivalent) are incorporated in the SEPs and Workpacks • Prior to the Relevant Project Works commencing a supplementary ASSMP (or equivalent) prepared by a Suitably Qualified Person is provided to the Environmental Monitor to demonstrate compliance with Conditions 4c(ii) and 19 via an Environmental Hold Point Process. • The Relevant Project Works are not be authorised to commence until the Environmental Hold Point Process has been completed. • Should areas of unidentified potential ASS be identified through construction activities, the Supervisor will immediately notify the Environmental Manager to assist in further investigation, and to prescribe interim control measures (e.g. lime application) until actual risks are quantified • Management measures to avoid human health exposure will include: – Avoidance of ASS where possible – Where ASS is disturbed, treatment (in accordance with ASS Investigation outcomes) to occur as soon as practicable to minimise potential odours to workforce and sensitive receivers – Incorporation of appropriate workplace health and safety measures to avoid exposure to highly alkaline neutralising agents such as hydrated lime $\text{Ca}(\text{OH})_2$ and quicklime CaO. • In areas where ASS has been identified, site specific SEP and ESC-P are developed for each work area, taking into account findings from the ASS investigations. The SEP and ESC-P must include measures such as, but not limited to: – Containment of ASS affected waters, – Management of run-off from site, – Locations of treatment pads – Liming rates – Surface Waters (including trapped water) and Groundwater Monitoring regimes • Trapped waters proposed for release to the receiving environment are: – Tested prior to release to ensure waters comply with parameters included in the Water Quality and Waterways Management Plan – Released under an internal Permit to Dewater approved by the Environmental Team.
Monitoring	Monitoring is undertaken in accordance with the Construction Monitoring Program (attachment 4 of the C-EMP) and compared to water quality requirements outlined in the Waterways Water Quality Management Plan. Where additional monitoring is triggered based on the supplementary ASSMP (or equivalent) attachment 4 of the C-EMP may be updated or the details of the monitoring will be included in the relevant Workpacks and SEPs

Component	Details
Reporting	Reporting is undertaken a minimum in accordance with Section 8.2 of the C-EMP.
Corrective Action	Management of corrective actions will be undertaken as per Section 6 of the C-EMP.
Auditing	As per Section 7 of the C-EMP.

Community Engagement Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
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Revision date:	13 March 2020
Revision number:	02

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/19	Unity Alliance	CRRDA		
Signature:					
B	09/08/19	Unity Alliance	CRM		
Signature:					
C	16/08/19	Unity Alliance	IEM		
Signature:					
D	22/08/19	Unity Alliance	CRM / IEM		No further comments
Signature:					
00	07/09/19	Unity Alliance	IEM	IEM	Endorsed by IEM
Signature:					
01	19/09/19	Unity Alliance	IEM	IEM	Endorsed by IEM
Signature:					
02	13/03/20	Unity Alliance	IEM	IEM	Endorsed by IEM
Signature:					

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Plan Control

This Community Engagement Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

The latest approved version of the plan will be available in UNITY's Electronic Document Management System (EDMS). The Alliance Manager will maintain, review and update the plan at least every six months in the first year and then annually thereafter. Revised plans will also be submitted to the Delivery Authority and Independent Certifier.

Each revision to the plan will be distributed to all required personnel for review and approval. The document will be allocated a new revision type if the changes made affect the overall meaning of the document. Any minor change will be made without a change to the revision number.

When a new revision to the document is available, a notification email will be distributed to all project personnel by the Document Controller advising of the update.

The Alliance Manager is responsible for the ongoing implementation and review of the plan, and for approving any revisions.

Revision Details

Revision	Remarks
A	Final CEP for Review and endorsement by the Environmental Monitor (EM)
B	Updated CEP following comments from Community Relations Monitor (CRM) and CRRDA
C	Updated CEP following comments from EM
D	Updated CEP following comments from EM and observations from CRM
00	Final CEP endorsed by EM
01	Final CEP amended to address some of the IEM Comments dated 16 September 2019 on the Construction Activities Management Plan
02	CEP updated to reflect CRM comments on agreed DAP process

1 Purpose of this Plan

This Community Engagement Plan (CEP) sets out the requirements for community engagement during construction of the Cross River Rail Project and forms part of the Construction Environmental Management Plan (C-EMP) Rail, Integration and Systems Package (RIS) Works.

This document will be provided to the Community Relations Monitor for advice at least 10 business days prior to the C-EMP being provided to the Environmental Monitor, as outlined in Condition 9 of the Coordinator-General's Conditions of Approval.

2 Community Engagement Contract Requirements

Table 1: Community engagement contract requirements

CG Condition Reference	Content Requirements	Where Addressed	Comments
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.	This 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.	Section 1	
	(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;	Section 5	
	(ii) Directly Affected Persons to be consulted about possible mitigation measures;	Section 5	
	(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;	Section 5	
	(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;	Section 5	
	(v) specific community consultation plans for identified key stakeholders;	Section 6.3	
	(vi) implementation of an Indigenous employment policy, providing for Indigenous training and employment opportunities;	Section 6.4	
	(vii) a process for advance notification to local communities of Project Works, including the timing, duration, predicted impacts and mitigation measures, which is	Section 6, Attachment 1	

CG Condition Reference	Content Requirements	Where Addressed	Comments
	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.	Section 7.3, Attachment 2	
	(e) The complaints management system must deliver a prompt response to community concerns with relevant information, action where required, and reporting of incidents.	Section 7.3, Attachment 2	
	(f) As a minimum, the complaints management system must include the following elements:	Section 7.3, Attachment 2	
	(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.	Section 7.3, Attachment 2	

3 Community and Stakeholder Objectives

UNITY's community and stakeholder communication objectives are:

- Achieve compliance with the project planning approval
- Work cooperatively with the Cross River Rail Delivery Authority to provide a coordinated and consistent approach to communications and stakeholder engagement
- Enhance and protect the reputation of the Delivery Authority, the Queensland Government and UNITY's alliance participants
- Identify and appropriately address stakeholder, business and community issues
- Keep stakeholders and the community informed of what to expect and what has been done to minimise disruption – including timing, duration, predicted impacts and proposed mitigations around construction activities
- Minimise, where possible, the impacts of the RIS Works on stakeholders, businesses and the community
- Engage the broader community to reduce risk and protect the project's social licence to operate.

4 Our Guiding Principles

UNITY appreciates that project acceptance and support relies on stakeholder and community trust, respect and goodwill. Effective community engagement achieves these outcomes when it adopts values-based approaches and practices. Based on a 'no surprises' philosophy, its principles align with the International Association of Public Participation (IAP2) and include:

Integrity and transparency – engagement involves trust and transparency.

Respectfulness – we value contributions made and the time given by stakeholders.

Inclusivity – we use a range of opportunities and techniques to encourage participation of all parties who may be affected by or interested in the outcome.

Informative – effective engagement requires all parties to understand the relevant legal, statutory, strategic and local context.

Working together – we establish ongoing partnerships with the community to share knowledge to develop the best solutions.

Well planned – engagement requires informed judgement and planning in its approach and implementation to be effective, practical and suitably resourced.

Politically engaged – we ensure all relevant elected representatives have integral roles to play in all community engagement processes.

Meaningful – the community has multiple opportunities to participate in engagement processes that are clearly articulated in relation to project constraints, the scope of community influence, and the State's decision-making process.

Feedback – closing the loop on engagement is important to maintaining an open and transparent process.

Efficiency and value for money – stakeholder planning and implementation optimises internal and external links, resources and systems to minimise duplication and spending, and reinforce public perceptions of effectiveness and good value for money.

Privacy – we take all reasonable and appropriate steps to protect the privacy of individuals, as required by the *Information Privacy Act 2009 (Qld)* and the Information Privacy Principles contained in the *Information Privacy Act 2009 (Qld)*.

5 Engagement Approach and Stakeholders

5.1 Engagement Approach

UNITY is committed to a proactive engagement approach based on the values established by the internationally recognised IAP2.

The guiding principle of UNITY's approach is to undertake engagement at the right time and in the right manner, with a focus on early engagement to establish positive relationships with stakeholders and the community.

Purpose	Inform	Consult	Involve	Collaborate
Outcome	Establish relationships that deliver accurate, relevant and appropriate information to stakeholders and the community.	Establish relationships to seek and receive the views of stakeholders and the community about issues, programs and opportunities that directly affect them, or in which they may have a significant interest.	Achieve collaborative relationships with stakeholders who can participate in shaping policy, program options and precinct activation.	Demonstrate leadership and innovation in the way we engage with stakeholders who shape the project and its future service options.

5.2 Key Stakeholder Groups

Engagement will be undertaken with the following stakeholder and community groups:

Stakeholder Group	Specific Stakeholders
Key strategic partners	- Queensland Rail - Transport and Main Roads - TransLink - Department of Premier and Cabinet - Queensland Treasury - Brisbane City Council - Brisbane Marketing - Brisbane Metro - AEG-Ogden (Suncorp Stadium) - Economic Development Queensland - RNA – Brisbane Showgrounds - Airtrain - UQ
Industry influencers and advocates	- Brisbane Airport Corporation - Stadiums Queensland - Brisbane Development Association - Port of Brisbane - IAQ - UDIA - Building Queensland - Queensland Major Contractors Association - Property Council of Australia - Engineers Australia - Infrastructure Partnerships Australia

Stakeholder Group	Specific Stakeholders
Supportive and potential opinion shapers	• RACQ • Griffith University • QUT • Brisbane City Council • Rail Back on Track
Owners and occupiers of sensitive sites	• Infrastructure Australia • Qld Health Metro South & PA Hospital • Leukaemia Foundation • CSIRO Ecosciences Precinct • Centenary Pool
Directly-affected property owners and tenants, including adjoining owners (within 250m)	• Residential owners/tenants in directly affected properties • Body corporates and owners' corporations
Directly-affected businesses/tenants in adjoining properties (within 250m)	• Business owners/tenants in directly affected properties • Landlords and commercial property owners near O'Connell Terrace, Exhibition Station (Exhibition Station); and - Abbotsford Road, Mayne Yard
Local property owners and tenants (within 250m)	• Property owners and tenants within 250 metres of construction sites • Body corporates and owners' corporations
Businesses and tenants (within 250m)	• Businesses within 250 metres of construction sites
Government (local)	• Brisbane City Council • Local Councillors on/near Cross River Rail (CRR) route
Government departments and agencies (State)	• Departments (alphabetical order): • Aboriginal and Torres Strait Islander Partnerships • Communities, Disability Services and Seniors • Education • Employment, Small Business and Training • Environment and Science • Health • Housing and Public Works • Innovation, Tourism Industry Development • Justice and Attorney-General • Local Government, Racing and Multicultural Affairs • Natural Resources, Mines and Energy • Police • State Development, Manufacturing, Infrastructure and Planning • State Members of Parliament
Government departments and agencies (Commonwealth)	• Department of Infrastructure, Regional Development and Cities • Australian Rail Track Corporation • National Transport Commission • Infrastructure and Project Financing Agency • Federal MPs on/near CRR route
Other infrastructure projects	• Queens Wharf • Herston Quarter • Brookfield Multiplex (300 George and Northshore Hamilton) • Anthony John Group (Southpoint) • Lendlease – RNA Redevelopment

Stakeholder Group	Specific Stakeholders
	• Brisbane Live – Roma Street Gardens (project pending) • Brisbane Metro • All other major CBD and inner City construction projects
Industry	• Roads Australia • Planning Institute of Australia • Consult Australia • Tourism and Transport Forum • Civil Contractor Federation • Construction Skills Qld • Aurizon
Indigenous and heritage	• Jagera Daran • Turrbal People • Royal Historical Society of Qld • Save Victoria Park Group • Brisbane City Council
Education providers – near construction site	• Queensland University of Technology • TAFE Queensland • Brisbane Grammar School • Brisbane Girls Grammar School • St Joseph's College • St Laurence's College • East Brisbane State School • Mary Immaculate College Annerley
Community groups	• Chamber of Commerce and Industry Qld • Save Victoria Park Group • Gabba Business Association
Utility authorities	• Telstra • Energex • Queensland Urban Utilities
Health providers	• Queensland Children's Hospital • Mater Hospital • RBWH Hospital • Ronald McDonald House Herston • Queensland Institute of Medical Research • PA Hospital
Liaison groups/panels	• Location-based Community Advisory Groups
Transport and traffic	• Transport and Main Roads and Brisbane City Council (BCC) – Brisbane Metropolitan Transport Management Centre • Cross River Rail's Construction Traffic Management Liaison Group • Brisbane City Council Congestion Reduction Unit • Transport for Brisbane • Transport operators and their customers • Couriers • Cycling groups • Cross River Rail - Rail Freight Working Group

Stakeholder Group	Specific Stakeholders
Emergency service agencies	- Queensland Fire and Emergency Services - Queensland Police Service - Queensland Ambulance Service - State Emergency Service
Other CRR contractors	TSD contractors
Preschool or childcare	Within 250 metres of construction sites
Places of worship	Within 250 metres of construction sites
Road users	- Department of Transport and Main Roads - Brisbane City Council - Motorists - Pedestrians - Cyclists - Buses in streets surrounding worksites - Freight Industry
Public transport users	- Queensland Rail - TransLink - Bus users interchanges and stops at all sites - Train users between Salisbury to Fairfield commuters generally
Heritage stakeholders	- Department of Environment and Science - Registered Aboriginal parties (Jagera Daran & Turrbal People) - Brisbane City Council - Local heritage and community groups - Owners of heritage-listed buildings - National Trust of Australia (Queensland)
Stakeholders with English as a second language	Within 250 metres of construction sites
People with a disability	- QR Accessibility Reference Group - Taxi Council of Queensland - Department of Disability Services - Queenslanders with Disability Network
Media	- National television - Metropolitan radio - Community radio and newspapers - Courier Mail - Quest Newspapers - Online media - Specialist transport writers/journalists - Industry publications

5.3 Interface with the C-EMP and Other Project Systems

The CEP and the C-EMP are head documents that are used at the foundation documents to inform our internal stakeholders such as Engineers and Site Supervisors.

The UNITY Management system contains three Key Levels of documentation.

5.3.1 Head Documents

The first tier consists of Key Management Plans such as the C-EMP and the CEP that frame how UNITY will operate during the duration of the works. It also identifies the key interfaces between the planning and construction disciplines. These documents cover all activities proposed to be undertaken across the entire CRR footprint. For example the C-EMP will identify that Noise and Vibration is an essential aspect to be managed during the duration of the works and that there is a strong interface with Community and Stakeholder engagement (addressed in the CEP) and Construction Activities (addressed in detail in the Construction Management Plan)

5.3.2 Construction Area Plans

The second tier consists of Area Specific Documents called Construction Area Plans (or CAPs). More details are provided on the Section of the C-EMP. These documents provide more details on the proposed key activities to be undertaken in One Specific Area for the project.

For example, a CAP will be developed for Mayne Yard which will cover key activities such as

- Site Establishment (eg. site offices set up),
- Earthworks
- Drainage
- Bridge works
- Building works
- Rail infrastructure works

Each activity, and the potential risk to the community and the environment for the specific area are reviewed in a collegiate approach with key members of the Delivery team. This review may identify that there is a low risk of impact to the community from Noise and Vibration due to the location of the Area with regards to sensitive stakeholders.

However, if the same exercise was to be done for Bridge works in the Fairfield to Salisbury Area, these documents would identify that there is a higher risk of impact to residents and therefore further processes must occur to inform the specific mitigation measures that need to be implemented.

Such processes may consist of a predictive noise and vibration model for the proposed Bridge Works.

5.3.3 Workpacks

This leads us the last or third tier of documents. They are called Workpacks and may include, based on the outcomes of the tier 2 documents, additional information such as a site environmental plan, or a predictive noise model or both.

These workpacks detail the step by step methodology on how the Bridge Works will be undertaken, from start to finish. Where processes that occur between tier 2 and tier 3 documents trigger that the methodology be changed or additional mitigation measures will be implemented, these details will be contained in the workpack.

For example, if the noise model predicts that some residents in the vicinity of the works will be moderately affected, one of the management measure may be to undertake doorknocks to meet the residents to discuss the potential impacts prior to the works commencing, rather than just doing a letterbox drop.

Works would not be allowed to proceed until the doorknock have been confirmed to have occurred

This waterfall process ensures a methodical and bespoke approach during the planning of the works.

The workpacks are the documents that are being used in the field by the construction teams. It is therefore essential that the key management requirements specific to the works and the area be located in these workpacks rather than head documents. This ensures that the management requirements are targeted to the people working in a specific area.

6 Implementation

6.1 Communication Channels

The following communication channels will be used prior to and throughout construction to provide information about the proposed works, advance notification of construction activity and to update overall project progress to directly affect persons.

Our engagement tools will include:

- Meetings and briefings with key stakeholders
- Project information line and email
- Cross River Rail Project Information Centre
- Community contact cards
- Cross River Rail project website
- E-news
- Construction works
- Doorknocks and calling cards
- Print, radio and social media advertising
- Key messages and FAQs
- Ministerial and media events/launches and joint promotional events.

A more detailed explanation of the suite of communication and engagement tools to be used and the expected outputs is provided in Attachment 1 Consultation Tools and Activities.

6.2 Community Notification Timeframes

All materials will go through the agreed approvals process with the Delivery Authority before any communication materials are released publicly. Approvals will be further reinforced and enhanced by:

- Meeting regularly with the Delivery Authority to confirm approvals and changes required to communications plans, processes and tools. This will be assisted by co-location of the Delivery Authority's Communication and Stakeholder Interface Manager where impromptu one-on-one interaction will be easily facilitated to support timely approvals
- Using approved checklists and templates on all communications tools and materials. These will be developed in the pre-construction phase and provided to the Delivery Authority for approval prior to distribution to stakeholders. Templates will adhere to the Delivery Authority's branding style guide
- Using feedback received from the Delivery Authority to modify communication materials and tools on an ongoing basis.

The Table below outlines how UNITY Alliance will comply with the associated notification timeframes for communications and stakeholder activities for directly affected persons.

Activity	Type of Work	Type of Notification (but not limited to)	7 Days' Notice	14 Days' Notice	28 Days' Notice
Standard Hours 6.30am–6.30pm Mon–Sat	Regular work activities – construction, site investigation, site establishment, access changes	Letterbox drop Website		✓	

Activity	Type of Work	Type of Notification (but not limited to)	7 Days' Notice	14 Days' Notice	28 Days' Notice
Standard Hours (disruptive work) 6.30am–6.30pm Mon–Sat	Activities causing excessive noise, vibration, dust – piling, blasting, excavation – per CEMP guidelines	Door knock and letterbox drop Website Calls/meetings with directly impacted stakeholders	✓ reminder	✓	
Weekend/Evening Works Sat 1.00pm–10.00pm Sun/public holidays 8.00am–6.00pm	Regular work activities – construction	Letterbox drop Website Calls/meetings with directly impacted stakeholders		✓	
Evening Works (disruptive) Sat 1.00pm–10.00pm Sun/public holidays 8.00am–6.00pm	Activities causing excessive noise, vibration, dust – piling, excavation – per CEMP guidelines	Door knock and letterbox drop Website Calls/meetings with directly impacted stakeholders	✓ reminder	✓	
Night Works Mon–Fri 10.00pm–7.00am Sat 10.00pm–8.00am Sun/public holidays 6.00pm–7.00am	Regular work activities – construction	Door knock and letterbox drop Website Calls/meetings with directly impacted stakeholders		✓	
Night Works (disruptive work) Mon–Fri 10.00pm–7.00am Sat 10.00pm–8.00am Sun/public holidays 6.00pm–7.00am	Activities causing excessive noise, vibration, dust – piling, excavation, rail grinding – per CEMP guidelines	Door knock and letterbox drop Website Calls/meetings with directly impacted stakeholders	✓ reminder	✓	
Changes in traffic Road/lane closures	Changes to traffic that could cause delays or detours for motorists	VMS Letterbox drop Website	✓ reminder		✓
Parking restrictions	Works impacting business parking or access	Door knock to affected residents/ businesses Posters/corflutes	✓ reminder		✓
Public transport network or services	Works impacting public transport services, parking or stop relocations	Posters/corflutes Leaflets on cars if appropriate VMS if appropriate	✓ reminder		✓
Modifications to pedestrian routes or cycle path	Temporary changes or closures to cycle paths and footpaths	Posters/corflutes Letterbox drop Website			✓
Train station access changes	Impacts to station access, pedestrian detours, amenities, ticketing or platforms. Consider DDA, schools	Station posters Website Letters to impacted groups School visits		✓	

Activity	Type of Work	Type of Notification (but not limited to)	7 Days' Notice	14 Days' Notice	28 Days' Notice
Rail closures Changes to train service	Rail line closed for weekend possession (after last on Friday – before first on Monday)	Station posters Website (TransLink and QR) Advertising Coordinate with QR and TransLink		✓	
Extended rail closures	Rail line closed for longer periods	Coordinate with the CRRDA, TransLink and QR on: - Posters/corflutes - Website (TransLink and QR) - Coffee mornings - Advertising - Social media strategy	✓	✓	✓

6.3 Engagement Process

Please see below details for implementation.

Action	Description	Trigger / Need	Timing
Project Start-up	Stakeholder Engagement Coordination Group	- Key strategic partners - Neighbouring infrastructure projects (cumulative impacts) - Government agencies - Local council	Fortnightly or as required
	- On-site mobile information - Local Advertisements to inform key stakeholders where to obtain further information or make an enquiry	- Local events like markets and fairs, shopping centre displays - Station platforms prior to the commencement of works – encourage signup to project updates	Ongoing throughout construction
	Briefings	- Industry influencers and advocates - Key strategic partners - Supportive and potential opinion shapers - Government Federal, State and Local - Government department and agencies - Other infrastructure projects - Industry - Indigenous and heritage - Community groups - Utility authorities - Transport and traffic - Emergency service agencies - People with a disability - Media	As required or requested

Action	Description	Trigger / Need	Timing
Site Investigations	Works notification	- Directly-affected property owners and tenants, including adjoining owners (within 250m) - Directly-affected businesses/tenants in adjoining properties (within 250m) - Owners and occupiers of sensitive sites - Liaison groups/panels	14 days prior to work starting
	Doorknock (if intrusive or loud)	Directly-affected neighbours and businesses	7 days prior to work starting
Adjoining Owner Agreements	Briefing	Adjoining property owners	Before site establishment
Site Establishment	Works notification	- Directly-affected property owners and tenants, including adjoining owners (within 250m) - Directly-affected businesses/tenants in adjoining properties (within 250m) - Emergency service agencies	14 days prior to work starting
	Construction e-news	- Government State and Local - Senior stakeholders - Local groups - People and organisations registered for project updates	- At site establishment - Monthly
	- Site signage - Hoarding banners - Directional signage	People passing by the site	- At site establishment - As required
	Doorknock	- Properties and businesses within 50m - Educational and religious institutions	7 days prior to work starting
Out of Hours Work	Works notification	- Directly-affected property owners and tenants, including adjoining owners (within 250m) - Directly-affected businesses/tenants in adjoining properties (within 250m)	28 days prior to work starting
	Doorknock	Properties within 50m	7 days prior to work starting
Emergency Work*	Works notification	Affected properties	Within 2 hours
	Doorknock		
Work During Rail Possessions	- QR notifications - Regular advertisements in local papers where required for extended possessions	- Directly-affected property owners and tenants, including adjoining owners (within 250m) - Directly-affected businesses/tenants in adjoining properties (within 250m) - Public transport users - Key strategic partners - Industry influencers and advocates - Supportive and potential opinion shapers - People with a disability	Delivered prior to QR planned track closure on weekends when trains are not in service
Key Construction Activities and Milestones	Works notification	- Directly-affected property owners and tenants, including adjoining owners (within 250m) - Directly-affected businesses/tenants in adjoining properties (within 250m) - Road users - Public transport users - Stakeholders with English as a second language	14–28 days prior to work starting

Action	Description	Trigger / Need	Timing
	Construction e-newsletters	- Government State and Local - Health providers - People and organisations registered for project updates - Media - Stakeholders with English as a second language - Education providers – near construction site - Community groups	Monthly
	Doorknock	- Properties and businesses within 50m - Educational and religious institutions	7 days prior to work starting
	Briefings	- Indigenous and heritage - Other infrastructure projects - Liaison groups/panels - Community groups - Key strategic partners - Industry influencers and advocates - Supportive and potential opinion shapers - Owners and occupiers of sensitive sites - Transport and traffic - Emergency service agencies - Heritage stakeholders - Media	As required or requested
Traffic Changes	- Works notification - Regular advertisements in local papers for high impact or major traffic changes	- Directly-affected property owners and tenants, including adjoining owners (within 250m) - Directly-affected businesses/tenants in adjoining properties (within 250m) - Road users - Public transport users - Stakeholders with English as a second language	14–28 days prior to work starting
	- VMS and wayfinding signage for pedestrians and cyclists - Traffic alert 13 90 40/ email/SMS - Social media posts - Advertising - Bus stop notices	- Road users - Pedestrians - Cyclists - Engagement and notice of traffic, transport and construction impacts through the Cross River Rail Construction Traffic Management Liaison Group - Liaison groups/panels	7–28 days prior to work starting

6.4 Indigenous Participation

UNITY has proven performance in Indigenous employment, training and business engagement. Our strong commitment to Aboriginal and Torres Strait Islander participation is supported by senior leadership and dedicated people at the project level.

UNITY will aim to maximise opportunities for local Traditional Owner and Native Title groups and members of the wider Indigenous community to be part of the RIS Project through:

- Workforce participation via employment and training, including creating opportunities to train new workforce entrants, recruit and redeploy existing talent pools of local Indigenous people and other skilled Indigenous workers from within Queensland construction and resource sectors
- Business participation, including contracting Indigenous businesses (ie. majority Indigenous ownership and/or workforce) with prequalification capabilities and applying contract engineering methodologies to identify opportunities to offer flexible, smaller and manageable work packages for local subcontractors and suppliers
- Consultation with and engagement of Traditional Owner groups to identify and implement UNITY's integrated management approach for preserving and documenting Aboriginal cultural heritage in support of the Delivery Authority's Cultural Heritage Management Plan and in accordance with the *Aboriginal Cultural Heritage Act 2003*.

UNITY will regularly advertise available positions to encourage local and Indigenous employment. We will also source partnerships and align with local agencies (including local and Indigenous agencies) as part of the resourcing strategy.

We support initiatives that assist and encourage Indigenous Australians in the transition from education and training to the workforce. Our CareerTrackers program recruits pre-professional Indigenous university students and links them with private-sector employees to participate in a multi-year internship.

UNITY is committed to maximising Traditional Owner and Aboriginal involvement in the RIS Project and we will work seamlessly with credible local and interstate businesses to deliver exceptional participation outcomes. Aboriginal candidates and potential local suppliers will be identified via a range of service providers and local contacts, including:

- Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP)
- Jobactive providers, such as TURSA
- VTEC providers, such as Your Town and Mission Australia
- Group Training Organisations
- Aboriginal recruitment and labour-hire companies, such as Protech, the Aboriginal Employment Strategy (AES) and the Lisant Group.

6.5 Community Advisory Groups

The Delivery Authority will establish a number of location specific Community Advisory Groups (CAG) prior to the commencement of construction.

Meetings will discuss the project's progress, identified community concerns, issues and mitigation strategies, a review of environmental impacts and mitigation strategies and discussion and feedback on upcoming project milestones, events and construction activities.

Where UNITY is the Principal Contractor of an area covered by a location specific CAG, the project team will:

- Host regular meetings for the duration of construction, including the provision of suitable meeting facilities and parking for CAG meeting attendees
- Prepare agendas and presentation materials for meetings including consultation with the Community Relations Monitor and neighbouring projects to ensure agendas and presentation materials adequately address matters to be considered at the meeting
- Obtain approval from the Delivery Authority on proposed meeting attendees, agendas and presentation materials no less than ten (10) business days prior to each CAG meeting
- Distribute approved agendas and presentation materials to CAG members no less than five (5) business days prior to the meeting.

Where UNITY is not the Principal Contractor hosting a location specific CAG, however is required to attend, the project team will work with the organiser to provide information to assist them develop agendas and presentation materials.

CAG meetings will be chaired by a member of the Delivery Authority.

In the Event that works under the control of UNITY are proposed to being undertaken in area where a location specific CAG has not been engaged yet, the community engagement process identified in Section 6.3 will ensure that appropriate notification is provided to the relevant community members.

6.6 Construction Traffic Management Liaison Group

UNITY will establish and chair a Construction Traffic Management Liaison Group (CTMLG) comprising DTMR, Translink, Brisbane City Council and the Delivery Authority.

UNITY will invite the Independent Certifier, emergency services organisations, Transurban, Queensland Rail and from time to time, any and other entities or groups nominated by the Delivery Authority, DTMR or Brisbane City Council.

The CTMLG will be an industry based forum where regular updates on planned traffic management activities are presented. The forum will also provide an opportunity for consultation with key stakeholders – sharing information and seeking input and feedback.

The CTMLG will meet at least once every two weeks from its inception until the time of practical completion, or a lesser frequency as agreed by the Delivery Authority, DTMR and Brisbane City Council.

Typically the CTMLG will discuss:

- An overview of the Construction Traffic Management Plans (CTMP) and sub-plans
- Impacts to the local road network, changes to public transport services and infrastructure (bus stops, stations and interchanges)
- Changes to access including footpaths, cycleways, roads, stations and property
- Strategies to minimise impacts to the road network's existing levels of service during construction
- Details as to timing of implementation of traffic guidance schemes (TGS)
- A schedule of CTMP sub-plans and TGSs to be submitted for approval
- All relevant reports as requested by the CTMLG
- Results of monitoring of the effectiveness of the CTMP sub-plans and TGSs
- Advanced warning of planned disruptions, to the level of detail and frequency as requested by the CRM
- Coordination of upcoming works and traffic management around Special Events.

CTMLG members will be provided with copies of all traffic notifications for dissemination to their contact lists.

6.7 Rail Freight User Working Group

The purpose of the Cross River Rail, Rail Freight Working Group is to facilitate a two-way exchange of information between third-party access holders, the Rail Infrastructure Manager (Queensland Rail), Delivery Authority and its construction contractor, during the planning and construction phases of the project.

The Working Group will develop collaborative approaches to ensure the timely dissemination of information relating to Cross River Rail's construction program and third-party operator's access requirements. The Working Group will seek to ensure appropriate access arrangements, consistent with the relevant access undertaking, are maintained during the construction period.

Where required UNITY will discuss opportunities for alternative freight running with Queensland Rail or the potential for availability of freight windows during possessions to minimise impacts. Where possible, UNITY

has followed the current Scheduled Corridor Access System (SCAS) regime to minimise additional impacts on the network.

The group will also provide an open forum to discuss, manage and mitigate the impact of Cross River Rail's construction program on third-party freight operations

The group will collaboratively share information relating to:

- Cross River Rail construction program and associated possessions and closure regimes
- Existing closure and possession regimes including Scheduled Corridor Access System (SCAS)
- Opportunities to coordinate and modify access (if required)
- Mitigation measures to maintain throughput of freight
- Operations of the key section of the rail freight network between Buranda and Salisbury including both the Dual Gauge and UP Beenleigh tracks
- Critical windows for rail freight in the southern corridor (eg. POB loading)
- Key freight commodities including Coal, Grain and Intermodal freight.

The group meets bi-monthly and comprises representatives from CRRDA, QR, TMR, New Hope, Graincorp, Yancoal, Aurizon, Pacific National, ARTC, Linfox, Port of Brisbane and Watco.

7 Communication Management

7.1 Contacting Cross River Rail Delivery Authority

There are various avenues through which the community can contact and engage with the Delivery Authority, including by phone, email and post as per the details listed below:

- 1800 010 875 (24 hours, seven days a week)
- info@crossriversrail.qld.gov.au
- PO Box 15476, Brisbane City East, QLD 4002.

Stakeholders and the community can also stay informed of project updates through the project's social media channels on Facebook, Twitter and LinkedIn at the below addresses:



UNITY will respond to enquiries and complaints as outlined below:

Enquiry Source	Initial Response Time	Resolution Time
Project hotline	4 hours	3 working days
Email	24 hours	5 working days
Social media	4 hours	24 hours
Written correspondence	2 working days	5-10 working days

7.2 Consultation with Directly Affected Persons

UNITY is committed to minimising inconvenience and disruption to the community and local businesses.

Our aim during construction will always be to minimise disruption, delay and inconvenience to the affected Queensland Rail customers, public, road users, other public transport customers, and directly affected residents and businesses.

While the Construction team will be primarily responsible for managing construction impacts such as dust, noise, vibration and traffic/access changes, the Communications and Stakeholder Engagement Team (CSET) will play a vital role in notifying and consulting with directly affected stakeholders and the community on construction works in terms of their scale, duration, location and potential effects.

In the event the Project Team must meet with any directly affected person/s, the Community Relations Monitor will be notified to attend each meeting to consult on mitigation measures, including providing input on standard responses for similar impacts. The Community Relations Monitor will also provide advice to the Environmental Monitor in relations to complaints, community engagement and consultation on mitigation measures.

The key function of the CSET will be to work closely with the Alliance team – including the Delivery Authority, Queensland Rail and construction and environment teams – to best anticipate, identify, mitigate and manage construction impacts. This includes unforeseen impacts that may emerge and require a prompt response and management.

UNITY has identified a number of potential impacts during construction that will require consultation with directly affected persons. The proposed mitigation measures that will be implemented are outlined in the table below.

Item	Key Actions	Notification	Mitigation or Engagement Required
Early works	- Advise neighbouring stakeholders of early work activities, potential impacts, access tracks and new work areas - Notify the broader community of any changes to public access (eg. site investigation activities along local roads, bicycle and pedestrian paths).	Minimum notification period at least 14 days	Early works will represent the first major activity in the field. Works Notifications will go out under a UNITY and Cross River Rail cobranded banner until project completion. Works notifications will include: - Scope, location, hours and duration of work - Type of equipment used - Likely impacts including noise, dust vibration traffic and access - Mitigation measures - Project contact details to make enquiries and complaints. Taking into consideration potential timeframes for the mobilisation of early works activities, public notifications will be provided via: - An information flyer/construction notification to all affected properties, including UNITY's 24-hour contact details for registering complaints or obtaining further information about activities or their impacts - Early works notifications to be uploaded to the Cross River Rail website. Changes to public access, particularly bicycle and pedestrian pathways, will be communicated to users via signage and on-site traffic control. General enquiries and complaints will be handled by phone, email or in person.
Changes to access	- Advise neighbouring stakeholders of any change to pedestrian or vehicle access to their property - Respond promptly to enquiries and complaints about access.	If any activity is likely to restrict access to any property, the CSET will provide 28 days' notice to the owner and occupier, unless a reduced timeframe is agreed with the owner or occupier	Notification: - Request access to carry out RIS Works - Include a full description of the relevant activities, including the intended start and finish dates - Describe the impact the activities will have on the property, including access - Include UNITY's 24-hour contact details for registering complaints or obtaining further information about the activities or their effects. Affected neighbouring stakeholders will be advised of any changes to vehicle or pedestrian access to their properties and the reasons for the changes through flyers and/or individual consultation (as required). Changes to public access will be communicated to users via signage and email alerts. General enquiries and complaints will be handled by phone, email or in person. Appropriate permits and traffic management plans to be approved by the relevant authorities for changes to traffic and transport movements.

Item	Key Actions	Notification	Mitigation or Engagement Required
Traffic and public transport changes (including bus and rail operations)	- Provide timely, accurate and comprehensive traffic and public transport information to all potential and existing users and passenger to optimise their travel options and reduce impacts - Promote and accommodate community feedback in relation to traffic and public transport management issues.	Minimum notification period at least 14 – 28 days	- Letterbox drop of works notifications to impacted neighbouring stakeholders including project contact details to make enquiries and complaints. - Messages on permanent and/or mobile VMSS - Traffic and transport updates to email and SMS subscribers and update of Cross River Rail project website - Information about planned activities tabled at Construction Traffic Management Liaison Group meetings and Rail Freight User Working Group - Meetings with impacted stakeholders if required - Posters on pedestrian/cycle paths where appropriate. In consultation with the Delivery Authority, Brisbane City Council, TransLink and Queensland Rail provide advanced notification of impacts and changes to the bus and rail network via: - The TransLink Journey Planner and transport operator websites - Project updates and alerts via TransLink and Queensland Rail social media platforms - Advertising in social media, radio and newspapers where required for major rail possessions or changes to public transport operations. - Targets briefings to public transport user groups interest groups - At station/stop communication materials to advise changes to public transport services in advance of works - Use of media to communicate changes to public transport services to the people of SEQ - Project information via the Cross River Rail website and email database Communication and Stakeholder Engagement Team on-call for enquiries and complaints via free-call community hotline or project email (office hours). Regular consultation with public transport operators such as Transport for Brisbane, Queensland Rail and TransLink on the development of Special Event Management Plans to minimise the risk of disruption from construction activities Regular consultation with key site such as the RNA showgrounds to ensure access for workers and special event and visitors is always maintained. Approvals and permits to be approved by the relevant authorities.

Item	Key Actions	Notification	Mitigation or Engagement Required
Changes to parking	- Advise community and neighbouring stakeholders of changes to parking and notify affected car park users of alternative car parking - Liaise with BCC and local councillors regarding parking arrangements - Respond promptly to enquiries and complaints about changes to parking.	Notify affected car park users of alternative car parking at least 28 days prior to decommissioning any car park	The community and neighbouring stakeholders will be advised of changes to parking and the reasons for those changes through flyers, advertisements and/or individual briefings (as required) including project contact details to make enquiries and complaints. General enquiries and complaints will be handled by phone, email or in person.
Noise impacts	- Advise neighbouring stakeholders of potentially disruptive works. - Respond promptly to enquiries and complaints about noise.	Minimum notification period at least 14 days General enquiries and complaints regarding noise will be handled by phone, email or in person	- Notifications will detail contact details for further information and complaints (1800 number). The severity of noise impacts depends on a stakeholder's sensitivity/threshold levels and physical proximity to the source of noise. If necessary, the Environment Team will set up a noise monitor to measure noise levels, determine if they are within operational goals and inform the stakeholder if they are within goals. Other potential solutions to mitigate noise will be investigated and implemented if feasible. If the levels are not within goals, appropriate action will be taken as per the C-EMP. Which include: - Where predictive modelling is conducted prior to commencement of works in a locality where it is indicated that the noise goals are likely to be exceeded: - Potentially affected entities must be identified and consulted regarding the potential impacts and the mitigation measures proposed to address the impacts - When mitigation measures are developed in consultation with potentially affected entities on a 'case-by-case' basis prior to commencement of the works, agreed mitigation measures are included in a mitigation register and implemented prior to undertaking construction works.

Item	Key Actions	Notification	Mitigation or Engagement Required
Night works	Advise neighbouring residents and affected businesses of night works that may be disruptive.	Minimum notification period at least 14 days	Directly affected residents, accommodation providers and/or businesses that operate at night (as identified by the Environment Team's noise and vibration predictive maps) will be advised of night works, and the reasons for the works, as well as UNITY's mitigation measures. Works notification including project contact details to make enquiries and complaints. The Communication and Stakeholder Engagement Team (CSET) will work with the construction team to instruct the workforce about: - Gates on tip trucks and trailers, with all truck drivers told to avoid banging the gates on their trailers when unloading fill at night and emptying the last of the loads manually to minimise noise - Noise and vibration associated with cutting, or hammering, with the team completing this work in the early part of night works (before 10.00pm) where possible and feasible. Where it is essential to undertake these works through the night, using muffles (for jack hammers) or temporary noise barriers - Fence screens (with double-panels, where necessary) erected around the work to prevent the projection of noise toward residential areas - Shouting and loud conversations within earshot of houses, with radios issued to all crew members to prevent shouting, and conversations in crib huts near residential areas to be kept quiet in consideration of sleeping residents.
Vibration impacts	- Advise neighbouring stakeholders of expected vibration levels - Respond promptly to enquiries and complaints about vibration.	Minimum notification period at least 14 days	Advise neighbouring stakeholders about the expected levels of vibration and the reasons for those levels through flyers and/or individual briefings (if necessary) including project contact details to make enquiries and complaints. Prior to any blasting events directly affected persons and stakeholder will be given at least 48 hours notice of potential impacts and mitigations. General enquiries and complaints regarding vibration will be handled by phone, email or in person. If necessary, the Environment team member will set up a measuring device to monitor vibration for that area and, if vibration is within operational goals, the stakeholder will be notified. If levels are not within goals, action will be taken as per the C-EMP. Which include: - Where predictive modelling is conducted prior to commencement of works in a locality where it is indicated that the vibration goals are likely to be exceeded: - Potentially affected entities must be identified and consulted regarding the potential impacts and the mitigation measures proposed to address the impacts - When mitigation measures are developed in consultation with potentially affected entities on a 'case-by-case' basis prior to commencement of the works, agreed mitigation measures are included in a mitigation register and implemented prior to undertaking construction works. - Based on the outcomes of the review, nominate the type and extent of the mitigation controls to be implemented on site in accordance with the following the order of precedence where reasonable and practicable:

Item	Key Actions	Notification	Mitigation or Engagement Required
			– Avoid – Substitute – Engineer Undertake the necessary building condition surveys prior to works commencing.
Air quality impacts	• Advise neighbouring stakeholders of air quality impacts • Respond promptly to enquiries and complaints about dust.	Minimum notification period at least 14 days	Neighbouring stakeholders will be advised of potential dust impacts via community notification flyers and/or individual briefings (if necessary). General enquiries and complaints regarding dust will be handled by phone, email or in person. Air quality monitoring and reporting will be undertaken throughout construction, as per the C-EMP. Stakeholder engagement team will work with the construction team to mitigate any air quality issues raised by stakeholders. If works exceed air quality goals stipulated by the Coordinator-General, the Delivery Authority will consult with directly affected residents and businesses, and notify surrounding residents and businesses.
Natural environment impacts	• Advise the community of potential impacts to the natural environment and mitigations • Respond promptly to enquiries and complaints about impacts on the natural environment.	Notice to be given at least 14 days in advance	The CRR website, fact sheets and newsletters will contain information about environmental mitigation measures and standards to alleviate concerns about the project's environmental impacts. The Environment Team will investigate complaints regarding the environment. UNITY will actively discuss environmental outcomes and procedures with environmental stakeholder groups to promote an open, transparent process.
Property impacts	• Pre-construction: property condition surveys • Eligible properties will be identified using noise and vibration predictive maps • Assist with briefing owners/occupiers of affected properties.	Notice to be given at least two to four weeks in advance	Surveys/reports will be completed by an independent assessor and photos taken of existing damage. The CSET will assist with briefing owners/occupiers of properties requiring a survey/report via letter or in person (if required) and will answer any enquiries about the process.

Item	Key Actions	Notification	Mitigation or Engagement Required
	- During construction: surveys/reports will be lodged with UNITY for reference - Investigate any claims of damage to property.		UNITY will visit affected stakeholder to investigate the damage claim to determine if the damage was caused by construction. If so, arrangements will be made to undertake non-urgent repairs post-construction, or urgent repairs as soon as possible.
	- Post construction: surveys/ reports will be handed over to the operations team for reference - Follow up on repair works and close claims.		Properties that claimed damage and were assessed to have damage caused by construction will be revisited post-construction and any damage not repaired during construction will be repaired. UNITY will liaise between the stakeholder and construction team to ensure repairs are completed and signed off.
Community claims	- Community claims are claims other than those that can be addressed by the property damage claims process above. - The project team will take due care in carrying out the works. However, from time to time community claims may arise, such as: - Damage to vehicles parked near the worksite - A vehicular accident between a community member and project team member - UNITY will respond promptly to complaints regarding claims.	Any claim will be handled by phone, email or in person.	Damages claims will be handled by phone, email and in person. UNITY will visit the affected stakeholder to investigate the damage claim to determine if the damage was caused by the project. If so, arrangements will be made to undertake repairs as soon as possible.

Item	Key Actions	Notification	Mitigation or Engagement Required
Pedestrian and cyclist safety	- Notify the community of any changes to public access (eg. footpath or bicycle path changes) - Respond promptly to enquiries and complaints about access.	Minimum notification period at least 14 – 28 days	Cyclist access will be clearly defined through the construction site. The Delivery Authority will proactively engage with bicycle user groups. Defined pedestrian pathways will be used during construction. UNITY will proactively engage with nearby schools and has offered to provide briefings and information about safety around construction sites. Approvals and permits to be approved by the relevant authorities

7.3 Making a Complaint

The Cross River Rail website provides information on how to make and enquiry or complaint including a web-based enquiries form, 1800 010 875 enquiry number and info@crossriversrail.com.au email address. UNITY will use regular construction notifications to advise stakeholders of the email address and 1800 010 875 enquiry number, which will operate 24 hours a day, seven days a week during construction. There will be a direct link from the Delivery Authority's website to the Coordinator-General's website and the complaints procedure contained within this Plan.

All complaints will be registered in the community contact database (Consultation Manager) within 24 hours. The community contact database will include:

- The time and date each complaint is received, addressed and closed out
- Details of the complainant and the recorder of the complaint
- The specific activity of incident causing the complaint including the place, time and date
- The person or entity responsible for addressing the complaint
- The action taken to address the complaint, if necessary
- Feedback given to the complainant
- Immediate communication of the complaint to the nominated representative of the Contractor
- Subsequent remedial action required to avoid cause for future complaints if relevant.

Information collected will be used to track issues causing concern to the community and shared with construction teams to ensure the appropriate mitigation measures are incorporated in ongoing works planning and delivery.

Information on any complaints received, including response times and details of all actions undertaken, proposed or investigations occurring, will be forwarded to the Project Owner's Representative, Community Relations Monitor (CRM) and Environmental Monitor (EM) on a daily basis. The report will reflect information contained within the community contact database as outlined above.

UNITY's complaint management system (further outlined in Attachment 2) aims to ensure complaints are responded to and resolved in a timely manner. If a complaint requires further investigation and monitoring, UNITY will provide an interim response to the complainant until the investigation is completed. There is also an avenue for complaints to be escalated as required.

If a complaint is the result of an incident (environmental, safety or other) the Communications and Stakeholder Engagement Team (CSET) will notify the appropriate disciplinary lead to ensure the incident is captured within the projects incident management system Synergy. In the event of an incident UNITY's Alliance Manager and Cross River Rail's Project Owner's Representative will be notified immediately. Where an incident is identified as an emergency requiring the implementation of emergency response, UNITY will enact the emergency response protocols detailed in the Emergency Response Plan.

Regular reporting of complaints will be undertaken via the monthly environmental report.

Complaints during operation will be incorporated into the operator's customer feedback procedure.

7.4 Escalation Process

If the Communications and Stakeholder Engagement Team (CSET) is unable to resolve a situation, issue or complaint, it will be escalated to a senior member of the Alliance, the CRM, EM and/or to the Cross River Rail Communications and Stakeholder Interface Manager as outlined in the table below.

Table 2: Complaints escalation process

Issue	Escalation Process
Environmental Matters	1. If not resolved in the first instance by the CSET and site-based environmental officer 2. Refer to Environmental Manager 3. If not resolved, refer to the Environmental Monitor (EM) 4. If not resolved, refer to CRRDA for final decision
Health and Safety	1. Refer to WHS Manager 2. If not resolved, refer to Delivery Manager 3. If not resolved, refer to the Community Relations Monitor (CRM) 4. If not resolved, refer to CRRDA for final decision
Consultation/Communication	1. Refer to Communications and Stakeholder Engagement Manager 2. If not resolved, refer to Alliance Manager 3. If not resolved refer to the CRM or EM 4. If not resolved, refer to CRRDA for final decision
Construction Issues	1. If not resolved in the first instance by the CSET and site-based Construction Manager 2. Refer to Alliance Manager 3. If not resolved, refer to the CRM 4. If not resolved, refer to CRRDA for final decision
Other	1. If not resolved in the first instance by the Communications and Stakeholder Engagement Manager 2. Refer to Alliance Manager 3. If not resolved, refer to the CRM 4. If not resolved, refer to CRRDA for final decision

Attachment 1 Consultation Tools and Activities

No.	Tool/Activity	Description	Output	Level of Engagement
1	Free-call 1800 community information line	The Delivery Authority has established a toll-free information line – 1800 010 875 – which operates 24 hours, 7 days a week. The number is promoted on all project website, public information and notification materials and on the Cross River Rail community contact card. - During business hours (Monday to Friday 9.00am–5.00pm and Saturday 9.00am–1.00pm) calls are directed to UNITY's CSET. After-hours and during weekends and public holidays this number is transferred to the on-call CSET member - Toll-free number is promoted to all project team members via project inductions, Toolbox Talks and pre-start meetings and the provision of community contact cards at work sites, in work vehicles and at the Community Information Centre (CIC).	- Phone number is promoted widely - Public have 24/7 access to project - Internal awareness as the main point of contact - Agreed enquiry and complaints protocol and response timeframes - Stakeholder contact – recorded in Consultation Manager database - Regular reporting.	Inform
2	Project postal address	The PO Box 15476, Brisbane City East, QLD 4002 postal address will enable stakeholders to make written enquiries, complaints and provide feedback via post to the project. The address will be included on the website, communication materials, stakeholder letters and notifications	- Widely promoted to project stakeholders - Included on project communication materials.	Inform
3	Project enquiries email mailbox	The established enquiry and complaints email mailbox – info@crossriverrail.qld.gov.au – will be used as a central point of email contact with the project team - The mailbox is managed by the Delivery Authority - The mailbox is checked daily, enquirer details and nature of enquiry recorded and assigned to relevant participant - CSET to respond within agreed timeframes - An automatic acknowledgment is sent to all emails received - Enquiries/complaints/feedback monitored to identify and track trends, information needs or emerging issues - Consultation Manager database to be maintained for monitoring and reporting purposes including average response time and actions taken to resolve the enquiry or complaint.	- Central electronic point of contact - Agreed management protocols and response timeframes including recording of enquiries, complaints and feedback in the Consultation Manager database - Useful evaluation tool to track and monitor issues - Consistent with AS/NZS 10002:2014 Guidelines for complaints management in organisations - Regular reporting.	Inform

No.	Tool/Activity	Description	Output	Level of Engagement
4	Project community contact card	The project community contact card will include the 1800 010 875 community information line, email, website, the project information centre address and the postal address • Cards are provided to all team members at inductions and are available at site offices, crib huts, on notice boards, in project vehicles, and the Project Information Centre (PIC). Cards will also be given to stakeholders at community forums, meetings, and other community activities and events as well as at any CRR organised events or information centre kiosks.	• Widespread distribution internally – build awareness about where to direct community enquiries • Widespread distribution externally – promote all contact channels for 24/7 contact.	Inform
5	Translation & interpreting service	Translation and interpreting services are available to assist non-English speaking stakeholders or those who have difficulty understanding English • The service will assist the project to provide important information to stakeholders in the common community languages. Services details are included on all community information and project website.	• Inclusive approach to the provision of project information • Non-English speaking stakeholders are kept informed and assist with enquiries, complaints and feedback • Promoted on all project communications.	Inform Consult
6	Site signage	All constructions sites and compounds will be clearly signposted. Community and project contact details will be included • Some hoarding may be used by the Delivery Authority for project specific branding.	• Site clearly identified as construction sites • Promote project contact details.	Inform
7	Consultation Manager database	The Delivery Authority-hosted community contact database (Consultation Manager) • A database to record all stakeholders interactions, contact details, correspondence, type of event (enquiry, complaint, feedback and representation), and a summary of issues raised and project responses/actions to resolve the matter • Used for reporting as well as for the identification of trends in complaints or enquiries and planning of communication and consultation activities • Data entry undertaken in accordance with approved groups, events and issues as established by the Delivery Authority.	• User-friendly, accurate, up-to-date stakeholder database • Used to identify emerging issues • Contact reports and summaries including close-out times • Weekly and monthly reports – consultation and statistical reports • Consistent with AS/NZS 10002:2014 Guidelines for complaints management in organisations.	Inform

No.	Tool/Activity	Description	Output	Level of Engagement
8	Project Information Centre (PIC)	A Project Information Centre will be situated at an appropriate location and staffed by the Delivery Authority and CSET members (when required) and open Monday to Friday from 9.00am–5.00pm, Saturdays 9.00am–1.00pm. The PIC will remain closed on Sundays and public holidays. Facilities and project information will include: • A community hub for meetings (the centre will include refreshments, toilet facilities, a projection screen, television and computer for displaying project videos, time-lapse and presentations and access to a computer and printer) • Visitor sign in and community contact database register (community can sign-up for regular project updates) • Project information which is regularly updated and will include: project overview, scope of works and an alignment map; easy to interpret design and construction information; artist impressions, diagrams, plans, and photography; simulations of construction methodology, proposed urban and landscape design (concepts, cross sections treatments and perspective views and details); and environmental matters such as protected environmental and cultural heritage features • Community information – project communication materials, project updates, notifications, newsletters, fact sheets, feedback forms (hard copies) and recent and upcoming community involvement activities.	• Project has an accessible promotional focal point • Stakeholders kept informed with updated information • Provide opportunity for face to face contact with the Delivery Authority, CSET and receive feedback • Venue for consultation activities and community forums • Staging area for site visitors, and as appropriate, media events • Updated project information always available • Visitor numbers and enquiries recorded in register and included in regular reports.	Inform Consult Involve
9	Public displays and community events (in collaboration with the Delivery Authority when required)	• Displays (mobile) will be designed to update and inform local communities of the status of construction works and describe significant events or changes in relation to works such as key project milestones or significant design changes • Displays will be staffed by the CSET and other project representatives and provide the public with opportunities to be updated, seek information and provide feedback. All contact with and feedback from the public will be recorded in the Consultation Manager database • Displays will include general project information including project contact details and the latest issued communication materials such as notifications, project updates, newsletters and fact sheets and community contact cards	• Visitor numbers and enquiries recorded in the Consultation Manager database and reported weekly/monthly • Opportunity to seek regular stakeholder feedback on works and design changes • Provide up-to-date information about the project • Promote project contact for enquiries, complaints and feedback • Provide a forum to provide an opportunity to directly consult with local communities on project matters including design and construction.	Inform Consult Involve

No.	Tool/Activity	Description	Output	Level of Engagement
10	Community information (general)	A range of project information will be developed to keep the community informed about work activities associated with the delivery of the project - This information will include: - Progress of construction works, urban design and landscaping - Date, work hours and duration of works - Construction impacts including any noisy works - Any changes to traffic, pedestrian or cycle pathways, property access or parking - Maps, images or diagrams that help to explain the construction work activities - All community information to contain the project's 1800 010 875 number, website and email addresses providing community members with easy access for enquiries and complaints or to provide feedback - A wide range of communication tools and channels include, but are not limited to: notifications; leaflets and works notifications; questions and answers; project fact sheets; print and radio advertisements; community update newsletters; traffic alerts, website; email alerts and traffic communication; variable message sign boards (temporary and permanent) and traffic alerts via 13 19 40, qld.gov.au and social media channels.	- Community and stakeholders kept informed about works and any impacts with early notification about work activities - Promote project contacts for enquiries, complaints and feedback - Tailored notifications to meet specific stakeholder information needs - Build awareness of project and its benefits - Multiple communication channels employed including project email contact list and key stakeholder groups to disseminate information - PIC a source of updated information about construction works - Agreed distribution area for major works - Record in the Consultation Manager database for regular reporting.	Inform

No.	Tool/Activity	Description	Output	Level of Engagement
11	Community works notifications and leaflets	Works notifications will include: • Scope, location, hours and duration of work • Type of equipment used • Likely impacts including noise, dust vibration traffic and access • Mitigation measures • Project contact details to make enquiries and complaints. Keeping the community, key stakeholders and stakeholder groups regularly informed of construction works, traffic changes and potential impacts is a key priority. • Where appropriate, email notifications will be sent to directly affected persons and local residents instead of letterbox notifications to provide more timely and specific information • Works causing impacts such as road closures – notifications issued 28 days prior to works starting • For low impact and localised works – notification will be issued to directly affected stakeholders within the impact zone via letterbox drop 14 days prior to works commencing • Distribution channels will include letterbox drops, project website and emailed to an opt-in-out mailing list • Notifications, updates and leaflets will also be distributed to local councils, regulatory authorities and uploaded to the website and available at site offices, the PIC and any community events or displays.	• Affected stakeholders and the community are informed with advance information about works and potential impacts • Councils and key stakeholders receive notifications prior to letterbox drop • Promote project contacts for enquiries, complaints and feedback • Tailored notifications to meet stakeholder information needs • Extend the reach of communication using project email contact lists and stakeholders groups to disseminate information • Upload to project website – a valuable source of updated information about all project works • PIC a source of updated information about construction works • Record in Consultation Manager database for regular reporting.	Inform

No.	Tool/Activity	Description	Output	Level of Engagement
12	E-news	Regular e-news bulletins will be produced by the Delivery Authority from commencement of the project through to the completion of the construction work to highlight key milestones • Updates to include project contact details and website address, and content may include: – Construction progress and upcoming construction stages – Environmental management initiatives – Urban and landscape design – Traffic management (and changes or major planned traffic switches) – Project facts and figures and other related project information such as community involvement activities and achievements, events and community forums • Copies will be uploaded to the project website, available from the PIC and at short-duration off-site public displays and community events.	• Build awareness and promote contact details • Promote an understanding of the complexity of building large infrastructure projects – community education • Community and affected stakeholders are kept informed and build awareness across all stakeholder groups • Record in Consultation Manager database for regular reporting.	Inform
13	Frequently asked questions (FAQs)	FAQs will be developed as required to provide consistent and accurate responses to frequently asked questions or topic areas such as environmental management, and construction methodology • Prepared and uploaded to the project website, as appropriate • Regularly updated to reflect project phase and stakeholder information (enquiry or complaint topics).	• Tailored communication material to address specific topics or areas of concern • Provide consistent responses to enquiries and complaints • Complement other communication materials • Electronic copy available from the Cross River Rail project website • Method to monitor local community/stakeholder information needs.	Inform
14	Project fact sheets	Fact sheets will be developed to explain specific aspects of construction activities and mitigation measures • A useful educational tool to inform local communities and stakeholders (eg. schools programs) about the complexities of large infrastructure projects • Potential topics include: – Urban and landscape design – Rail construction – Railway station upgrade staging.	• Topic specific communication material • Complement issue of other communication materials.	Inform

No.	Tool/Activity	Description	Output	Level of Engagement
15	Project website electronic and online information	The Delivery Authority has an established website, which is widely promoted on all communication materials - Content will be regularly reviewed and updated in consultation with Delivery Authority - All community information (notifications, leaflets, newsletters and construction updates (changes or major rail possessions), advertisements and other publications) as well as project imagery of construction progress, key milestones, FAQs, project overview, contractor's information and community involvement activities and will be provided to the Delivery Authority for uploading to the website - The website is also an avenue to register for email updates and to provide feedback, comments or make an enquiry or complaint. All project contact details are also available - Other key project information and documentation available from the website includes the EIS, planning and environmental assessment, approval documents, contractor project management plans, fact sheets and information on urban design, and official reports including documents on environmental investigations.	- Key focal point and source of updated project information and key project documentation - Interactive element for detailed information about the alignment and construction locations - Promote two-way communication for community enquiries, complaints and feedback - Source of timely information on construction updates to keep the community informed - Widespread promotion of project contact details – 1800 number, email enquiries and postal address details - Opt-in/out email mailing list for regular project updates.	Inform Consult
16	Social media	Managed by the Delivery Authority, social media is an effective and complimentary communication channel to keep local communities informed about the project and construction activities and progress. - UNITY will work with the Delivery Authority to supply content and timely responses to enquiries, feedback and complaints received through social media channels including Facebook and Twitter - Monitoring of social media activity will also be undertaken.	- Promote two-way communication for community enquiries, complaints and feedback - Clear guidelines for interactive dialogue with local communities and stakeholders - Widespread promotion of project contact details – 1800 number, email enquiries, postal address details and website.	Inform Involve

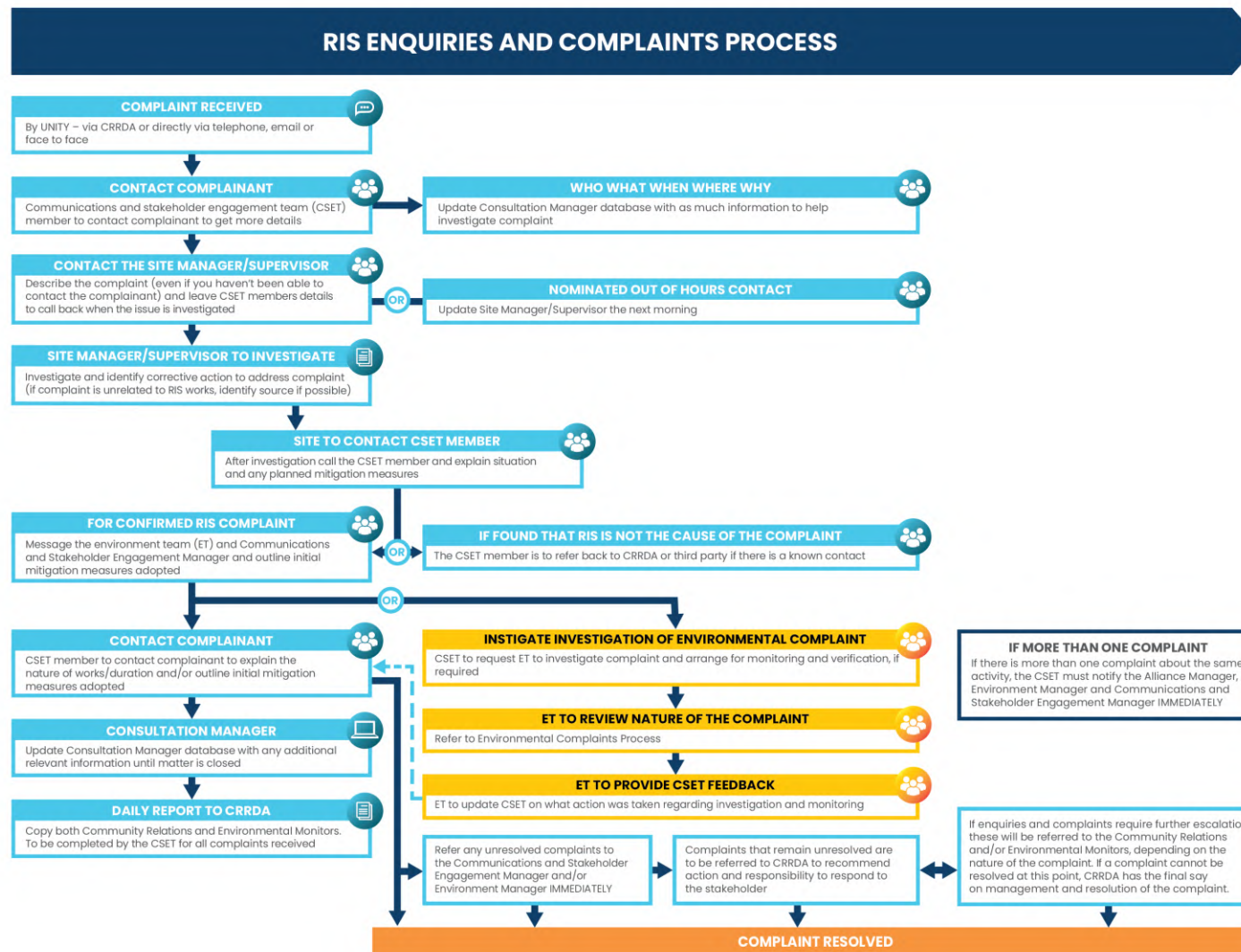
No.	Tool/Activity	Description	Output	Level of Engagement
17	Traffic and transport notifications	Preparation of notification of planned changes to traffic conditions will require close liaison with the construction and traffic teams, and consultation with a range of key stakeholders and affected local communities/social facilities - Notification provided in a variety of forms including specific radio, print and electronic media and other outlets identified as a distribution channel (and range of distribution for each type of media) at least 28 days prior to change occurring - Information provided as part of the regular consultation through the Construction Traffic Management Liaison Group (CTMLG).	- Advance notice to stakeholders of traffic changes - Available – electronic and hard copy (website/social media) - Clear and informative signage - Tailored approach – transport and freight operators minimising impacts to business operations - Key stakeholder groups disseminate information - Record in Consultation Manager database and monthly reporting.	Inform
18	Consultative groups and interface meetings	Targeted consultation undertaken early and continuously during preparation of management plans and strategies including detailed design and construction delivery - All records of interactions, matters discussed and agreed will be maintained in the community contact database and included in monthly and quarterly reporting - Implemented for relevant councils, government agencies and key stakeholders and special interest groups - Topics to be include but are not limited to: air quality; traffic management; biodiversity; flood mitigation; water quality; stormwater drainage; heritage and conversation; transport, parking and access; pedestrian and cycleway; dilapidation reporting (council roads and infrastructure); urban and landscape design; tree removal and planting; overshadowing; social impact management; residual land management; property and land use; site establishment; settlement, noise and vibration; spoil management; traffic and transport management; and flora and fauna management; mitigation measures around construction impacts to directly affected persons or businesses.	- Proactive early and ongoing consultation with sensitive and key stakeholders - Open two-way communication forum to inform, consult and seek input and feedback - Identify early and effectively manage stakeholder issues/concerns - Agreed outcomes on detailed design and construction and environment impact management - Record of all consultation outcomes maintained and included in regular reporting including compliance tracking.	Inform Consult Involve Collaborate

No.	Tool/Activity	Description	Output	Level of Engagement
19	One-on-one stakeholder engagement meetings and workshops	One-on-one meetings, briefings and presentations will be used to inform, consult, facilitate feedback and identify and manage potential impacts and issues including: pedestrian and cycleway connectivity and access; temporary site hoarding and fencing; noise and vibration; property condition surveys; construction hours - Meetings will be held with local residents near the project to update them on activities in their area and answer questions - This will be particularly important for key stakeholders, businesses and property owners adjoining construction sites - One-on-one engagement will also be undertaken to address specific issues or complaints.	- Established sensitive stakeholder management strategy based on active and ongoing consultation and engagement - Implement community issues and business issues management strategies to identify issues and mitigation measures early - Effective management of stakeholder specific issues/concerns - Record of issues, actions and meetings are held in the community contact database and reported monthly and quarterly.	Inform Consult Involve Collaborate
20	Doorknocking	Complementing the issuing of works notifications, doorknocking is undertaken to advise local residents and businesses of project impacts and proposed mitigation measures - Calling cards ("Sorry we missed you") helps to promote project contact details and sources of electronic information and location of the CIC - A targeted approach for high impact and emergency works if and when required.	- Complement program of other communication activities - Builds awareness and put a human face to construction - Provides an opportunity to seek feedback and gain a better understanding of stakeholder concerns - Record in community contact database and monthly reporting.	Inform Consult

No.	Tool/Activity	Description	Output	Level of Engagement
21	Project presentations or briefings	Project presentations to local community, service, business and industry groups are a useful engagement tool to broaden community awareness of the project and deliver key messages - Requests for project presentations will be discussed and approved in consultation with the Delivery Authority - CSET will generally be involved in delivering presentations and maintaining a record including the presentation date, time, group, number of attendees and any enquiries/questions or feedback.	- Presentation request protocol established - Create broad community awareness and understanding of the project - Targeted information and engagement - Requests assessed on an individual basis - Record of all project presentations maintained in the community contact database.	Inform Consult Active participation
22	Community events	The CSET will actively support and work collaboratively with Delivery Authority to plan media and community events focused around key milestones and as required. These events provide opportunities for engagement with the community and key stakeholders, build awareness and seek and receive feedback	- Project key milestones are promoted - Generate interest and awareness of the project and its benefits - Provides an opportunity for elected representatives to be actively involved and promote project milestones and benefits - Events recorded in community contact database and reported monthly and quarterly.	Inform Consult Active participation
23	Surveys – stakeholder community, agencies	Surveys are a key evaluation tool to capture feedback and monitor communication and engagement performance and effectiveness and implement improvements to communication channels and consultation methods Online and hard copy feedback and survey forms will be used including the provision of postage paid envelopes to encourage regular stakeholder feedback.	- Evaluation of communication and consultation effectiveness - Improvements to communication and consultation processes delivers better outcomes - Provides stakeholders an opportunity to have their say and be heard.	Inform Involve

No.	Tool/Activity	Description	Output	Level of Engagement
24	Site visits (including media events)	Noting that interest in the project and requests for site visits from a range of organisation and groups is expected to be high, CSET will coordinate all site visits with the assistance of construction and environment teams and keep a site visit register Site visit requests will be assessed on an individual basis and approved by the Delivery Authority	- Protocol established - Provide hands-on experience, information, education and consultation opportunities - Site visit register maintained and reported monthly - Promote project to a wide audience including media, elected representatives and construction industry professionals.	Inform involve
25	Internal communications and staff training	All project communication materials and communication protocols and processes will be available to project personnel. This will include: - Specific project information – communication protocols and processes will be included in compulsory project inductions (eg. community enquiry and complaints management; incident management and reporting procedures; media and government enquiries; and social media awareness training) - Community contact cards will also be distributed to all project staff, placed on staff notice boards and inside project motor vehicles. Copies will also be given to subcontractors, consultants and suppliers - Toolbox talks and pre-start meetings will also be used to brief project personnel on community related matters and help build a culture of community consciousness. Recognition awards, staff briefings and presentations will also promote community relations obligations	- CSET actively contributes to site inductions, toolbox talks and pre-start meetings - Project community contact cards are widely available - Project staff are well informed and refer all stakeholder contact/enquiries to the CSET - Culture of respect for the communities in which we operate (strong community consciousness) - All project personnel understand how construction works impacts on the community/businesses	Inform

Attachment 2 Enquiries and Complaints Management Process



Construction Traffic Management Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-DEL-MPL-00261
Revision date:	17 June 2020
Revision number:	02

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	24/07/19	Construction Manager	Delivery Manager		
Signature:					
B	12/11/19	Snr Project Engineer	Delivery Manager		
Signature:					
00	03/02/20	Snr Project Engineer			Approved Version BCC = 03/12/2019 TMR = 03/02/2020
Signature:					
01	14/02/20	Snr Project Engineer	Delivery Manager		Plan updated to address PIC comments
Signature:					
02	17/06/20	Snr Project Engineer	Delivery Manager	Delivery Manager	6month review with minor updates
Signature:					

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Plan Control

This Construction Traffic Management Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems (RIS) Project.

Approvals, Revisions and Amendments

The latest approved version of the plan will be available in UNITY's Electronic Document Management System (EDMS). The Alliance Manager will maintain, review and update the plan at least every six months in the first year and then annually thereafter. Revised plans will also be submitted to the Delivery Authority and Independent Certifier.

Each revision to the plan will be distributed to all required personnel for review and approval. The document will be allocated a new revision type if the changes made affect the overall meaning of the document. Any minor change will be made without a change to the revision number.

When a new revision to the document is available, a notification email will be distributed to all project personnel by the Document Controller advising of the update.

The Alliance Manager is responsible for the ongoing implementation and review of the plan, and for approving any revisions.

Revision Details

Revision	Remarks
A	Initial Review
B	Revised to incorporate comments
00	Approved Version; BCC = 03/12/2019; TMR = 03/02/2020
01	Plan updated to address PIC comments
02	6month review with minor updates to - Figure 5: Clarification added that figure shown is concept only and that actual alignment may vary based on approved CTMP sub-plan for the area - Section 4.3: Clarification added to off-street parking of construction workforce vehicles The updates are considered minor in nature and do not alter the overall Management Plan. Updated Letter Of No Objection from the Road authorities is therefore not deemed required.

1 Purpose of this Plan

This Construction Traffic Management Plan (CTMP) identifies how UNITY will comply with the traffic management and traffic safety requirements during delivery of the RIS Works. The plan is to be approved by relevant Authorities prior to commencement of major construction.

This CTMP describes UNITY's approach to traffic management, access for the project and how UNITY will:

- Safely and efficiently manage all road users including construction traffic on the road network directly affected by the RIS Works
- Implement the required traffic management systems and procedures to effectively and safely construct the RIS Works
- Integrate each construction sequence and construction of the RIS Works while maintaining the existing operation of the road network.

1.1 Regulatory Requirements

Legislation, standards and guidelines that apply to traffic management for this project include:

- Manual of Uniform Traffic Control Devices Part 3 (MUTCD Part 3)
- DTMR Technical Specification MRTS02 – Provision for Traffic
- AS/NZS ISO 31000 Risk management – Principles and guidelines
- Traffic and Road Use Manual (TRUM) – Volume 7 Roadworks
- Traffic Controller Accreditation Scheme – Approved Procedure (TCASAP)
- Work Health and Safety Act 2011 (Qld)
- Work Health and Safety Regulation 2011 (Qld)
- Heavy Vehicle National Law Act 2012
- Co-ordinator General Condition 14 – Traffic and Transport
- Outline – Environmental Management Plan (OEMP).

Furthermore, the CTMP must address the following project specific documents:

- PSTR Annexure C – Section 9 Traffic Management During Construction
 - The CTMP will be submitted to the Delivery Authority for review and approval prior to commencing construction (Annexure C, Section 9.1.6)
 - CTMP sub-plans will be submitted for approval for relevant access points (Annexure C, Section 9.2)
 - Haulage Management Plans for major haul routes will be submitted to DA, City Council and DTMR for approval as part of the CTMP sub-plans (Annexure C, Section 9.1.6)
 - CTMP sub-plans for each Construction Work Area will be established where relevant and will detail management strategies of road traffic, pedestrians, cyclists and public transport as applicable. (Annexure C, Section 9.2.2)
 - Traffic assessments including cumulative impacts of Other Works will be undertaken as required (Annexure C, Section 9.5.1)
 - Risk assessments to the existing transport network and its mitigations will be addressed (Annexure C, Section 9.2.1)
 - CTMP sub-plans must comply with:

- MUTCD Part 3 “Works on Roads”
- MRTS02 “Provision for Traffic”
- TRUM Vol.7 “Road Works”
- CTMP sub-plans will define:
 - Provision for Emergency Services
 - Construction workforce traffic and parking
 - Communication with the community engagement team.

1.2 Scope of Works

The RIS Project scope is effectively entirely within the rail corridor and works are only peripherally driven by traffic management.

1.2.1 Northern Area and Mayne Area

The key scope elements that require traffic management are:

- Access to rail corridor via Victoria Park, Spring Hill, including temporary signalised intersection at Gregory Terrace.

Minor road traffic and pedestrian interfaces in this area include:

- Access to rail corridor via Grafton St, Albion
- Access to RNA site via local roads (O’Connell Tce, Gregory Tce, Bowen Bridge Rd)
- Access to rail corridor via Lanham St, Bowen Hills
- Access to rail corridor via Abbotsford Rd, Bowen Hills
- Access to site compound at Gilchrist Ave, Herston
- Access to rail corridor via the Inner-City Bypass (ICB), Herston
- Access to the rail corridor via Bowen Bridge Road, Spring Hill
- Access to rail corridor via Parkland Crs, Brisbane City.

1.2.2 Fairfield to Salisbury (F2S) Area

No major long-term key scope elements have been identified that impact public traffic over extended periods. Some identified road traffic and pedestrian interfaces will include:

- Clapham Yard access off Fairfield Rd
- Access to rail corridor at Fairfield Station via Mildmay St and Equity St
- Access to rail corridor at Yeronga Station via Fairfield Rd
- Access to rail corridor at Yeerongpilly Station via Wilkie St and Fairfield Rd
- Access to rail corridor at Moorooka Station/Clapham Yard via Fairfield Rd
- Access to rail corridor at Rocklea Station via Station St and Pegg Rd
- Access to rail corridor at Salisbury Station via Dollis St and Fairlie Tce.

2 Traffic Management Contract Requirements

The following table sets out the minimum client requirements as defined in RIS Project Scope and Technical Requirements (PSTR), Annexure C: Construction Requirements and identifies where each requirement has been addressed within this plan or the wider CMS.

PSTR Reference	Content Requirements	Where Addressed	Comments
9.1.1	The Participants must abide by, and ensure that their Associates abide by, all requirements of the Queensland Traffic Management for Construction or Maintenance Work Code of Practice when carrying out traffic management during the Alliance Activities.	Section 1.1	
9.1.2	The Participants must comply with and ensure that their Associates comply with the Heavy Vehicle National Laws.	Sections 1.1, 3.2.3, 5.2	
9.1.3	The Participants must manage the impacts of Alliance Activities on the safety, functionality, capacity and performance of the traffic and transport network to ensure that traffic performance will not be adversely affected. The Participants must undertake all necessary upgrades to existing infrastructure to manage impacts.	Sections 1, 3.2.1, 3.2.5	
9.1.4	(Transport Network Integration Reference Group): For all proposals that impact the rail and bus networks, the Participants must obtain the endorsement of the Transport Network Integration Reference Group, and then obtain the approval of the relevant Authorities in accordance with the requirements of section 1.8 and section 2.	Sections 3.2.2, 3.2.5	
9.1.5	(Construction Traffic Management Liaison Group): For all proposals that impact the existing road network (including the on-road bus network, bicycle infrastructure, and pedestrian infrastructure, the Participants must obtain the endorsement of the Construction Traffic Management Liaison Group in accordance with the requirements of section 9.8, then obtain the approval of the relevant Authorities.	Section 6.2	
9.1.6	(Construction Traffic Management Plan): Without limiting any obligations imposed on the Participants by the requirements of the State Approval and OEMP, the Participants must prepare a Construction Traffic Management Plan (CTMP) in accordance with the requirements of the State Approval and OEMP, submit the CTMP to the Project Owner's Representative for review and obtain the approval of the relevant Authorities prior to commencing construction.	This plan, Section 1	
9.1.7	Construction Traffic Management Plan Subplans: Without limiting any obligations imposed on the Participants by the requirements of the State Approval and OEMP, the Participants must prepare detailed Construction Traffic Management Plan subplans (CTMP Subplan) in accordance with the requirements of section 9.2 and the Participants must obtain the approval of the relevant Authorities prior to preparing the associated Traffic Guidance Scheme(s).	Section 3.2.2	
9.1.8	(Haulage Management Plan): Without limiting any obligations imposed on the Participants by the requirements of the State Approval and OEMP, the Participants must prepare a Haulage Management Plan as a subplan to the Construction Traffic Management Plan, which must address the haulage requirements of	Section 3.2.3	

PSTR Reference	Content Requirements	Where Addressed	Comments
	the State Approval and the OEMP, submit the Haulage Management Plan to the Project Owner's Representative for review and obtain the approval of Brisbane City Council, DTMR and other relevant Authorities prior to commencing haulage operations that impact their respective roads.		
9.1.9	(Traffic Guidance Schemes): The Participants must prepare Traffic Guidance Schemes (TGSs) in accordance with the requirements of section 9.3. Each submission must reference the relevant approved CTMP Subplan. The Participants must obtain the approval of the relevant Authorities prior to commencing construction in the affected area.	Section 3.2.5	
9.1.10	(Bus Closure and Diversion Schedule): The Participants must prepare a Bus Closure and Diversion Schedule as part of the Construction Traffic Management Plan, showing all proposed bus closures and diversions, including details of the location, type, duration and approval requirements of each closure and structured with columns titled as follows: (a) Project ID; (b) Project name; (c) Accountable person; (d) Scope of work description; (e) Activity name; (f) Tasks; (g) Closure start date and time; (h) Closure finish date and time; (i) Duration HH:MM; (j) Location description; (k) Co-ordinates of start and end location; (l) Bus services impacted; (m) Bus stop no's impacted; (n) Details of any impact on busway communications equipment;	Section 6.4	
9.2.1	The Participants must prepare CTMP Subplans outlining how the RIS Works and Alliance Activities will be integrated into the operation of the existing transport network, identifying and considering all foreseeable risks, and assessing and mitigating the impact on all transport network users.	Section 3.2.2	
9.2.2	The Participants must prepare separate CTMP Subplans for each Construction Worksite and work stage, detailing the management of road traffic, pedestrians, cyclists, active transport systems (including CityCycle stations), rail operations, rail passengers, busway operations, bus (on-road) operations, and bus passengers.	Section 3.2.2	
9.2.3	The Participants must consider the cumulative impacts of Other Works, other proximate projects and rail and bus infrastructure maintenance activities.	Section 3.2.2	
9.2.4	The Participants must undertake construction traffic assessments in accordance with section 9.5.1.	Section 3.2.2	

PSTR Reference	Content Requirements	Where Addressed	Comments
9.2.5	The CTMP Subplans must: (a) comply with this section 9.2 and the requirements of: (i) the DTMR Standard <i>Manual of Uniform Traffic Control Devices - Part 3: Traffic control for works on roads</i>; (ii) the DTMR Standard <i>MRTS02 Provision for Traffic</i>; (iii) the DTMR Standard <i>Traffic and Road Use Management Manual (TRUM)</i>; and (iv) where any conflicting provisions occur, the order of precedence of documents is as listed above; (b) assess existing and forecast variations in traffic flow and travel time by using traffic survey data and traffic modelling; (c) define the proposed operating conditions including speed environment, speed limits and levels of service to be provided by the TGSs and identify where and when traffic modelling and the RPEQ's professional experience indicates that the specified requirements may not be met; (d) address road user safety, including safety of pedestrians and cyclists and CPTED in accordance with: (i) <i>Crime Prevention through Environmental Design – Guidelines for Queensland</i>; (ii) the DTMR Standard <i>Road Landscape Manual</i>; and (iii) the DTMR Standard <i>Road Planning and Design Manual Volume 6 – Lighting</i>; (e) describe proposed construction site access locations and construction workforce traffic and parking; (f) address potential diversion of traffic to other roads, the potential impact on any affected local roads and the road network, and measures the Participants will evaluate and implement, if appropriate, to manage the risk and minimise the likelihood of the potential traffic diversion; (g) describe how access, connectivity, frequency and on-road priority of public transport services will be maintained and the measures the Participants will evaluate and implement to ensure that functionality of the services are as per the requirements of the service providers including TransLink and Brisbane City Council; (h) define provision for Emergency Services Organisations and how the impact on their operations will be minimised; (i) address the Participant's interaction with DTMR, Brisbane City Council, Transurban, and Queensland Rail Limited; (j) address maintaining business continuity; (k) address forecasting and monitoring of impacts due to the Alliance Activities and RIS Works; (l) address incident response, disruption management and contingency procedures for any traffic or service incidents, track, busway and traffic closures	Section 3.2.2	

PSTR Reference	Content Requirements	Where Addressed	Comments
	attributed to the RIS Works and Alliance Activities and how this will be communicated to the road Authorities, Emergency Services Organisations, the Project Owner's Representative and the Project Independent Certifier; (m) address timing (including any period of reduced lanes); (n) address communication with the community engagement team to ensure sufficient level of detail and frequency of information is available for public consultations and notifications; (o) allow sufficient time for alteration to plans based on community feedback; (p) address vehicle sight distance requirements, Clear Zone requirements, and ensuring that motorists distraction is avoided; and (q) include the use of variable message signs to be installed in accordance with: (i) <i>Traffic and Road Use Management Manual Vol. 1 Part 10;</i> (ii) <i>Austroads Guide to Traffic Management Part 10;</i> (iii) <i>the Manual of Uniform Traffic Control Devices; and</i> (iv) <i>AS 4852.2 Variable Message Signs Part 2: Portable Signs.</i>		
9.3.1	Notwithstanding the requirements of clause 2.2.2 "<i>Traffic Management Plans</i>" of the <i>MUTCD Part 3</i> and <i>MRTS02 Provision for Traffic</i>, the Participants must prepare TGSs for: (a) Level (a) "Short-term and mobile works not involving road closure" as defined in clause 2.2.4(a) of the <i>MUTCD Part 3</i>. (b) Level (b) "Works involving relatively simple part-roadway closures" as defined in clause 2.2.4(b) of the <i>MUTCD Part 3</i>; and (c) Level (c) "Works involving complex traffic arrangements or staging, or both" as defined in clause 2.2.4(c) of the <i>MUTCD Part 3</i> for: (i) each haulage route identified in the Construction Traffic Management Plan; (ii) each Construction Worksite and work stage identified in the CTMP; (iii) each key intersection outlined in the State Approval and section 9.10; and (iv) any other intersections impacted as a result of Alliance Activities, including spoil haulage and materials/equipment delivery, construction workforce traffic and parking. (d) The Participants must complete the relevant disruption forms for each TGS and forward a copy to the relevant Authorities at least 10 Business Days before implementing changes.	Sections 3.2.5, 3.2.6	
9.4.1	The CTMP, all CTMP Subplans and all Level (c) TGS must be certified by an RPEQ and Traffic Management Design (TMD) (replacing previous Level 3 Traffic Management) Competent Person, countersigned by the Participant's nominated Traffic Representative, and	Section 3.2	

PSTR Reference	Content Requirements	Where Addressed	Comments
	endorsed by the Construction Traffic Management Liaison Group prior to submission to the relevant Authorities for approval.		
9.4.2	All level (a) and (b) TGS are to be certified by a TMD, countersigned by the Participant's nominated Traffic Representative, and endorsed by the Construction Traffic Management Liaison Group prior to submission to the relevant Authorities for approval.	Sections 3.2.5, 3.2.6	
9.4.3	The certification of TGSs must be in accordance with the requirements of: (a) the Manual of Uniform Traffic Control Devices (MUTCD) Part 3; (b) MRTS02 Provision for Traffic; and (c) AS/NZS ISO 31000 Risk management – Principles and guidelines.	Sections 3.2.5, 3.2.6	
9.5.1	The Participants must undertake detailed modelling and analysis of traffic, pedestrians and public transport services to inform and support the CTMP Subplans, and must demonstrate that: (a) traffic performance, including functionality (directions of movement), capacity, travel times and intersection delays, will not be adversely affected; (b) pedestrian flows will not be adversely affected, considering pedestrian numbers, behaviours and directions of movement; and (c) public transport services will not be adversely affected, in accordance with the requirements of section 1.8 and section 2.	Section 3.2.2	
9.5.2	The Participants must engage a suitably qualified and experienced transport professional to prepare construction traffic assessments. The transport professional must be a DTMR prequalified consultant.	Section 3.2.2	
9.5.3	Prior to commencing construction traffic assessments, the Participants must agree with the relevant Authorities, the Project Owner's Representative and the Project Independent Certifier: (a) the traffic assessment method(s) to be used; (b) the models and road functional layouts to be used; (c) the geographic scope for the model; (d) the appropriate model validation techniques and modelling design Standards and parameters to be adopted; (e) the defined modelling performance outcomes to be adopted; and (f) agreement on the above modelling approach from the relevant Authorities.	Section 3.2.2	
9.5.4	The Participants must produce traffic assessment reports as part of the CTMP Subplans that: (a) provide a summary of the traffic modelling requirements; (b) demonstrate that the relevant Authorities and stakeholders have been consulted and how the outcome of that consultation informs the traffic modelling;	Section 3.2.2	

PSTR Reference	Content Requirements	Where Addressed	Comments
	(c) demonstrate that the traffic models have been validated; (d) demonstrate how the modelling results have been generated and analysed; (e) detail how the traffic modelling outputs meet the modelling performance requirements; and (f) detail how the traffic modelling informs the road functional layouts.		
9.6.1	Any TGS that will remain in operation for more than one work shift must be the subject of a Road Safety Audit. Traffic must not be permitted to use any temporary traffic management works until all recommendations of the Road Safety Audit have been considered and actioned as necessary, and all reasonable requirements of the Emergency Services Organisations for that stage have been incorporated into the design.	Section 4.2.4	
9.6.2	The Participants must undertake all Road Safety Audits in accordance with the Austroads Guide to Road Safety – Part 6: Road Safety Audit, using an accredited Road Safety Auditor registered with DTMR.	Section 4.2.4	
9.6.3	The Participants must ensure that a Road Safety Audit is undertaken at the following times: (a) prior to the submission of CTMP Subplans and TGSs (and all issues raised in the audit have been addressed); (b) before opening changed transport infrastructure to traffic; and (c) directly after opening changed transport infrastructure to traffic.	Section 4.2.4	
9.6.4	The Participants must include the relevant Road Safety Audits described in section 9.6.3(a) when submitting CTMP Subplans and TGSs for approval.	Section 4.2.4	
9.7.1	The Participants must nominate a management site representative (Traffic Representative) who, in addition to the requirements of clause 5.2 “Nominated Traffic Officer” of the <i>MRTS02 Provision for Traffic</i> must as a minimum: (a) have appropriate experience in traffic engineering, management and operations, including operational knowledge and understanding of traffic signal systems; (b) be provided on a full-time basis with 24-hour availability during any approved out of hours works and to respond to any reported traffic incidents or damage that could be attributable to Alliance Activities; (c) have authority and responsibility for issues relating to traffic management including liaison with all relevant Authorities and stakeholders; (d) monitor and quantify delays, measure queue lengths and maintain and adjust traffic control measures / devices to assist prevailing traffic flows; (e) manage the impact of over-dimension, over-weight and dangerous goods vehicles; (f) notify of traffic incidents to the BMTMC within 15 minutes; and (g) provide notification to the Community Relations Monitor of traffic incidences and unplanned	Section 3.3	

PSTR Reference	Content Requirements	Where Addressed	Comments
	disruptions within 15 minutes of the incident occurring.		
9.8.1	The Participants must establish and chair a Construction Traffic Management Liaison Group (CTMLG), comprising representatives of the Participants, DTMR, Brisbane City Council and the Project Owner's Representative as members. The Participants must also invite the Project Independent Certifier, Emergency Services Organisations, the Community Relations Monitor, the Environmental Monitor, Transurban and from time to time any and other entities or groups nominated by DTMR or Brisbane City Council.	Section 6.2	
9.8.2	The Participants must develop a communication strategy between the CTMLG and the community engagement team to ensure all impacts on road and public transport user and property and commercial owners are communicated in accordance with the requirements of Annexure F.	Section 6.2	
9.8.3	The CTMLG must be a forum for the exchange of information and the discussion of issues associated with the CTMP, CTMP Subplans, TGSs and other traffic related matters.	Section 6.2	
9.8.4	The CTMLG will have no legal responsibilities and will itself not have any power to require any of the parties to act or refrain from acting in any way, and the Participant's responsibility for traffic management will not be limited or affected by the existence of, or determinations or decisions of, the CTMLG.	Section 6.2	
9.8.5	The CTMLG must meet at least once every two weeks from its inception until the Date of Practical Completion, or such lesser frequency as may be agreed by DTMR and Brisbane City Council.	Section 6.2	
9.8.6	The Participants must ensure that the Participant's Traffic Representative attends each meeting of the CTMLG.	Sections 3.3, 6.2	
9.8.7	The Participants must provide the CTMLG with: (a) an overview of the CTMP Subplans; (b) details as to timing of implementation of TGSs; (c) a schedule of CTMP Subplans and TGSs to be submitted; (d) all relevant reports as requested by the CTMLG; (e) results of monitoring of the effectiveness of the CTMP Subplans and TGSs; and (f) advanced warning of planned disruptions, to the level of detail and frequency as requested by the Community Relations Monitor.	Section 6.2	
9.9.1	Without limiting any obligations imposed on the Participants by the requirements of the State Approval and OEMP, the Participants must as a minimum: (a) develop an accurate and detailed breakdown of workforce traffic and parking demand for each Construction Worksite using first principles estimating methods; (b) undertake origin-destination surveys to understand the travel patterns of construction workforce traffic;	Section 4.3	

PSTR Reference	Content Requirements	Where Addressed	Comments
	(c) undertake suitable traffic assessments in accordance with the requirements of section 9.5, to the approval of the Project Owner's Representative; (d) develop CTMP Subplans in accordance with the requirements of section 9.2, to the approval of the Project Owner's Representative; (e) develop parking layouts to determine the number of parks that will be accommodated on each Construction Worksite; and (f) educate the construction workforce on traffic and parking procedures prior to first entering a Construction Worksite.		
9.9.2	The Participants must regularly review and, where deemed necessary by either the Participants or the Project Owner's Representative, reassess and revise construction workforce traffic and parking in accordance with the requirements of section 9.9.1.	Section 4.3	
9.9.3	The Participants must provide: (a) all construction workforce parking within the Site; or (b) the construction workforce with alternative transportation options, e.g. park-and-ride, where construction workforce parking demand exceeds capacity within any part of the Site.	Section 4.3	
9.9.4	Notwithstanding the requirements of section 9.9.3(a): (a) construction workforce parking within the Albert Street Station Construction Worksite is strictly prohibited; and (b) construction workforce parking within the Mayne Yard Construction Worksite is strictly prohibited. A maximum of 20 light vehicle (as defined by AUSTROADS Vehicle Classification System) parking bays will be permissible within the Mayne Yard Construction Worksite for the exclusive use of nominated senior staff and visitors.	Section 4.3	
9.9.5	On-street parking of construction workforce vehicles on public roads is strictly prohibited, irrespective of whether such parking is otherwise legally permissible.	Section 4.3	
9.9.6	Off-street parking of construction workforce vehicles within free public or private car parks, including institutions, supermarkets and retail stores, is strictly prohibited, irrespective of whether the construction workers intend frequenting the amenities the car park ordinarily serves.	Section 4.3	
9.10.1	Without limiting clause 18 of the Project Alliance Agreement, where shared construction access is provided to a worksite, the Participants must; (a) share the access with Queensland Rail Limited, where applicable; (b) share the access with TSD Project Co, where applicable; (c) coordinate road access with other road users; and (d) communicate to road users a minimum of 48 hours prior to oversize or large volume deliveries occurring.	Section 4.1 Applicable CTMP sub-plan(s)	

PSTR Reference	Content Requirements	Where Addressed	Comments
9.10.2	The Participants must: (a) minimise the number of construction site accesses from the adjacent road network; (b) locate the construction site accesses on higher order roads where practicable, to minimise the potential impact on local roads; and (c) where construction site access is from a lower order road, provide and maintain protected turn lanes or upgrade existing turn lanes at the intersection of the lower order road and through road.	Section 4.1	
9.10.3	The Participants must: (a) design all construction site accesses in accordance with the relevant road Authority design Standards and obtain the approval of the relevant road Authority; (b) ensure all construction site accesses meet the requirements of the Brisbane City Plan 2014 document – Schedule 6.16 Infrastructure design planning scheme policy (for Brisbane City Council assets) or DTMR Standard Road Planning and Design Manual (for DTMR assets); (c) notwithstanding clause 5.3 of MRTS02 Provision for Traffic and MUTCD Part 3, clause 4.13.3 'Lane Widths', provide protected turn lanes, acceleration and deceleration lanes with tapers at every intersection including intersections that are external to the Site where the total traffic including traffic generated by Alliance Activities meets the warrants for a BAL, AUL, BAR or CHR intersection. (d) ensure any reduction to the level of access to residential or other properties (other than commercial properties) is limited to the minimum duration necessary to carry out the relevant Alliance Activities; (e) demonstrate that there is adequate storage capacity at construction site access gates to ensure construction vehicles do not queue or stand on adjacent public (or private) roads; (f) ensure no reduction to the level of access (vehicular or pedestrian) to any commercial property during its relevant trading hours, without the written agreement of the owner and occupier; (g) ensure no reduction to the level of access (vehicular or pedestrian) to any public transport providers' facilities, without the written agreement of the provider; (h) design all required side tracks and site access roads for a minimum 5-year Design Life and repair any Defects during operational use within a 24-hour period; (i) following restoration of permanent access, ensure any temporary access measures implemented by the Participants, are removed and the site fully rehabilitated; (j) ensure gates at vehicle access and egress points open inwards towards the site rather than outwards onto footpath or a road;	Section 4.1	

PSTR Reference	Content Requirements	Where Addressed	Comments
	(k) ensure that vehicles accessing the site must not queue onto public roads; (l) ensure as far as is reasonably practicable, that there are separate access points for vehicles and pedestrians; (m) ensure as far as is reasonably practicable, that vehicles do not reverse on to the road, and where this is not practicable, ensure appropriate controls are implemented to manage the safe departure of the vehicle and the interface with public vehicles and pedestrians; (n) demonstrate that heavy vehicles, including wide or high loads, can negotiate site accesses and temporary construction roads safely; (o) demonstrate that heavy vehicles, including wide or high loads, can safely negotiate any roads that they will use; (p) without limiting clause 22 and Schedule 19 of the Project Alliance Agreement, enable TSD Project Co to carry out the T&S Works and D&C Activities in the Northern Area, by, unless otherwise agreed between TSD Project Co and the Participants: (i) provision of a Rail Operations Plan that includes the current and proposed Railway Operations through construction; (ii) providing a construction access road from Bowen Bridge Road to the northern portal, including any level crossings; and (iii) modifying Rail Infrastructure or other railway assets to support construction and required Railway Operations per Rail Operations Plan; and (q) decommission and demolish (to formation level for the rail, with removal of concrete footings, abandoned utility services and utilities) in the Northern Area prior to the commencement of tunnel works by TSD Project Co.		
9.10.4	The Participants must adhere to the following location specific restrictions: (a) at Mayne Yard: construction access is only available via Lanham Street; (b) at the Tunnel portal (south) and Boggo Road Station: (i) Annerley Road / Peter Doherty Street and Annerley Road / Boggo Road intersections must be subject to a traffic assessment and Road Safety Audit; (ii) haulage and delivery vehicles are prohibited from using Annerley Road north of Boggo Road; (iii) haulage and delivery vehicles approaching the Construction Worksite must only approach northbound on Annerley Road, turning right into Boggo Road at the signalised intersection (right turn access into Peter Doherty Street from Annerley Road is prohibited); (iv) haulage and delivery vehicles departing the Construction Worksite must depart by either Boggo Road or Peter Doherty Street, turning	Section 4.1	

PSTR Reference	Content Requirements	Where Addressed	Comments
	left (southbound) into Annerley Road (right turn movements from Boggo Road or Peter Doherty Street into Annerley Road are prohibited); and (v) Kent Street is restricted to a light vehicle access only; (c) at the Albert Street Station: (i) always maintain pedestrian access along Albert Street to the approval of the Project Owner's Representative and Brisbane City Council; (ii) maintaining business continuity to proximate retail stores, including pedestrian access during their business hours; and (iii) maintain traffic movements and capacity in the CBD, particularly Elizabeth Street, Charlotte Street and Mary Street; and (d) at the Tunnel portal (north): (i) maintain pedestrian access across the pedestrian bridge over the Inner City Bypass and QR Land, linking Victoria Park to the Brisbane Grammar School.		

3 Management System

3.1 Work Breakdown Structure

The Work Breakdown Structure (WBS) forms the basis of the program, design lots, temporary works design, construction staging and quality control system. This commonality enables an integrated temporary and permanent design process that fully incorporates any required traffic management with constructability inputs and planning.

Individual Construction Area Plans (CAPs) will specify relevant conditions regarding traffic management and workforce parking, reference Traffic Guidance Schemes (TGS) and relevant controls at each access and egress point into public roads.

3.2 Traffic Management Document Hierarchy

The below outlined Traffic Management Document Hierarchy has been developed in accordance with PSTR Annexure C, Section 9. Where required engineering certification will be provided as outlined in Section 9.4.

3.2.1 Construction Traffic Management Plan (CTMP)

The CTMP outlines how temporary site access works design and any construction staging arrangements will be integrated into the operation of the local road network during construction. The CTMP describes the processes that will be followed to ensure project requirements are met, including how all road users will be accommodated throughout the duration of the works.

3.2.2 Construction Traffic Management Sub-Plans (CTMP Sub-Plans)

UNITY will prepare separate CTMP sub-plans for applicable construction areas in accordance with PSTR, Annexure C, Section 9.2. and the requirements of (in order of precedence):

- The DTMR Standard Manual of Uniform Traffic Control Devices – Part 3: Traffic control for works on roads
- The DTMR Standard MRTS02 Provision for Traffic
- The DTMR Standard Traffic and Road Use Management Manual (TRUM).

The CTMP sub-plans will detail the management of interfaces with public roads, pedestrians, cyclists and existing public transport operations. CTMP sub-plans will demonstrate the construction traffic management strategies and mitigation measures to be adopted at each worksite to achieve the CTMP objectives. Foreseeable risks will be considered, impacts on all transport network users will be assessed and mitigated where possible.

The cumulative impacts of other works, other proximate projects and rail and bus infrastructure maintenance activities will be considered in the development of the sub-plans and subsequent Traffic Guidance Schemes. Where applicable construction traffic assessments will be undertaken in accordance with PSTR, Annexure C, Section 9.5 to demonstrate acceptable traffic, pedestrian flow and public transport performance of the CTMP sub-plan.

Approval of the relevant Authorities will be sought prior to or concurrent with preparing associated Traffic Guidance Scheme(s). Where CTMP sub-plans and/or subsequent TGSs impact the rail and bus networks, endorsement of the Transport Network Integration Reference Group (TNIRG) will be obtained prior or concurrent with the approval of the relevant Authorities.

3.2.3 Haulage Management Plan (HMP)

Haulage management will be covered in a separate Construction Management Plan sub-plan and will address the project's haulage requirements. It will be subject to review and approval by Brisbane City Council (BCC), Department of Main Roads (DTMR) and other relevant Authorities prior to commencing

haulage operations impacting on their respective roads. Compliance with Heavy Vehicle National Laws will be addressed in the sub-plan.

The Haulage Management Plan will be subject to periodic review to address changes in the project's delivery routes and or spoil haulage routes.

3.2.4 Traffic Temporary Works Designs (TWD)

The traffic temporary works design and construction staging methodology for each project area will be progressively developed as detailed planning progresses and site access requirements are finalised.

The temporary works design for each project area will detail any modifications to existing roads and the proposed design arrangements as well as required traffic management devices such signage and line marking. The corresponding long-term Traffic Guidance Scheme (TGS) documentation will provide further site-specific details as outlined below.

3.2.5 Traffic Guidance Schemes (TGS)

Where changes to existing traffic arrangements are required or where construction activities conflict with public traffic movements, UNITY will develop a TGS in accordance with the requirements of PSTR Annexure C, Sections 9.3. Level (a) and (b) TGS will be processed as outlined under Section 3.2.6, Traffic Control Permissions. Level (c) TGS are addressed in this Section. Certification of TGS will be in accordance with PSTR, Section 9.4.

Traffic Guidance Schemes will typically be required to facilitate temporary access to RIS work sites rather than for permanent modifications to existing road infrastructure.

The TGS documentation will detail individual work areas, site access arrangements, traffic and other operational control devices required to warn and guide traffic through or past a work area or temporary hazard and to safely manage construction vehicle movements adjacent to any public transport, pedestrians or cyclists.

The use of proprietary temporary road safety barrier systems, hoarding, screening and/or fencing to separate work areas from public traffic, pedestrians and cyclist will be addressed where applicable. Progressive implementation of a guidance scheme will be detailed where implementation cannot be completed in a single shift.

Where long-term changes to the roadway are required the documentation will include RPEQ certified temporary works designs. The review of the certified temporary works design will be in accordance with the Design Management Plan and managed separately but concurrently with the TGS review.

Consultation with Emergency Services Organisations with respect to public safety and emergency vehicle access will be undertaken during the development, implementation and operation of each TGS.

All TGSs will be submitted to the relevant Authorities for approval a minimum of 10 business days prior to commencing construction in the affected area. Where TGSs impact the rail and bus networks, endorsement of the Transport Network Integration Reference Group (TNIRG) will be obtained prior or concurrent with the approval of the relevant Authorities.

3.2.6 Traffic Control Permissions (TCP)

TGSs for short term works (ie. Level (a) and (b) TGS) will be submitted to the relevant Authorities to obtain Traffic Control Permissions (TCPs) prior to requesting the associated permits from the Queensland Police Service (QPS). Certification of TGS will be in accordance with PSTR, Section 9.4.

3.3 Roles and Responsibilities

Role	Responsibilities
Traffic Representative	- Performing role of Nominated Traffic Representative in accordance with PSTR Annexure C, Section 9.7 reporting to UNITY Area Managers - Demonstrating a detailed knowledge of the project requirements - Establishing and chairing the Construction Traffic Management Liaison Group (CTMLG) meetings - Establishing and operating traffic control subcontractor/s responsible for setting up and operating traffic guidance schemes (short term) - Collaborating with the Area Design Managers and Area Engineering Managers to ensure constructability inputs during design development - Interfacing with the Area Managers, Senior Project Engineers and project planners regarding program forecasts and construction milestones - Coordinating traffic management planning with construction teams to ensure the requirements of the CTMP, CTMP sub-plan and TGSs are implemented - Developing and maintaining personal contact with road authorities and other stakeholders as required - Ensuring key stakeholders are regularly updated on the progress of work and changes to either the CTMP, CTMP sub-plan or TGSs - Working closely with the Communications and Stakeholder Engagement Manager to ensure timely communications - Coordinating all reporting functions relating to traffic management as required, including notifying the Community Relations Monitor of traffic incidences or unplanned disruptions.
Site Engineer	- Assisting the Traffic Manager as required in the performance of their duties - Implementing procedures and processes for the development, approval and implementation of the CTMP, CTMP sub-plans and TGSs - Monitoring the effectiveness of the CTMP, CTMP sub-plans and TGSs - Maintaining a register of all incidents/accidents and complaints received and recording actions taken to address each - Ensuring only adequately trained and qualified personnel are engaged in traffic control duties - Establishing a dedicated communication link with field crews and site superintendents/supervisors in applying the CTMP, CTMP sub-plans and TGSs - Ensuring all traffic management personnel, plant and equipment are available in a timely manner to meet the requirements of the construction program - Developing work procedures to ensure the utmost is done to provide a safe working environment for employees and address the safety of road users and the public.
Supervisor	- Managing the correct execution of TGSs and monitoring the effectiveness of the CTMP, CTMP sub-plans and TGSs - Organising personnel and resources to install, maintain and remove traffic control devices - Ensuring the status of traffic controls and the construction of works in accordance with traffic requirements - Liaising with construction personnel regarding traffic activities - Implementing safe work method statements for traffic operations - Ensuring effective management of traffic incidents and performing emergency incident response activities - Maintaining an updated list of equipment available on and off site - Efficiently and reliably reporting and rectifying traffic issues as they are identified.

4 Traffic Management and Safety

Where possible UNITY will create long term work areas behind the protection of temporary road safety barriers to construct permanent works and/or temporary works. Off line construction will minimise disruption to the travelling public on the affected road network and maximise safety of the workplace and for all road users.

Strategies on minimising the impact on the current transport network will be implemented by:

- Utilising existing Queensland Rail access points for safe and efficient construction traffic access and egress points. Where modifications to site access are required, the project will design and RPEQ certify temporary works and remediate the modifications at Project Completion
- Locating construction site accesses on higher order roads where practicable, to minimise the potential impact on local roads
- Providing suitable footpath and cycle paths in areas adjacent to project site access points
- Working collaboratively with the relevant Authorities and RNA to facilitate special events and expected additional traffic and pedestrian flows.

4.1 Site Access

Site access points to work areas and compounds will generally be selected utilising the highest order roads where practicable whilst minimising the overall number required as much as reasonable. Generally existing access points are being utilised wherever possible. Location specific restrictions as outlined in PSTR Annexure C, Section 9.10.4 will be addressed in the relevant CTMP sub-plans.

Where site access points require modifications to the existing road network those will be detailed in temporary work designs and associated long-term TGSs. All required design will be undertaken in accordance with the relevant road Authority design standards and the PSTR, Annexure C, Section 9.10. Project-related vehicles will only enter, operate within, or exit from the traffic flow in accordance with the approved TGS.

Where the use of site-specific operational controls is required, these will be included within the Work Pack for that task/work area. Where appropriate, Vehicle Movement Plans (VMPs) will be developed, reviewed and communicated via daily pre-starts, and be the subject of toolbox talks for new work groups and distributed to relevant suppliers and subcontractors.

UNITY will maintain up-to-date gate maps and VMPs that will be issued to all subcontractors, supplier delivery vehicles and emergency services. These maps will provide all necessary information to ensure efficient communication and deliveries management.

Oversize or large volume deliveries will be communicated to road users a minimum of 48 hours prior to occurrence.

Joined construction access will be shared with Queensland Rail Limited and the TSD project, where applicable.

4.2 Road Safety and Site Security

4.2.1 Road Lighting

UNITY will supply, install, operate and maintain temporary road lighting as identified within applicable temporary works designs and associated approved long term TGSs for the full duration the guidance scheme.

4.2.2 Traffic Control Devices

Where identified in the TGS or temporary works designs traffic control devices required for operation and road safety (ie. signage and line marking) will be implemented and maintained in accordance with the MUTCD.

4.2.3 Site Security

Site signage will be displayed to ensure work areas and exclusion zones are clearly visible. Site accesses will be clearly signposted as 'No Entry, Construction Vehicles Excepted'.

All site access points off public roads will be gated and locked outside of working hours. Roving security will check the site nightly with appropriate security measures implemented across facilities as required.

4.2.4 Road Safety Auditing

Independent Road Safety Audits will be undertaken during construction in accordance with PSTR, Annexure C, Section 9.6 and the Austroads Guide to Road Safety – Part 6 and will generally include:

- A preliminary design stage audit included with the CTMP sub-plans
- A detailed design stage audit included with long term TGSs
- A pre-opening stage audit where a new scheme can be driven or walked by the Independent Audit Team prior to opening to traffic (It is noted for modification of existing live roadways pre-opening audits are not possible and only post implementation audits can be undertaken)
- A post implementation stage audit undertaken within 24 hours of implementation of a long term TGS and/or opening of changed transport infrastructure to traffic.

4.3 Construction Traffic and Parking

Generated construction traffic and workforce parking will be addressed in relevant CTMP sub-plans in accordance with PSTR Annexure C, Section 9.9.

Generally, construction workforce parking will be planned within site. UNITY will promote the use of alternative transportation options as much as reasonable. The construction workforce will be briefed on applicable site-specific traffic and parking procedures. [Off-street parking of construction workforce vehicles within free public or private car parks, including institutions, supermarkets and retail stores shall be prohibited unless agreed otherwise with the relevant car park owner.](#)

5 Operational Requirements

5.1 Incident Management

All traffic incidents will be notified to the BMTMC and the Community Relations Monitor within 15 minutes of being aware of such an incident.

Access for emergency services to project work sites and adjoining properties will be maintained throughout construction. When an incident occurs within or immediately adjacent to the Licensed Construction Area UNITY will:

- Coordinate with Emergency Services and where requested to do so, provide assistance as far as is practicable
- Provide a written report to the State Representative and Project Independent Certifier regarding traffic incidents involving a vehicle that is associated with the project.

5.2 Oversized Transport

Where delivery of removal of oversized items such as oversized plant, equipment, bridge girders or large precast elements will be required the relevant contracted transport company will obtain travel permissions from the National Heavy Vehicle Regulator (NHVR) and relevant Authorities as is common praxis. Compliance with Heavy Vehicle National Laws will be ensured.

UNITY will assist the planning of these deliveries for direct access to site to ensure minimal impact to the travelling public. The use of common truck routes and existing access arrangements is preferred.

5.3 Provisions for Property Access

Access to residential properties, businesses and community facilities will be maintained during construction.

Any reduction in the level or amenity of access to and egress from any property as a result of the construction sequence and construction of project and temporary works will be subject to community liaisons, business owner consultations and approval by the relevant Authorities.

5.4 Monitoring

Monitoring requirements specific to construction traffic include:

- Monitoring of construction traffic at public interface points
- Weekly review and feed-back with the CTMLG Representatives (DA, BCC, DTMR)
- Weekly inspections of local streets surrounding worksites to identify any unauthorised worker parking non-compliant with the area-specific CAP
- Weekly inspections of pedestrian and cycle accesses surrounding worksites to identify any disturbances
- Routine monitoring of haulage operations undertaken to verify compliance with the Haulage Management Plan.

Regular inspections will be undertaken to verify compliance with and maintenance of the approved TGSs, in accordance with MUTCD Part 3 Appendices A and B and UNA Safety Essentials for managing work near live traffic.

A register of all traffic and transport issues requiring corrective actions including due date, closed out date, item description and responsible person will be maintained for any maintenance items and/or deficiencies.

5.5 Auditing and Reporting

The reporting requirements specific to construction traffic include:

- Traffic audit findings within the Monthly Environmental Report
- Traffic incidents or complaints related to construction traffic included within the Monthly Environmental Report.

6 Communication and Coordination

6.1 Traffic Communication

The UNITY delivery team will work closely with each other and relevant stakeholders to ensure there is a seamless approach to managing traffic communications. The CTMP is supported by the Communications and Stakeholder Engagement Management Plan, where traffic communications and approach to managing communications activities associated with traffic changes is described.

UNITY 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.

UNITY will aim to ensure:

- Information provided enables customers to plan their travel and understand potential impacts
- Property owners, businesses and community facility managers are consulted on traffic issues that directly impact them (eg. potential changes to access arrangements)
- Clear protocols are in place to ensure required approvals are obtained prior to the publication or dissemination of information
- TGSs are supported by communication strategies to minimise the impact on the road and transport network.

6.2 Construction Traffic Management Liaison Group (CTMLG)

UNITY will establish and chair a Construction Traffic Management Liaison Group (CTMLG) in relation to the coordination of the RIS Works. The scope of the CTMLG is to provide a forum for the exchange of information and the discussion of issues associated with the CTMP, TGSs and traffic related matters. The CTMLG is not responsible for approving or accepting the CTMP, TGSs or any other traffic management documentation, however CTMLG endorsement will be sought for proposals that impact the existing road network.

The CTMLG will establish meeting protocols and frequency once formed and will be generally be chaired by UNITY's traffic representative. UNITY will provide the CTMLG with:

- An overview of all relevant CMP sub-plans
- Details of timing of implementation of TGSs
- A schedule of CTMP sub-plans and TGSs submitted and those proposed to be submitted within the following two months
- All relevant reports requested by the CTMLG
- Results of monitoring of the effectiveness of CTMP sub-plans and TGSs.
- Advanced warning of planned disruptions, to the level of detail and frequency as requested by the Community Relations Monitor

The CTMLG will comprise representatives from UNITY, TSD, DTMR, BCC and the Delivery Authority. Other relevant organisations may be invited from time to time, such as Emergency Services Organisations, Project Independent Certifier, Community Relations Monitor, Environmental Monitor, TransLink or Brisbane Metropolitan Transport Management Centre (BMTMC).

6.3 Provisions for Special Events

Where major public events are expected to generate additional traffic in the area affected by construction, UNITY will coordinate with road authorities, emergency services, stakeholders and other authorities to facilitate traffic flow and avoid congestion where possible. Special events will be a standing agenda item for discussion with the TMLG.

6.4 Impact to Public Transport

Where public transport (ie. bus transport) is impacted UNITY will develop a Closure and Diversion Schedule as part of the relevant CTMP sub-plan, showing all proposed bus closures and diversions, including details of the location, type, duration and approval requirements of each closure and structured in accordance with PSTR, Annexure C, Section 9.1.10. The schedule will be developed in coordination with TransLink.

Attachment 1 Alignment Access Points

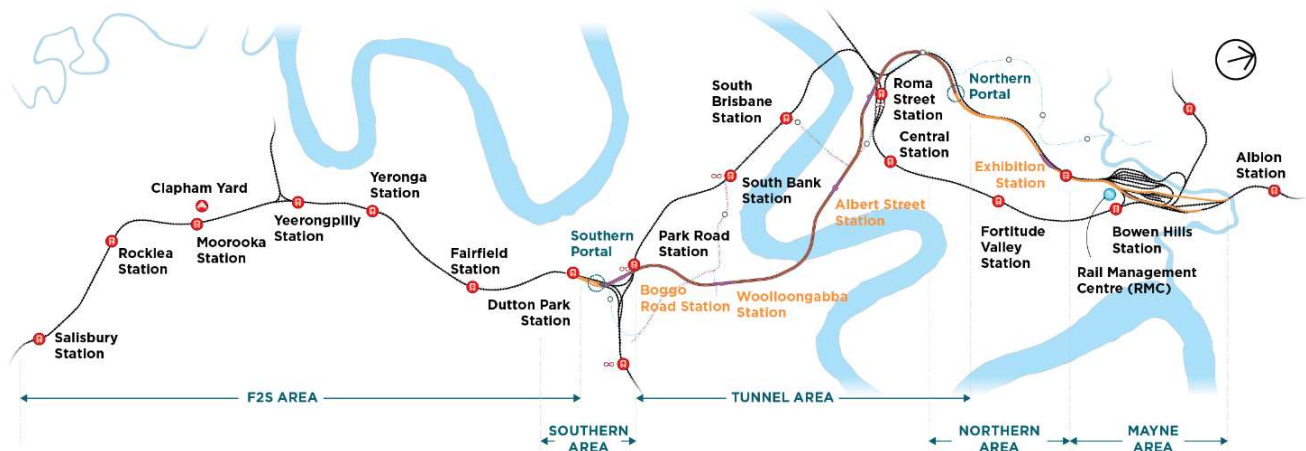


Figure 1: Overview map of RIS Project

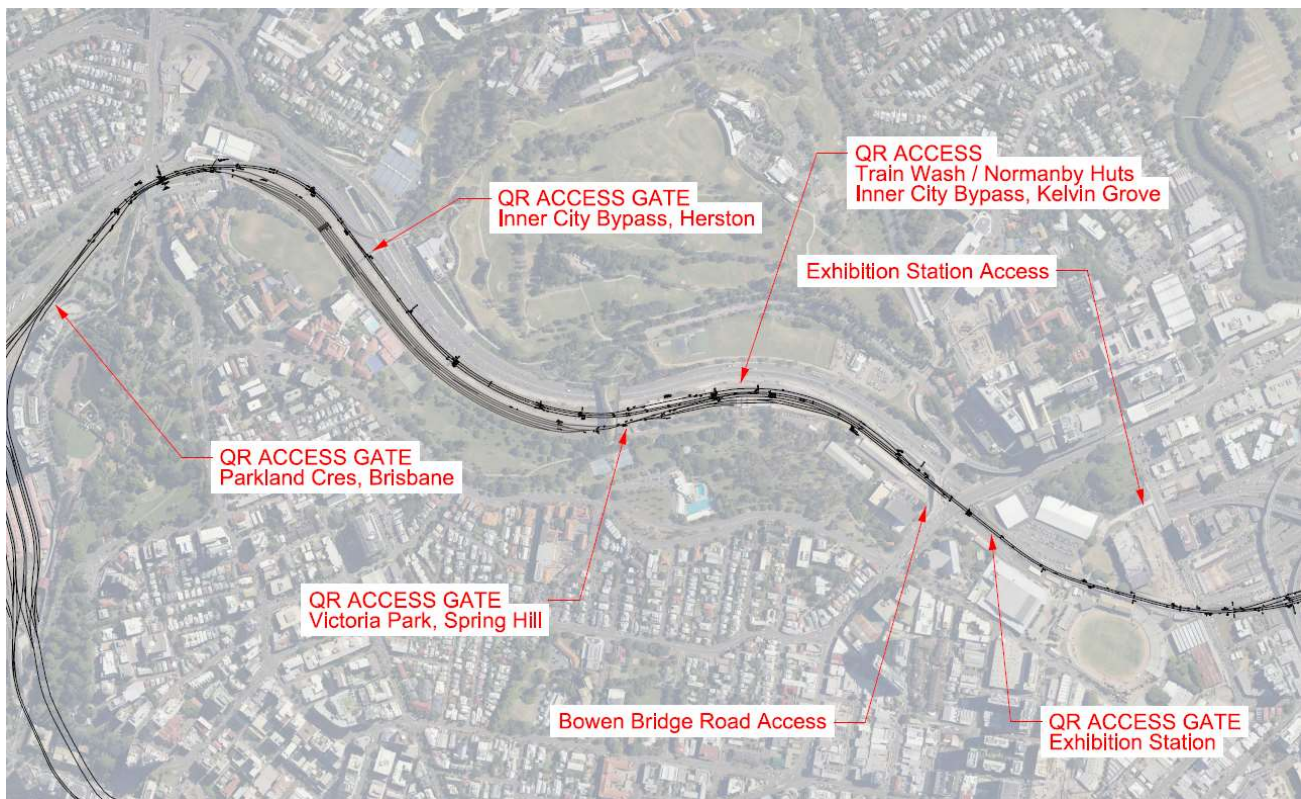


Figure 2: Access points – northern section

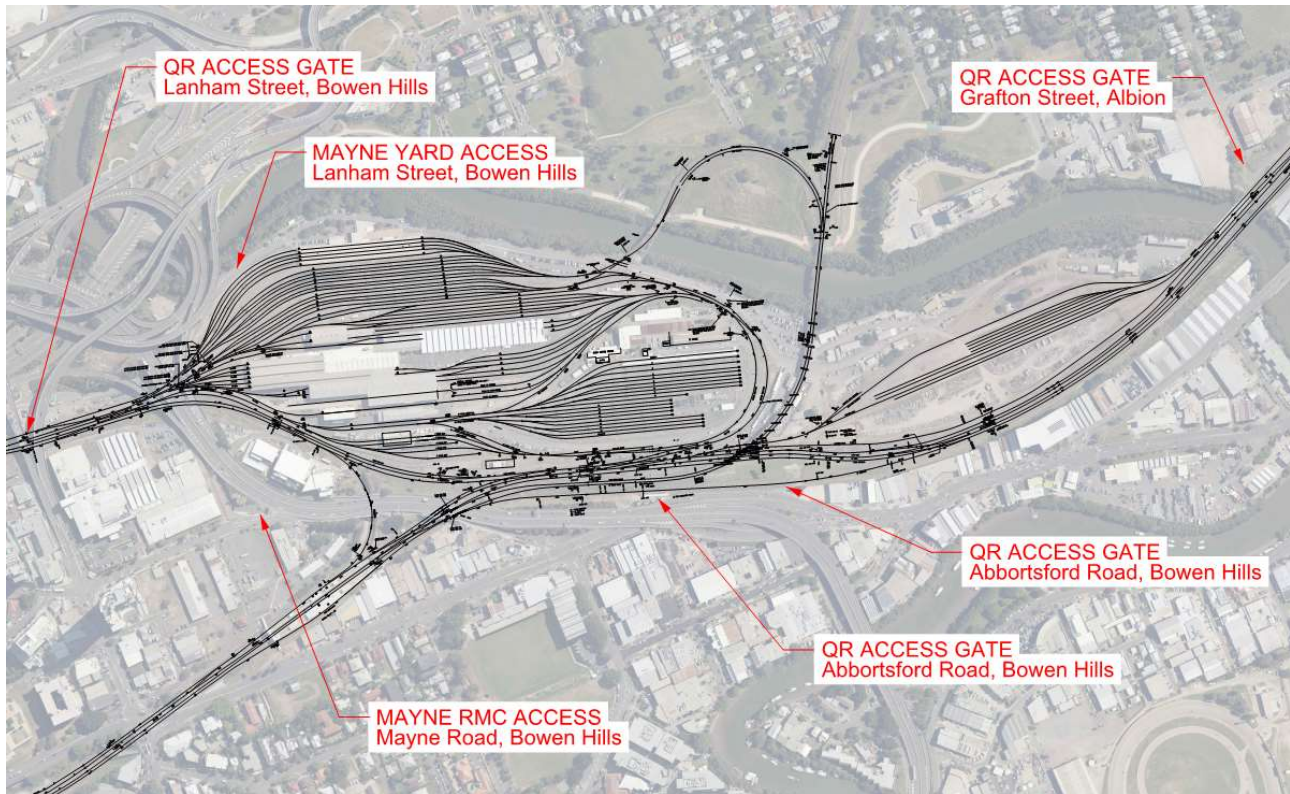


Figure 3: Access points – Mayne section

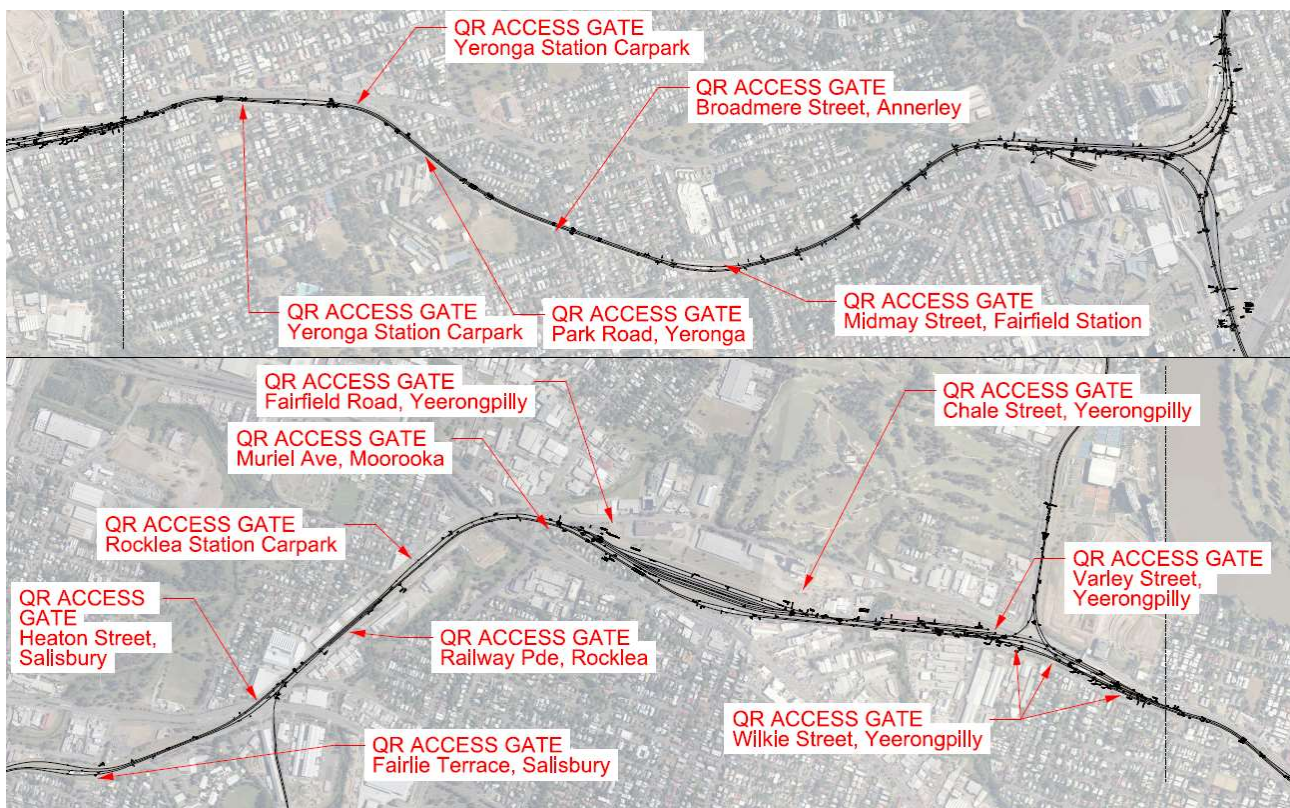


Figure 4: Access points – southern section

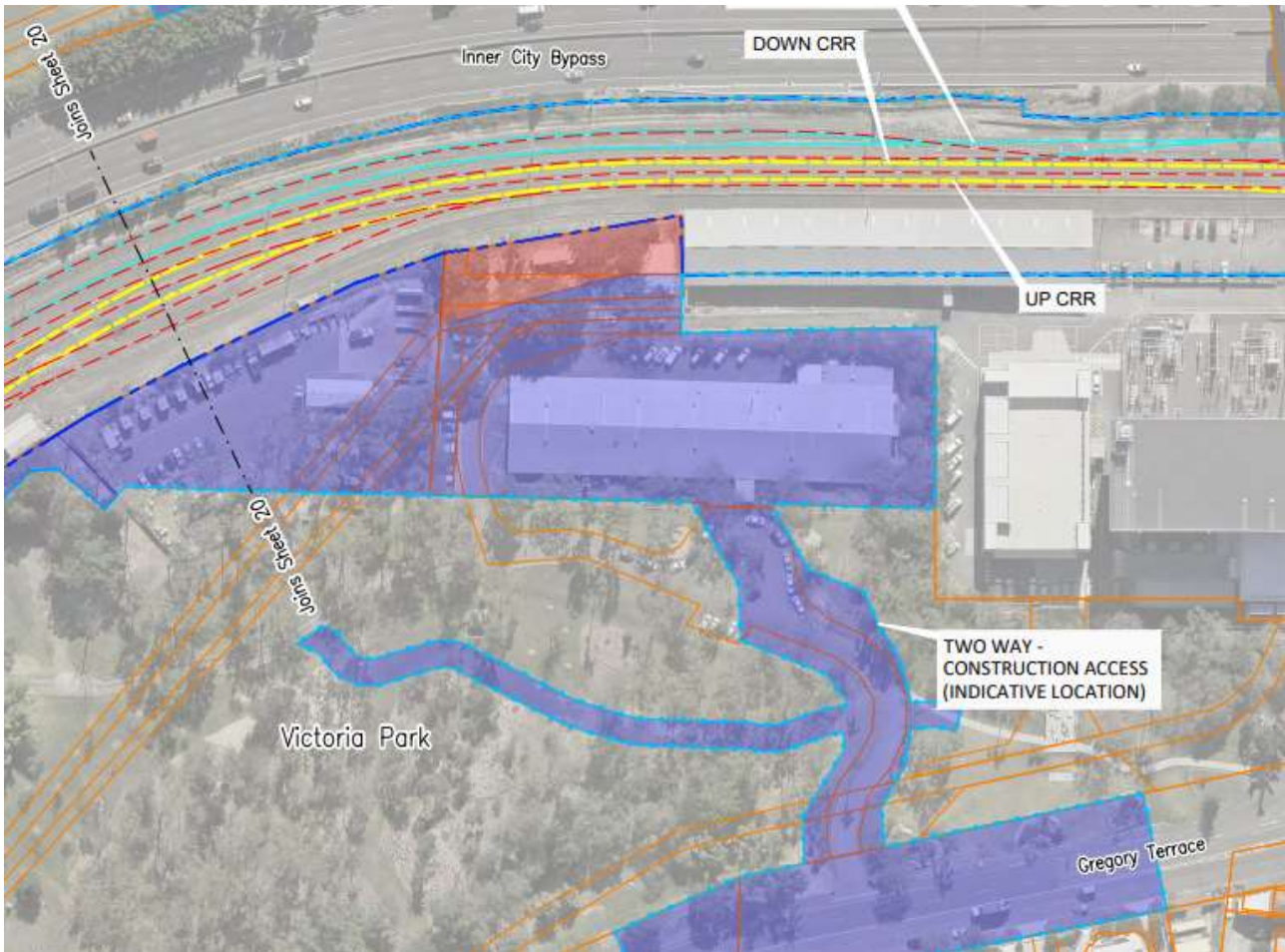


Figure 5: Site access arrangement for northern area

(Concept only – actual alignment may vary based on approved CTMP sub-plan for the area)

Attachment 2 Road Authority Approval

Haulage Management Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-DEL-MPL-00262
Revision date:	31 March 2020
Revision number:	01

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	19/07/19	Area Manager	Delivery Manager		
Signature:					
B	16/09/19	Area Manager	Delivery Manager		Revised to incorporate comments
Signature:					
C	27/09/19	Area Manager	Delivery Manager		Revised to incorporate comments
Signature:					
00	19/12/19				Approved Version (BCC/TMR)
Signature:					
01	31/03/20	Snr Project Engineer	Area Manager		Updated detail Northern Section/Mayne Yard link
Signature:					

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Plan Control

This Haulage Management Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

The latest approved version of the plan will be available in UNITY's Electronic Document Management System (EDMS). The Alliance Manager will maintain, review and update the plan at least every six months in the first year and then annually thereafter. Revised plans will also be submitted to the Delivery Authority and Independent Certifier.

Each revision to the plan will be distributed to all required personnel for review and approval. The document will be allocated a new revision type if the changes made affect the overall meaning of the document. Any minor change will be made without a change to the revision number.

When a new revision to the document is available, a notification email will be distributed to all project personnel by the Document Controller advising of the update.

The Alliance Manager is responsible for the ongoing implementation and review of the plan, and for approving any revisions.

Revision Details

Revision	Remarks
A	Initial Review
B	Revised to incorporate comments
C	Revised to incorporate comments
00	Approved Version
01	Updated detail Northern Section/Mayne Yard link

1 Purpose of this Plan

This Haulage Management Plan (HMP) documents the management systems, procedures and guidelines that will be implemented by the construction team in relation to the safe and effective management of haulage operations associated with the RIS Works, including:

- Compliance with the relevant elements of Coordinator General (CG) Condition 14, Traffic and Transport
- Compliance with the relevant elements of Outline Environmental Management Plan (O-EMP)
- Compliance with the Australian Design Rule (ADR) 28/01 in relation to noise emissions, exhaust emissions, traffic safety and operational safety
- Compliance with ADR 80 for emission
- Compliance with the PSTR and the project objectives
- Ensuring public safety requirements during haulage
- Ensuring haulage of material to and from site has least impact on the nearby community and local roads.

1.1 Interface with Other Plans

The HMP is a sub-plan of the Construction Traffic Management Plan (CTMP), which is a sub-plan to Construction Management Plan.

This plan also interfaces with the Construction Environmental Management Plan (C-EMP).

2 Haulage Management Contract Requirements

The following table sets out the minimum client requirements as defined in RIS Project Scope and Technical Requirements (PSTR), Annexure C: Construction Requirements and Annexure D: Management Requirements and identifies where each requirement has been addressed within this plan or the wider CMS.

Table 1: Haulage management contract requirements

PSTR Reference	Content Requirements	Where Addressed	Comments
Annexure C: Construction Requirements			
9.1.8	(Haulage Management Plan): Without limiting any obligations imposed on the Participants by the requirements of the State Approval and OEMP, the NOPs must prepare a Haulage Management Plan as a subplan to the Construction Traffic Management Plan which must address the haulage requirements of the State Approval and OEMP, submit the Haulage Management Plan to the Project Owner's Representative for review and obtain the approval of Brisbane City Council, DTMR and other relevant Authorities prior to commencing haulage operations that impact their respective roads.	This plan	
Annexure D: Management Requirements			
4.2.5	The Construction Management Plan must include the Construction Traffic Management Plan (CTMP) and Construction Traffic Management Plan Sub-plans and a Haulage Management Plan prepared in accordance with the requirements of PSTR Annexure C.	This plan	

3 Compliance

As per Coordinator General's requirements, UNITY will undertake a detailed route study for haulage to ensure:

- All heavy construction vehicles use only designated routes for spoil haulage and deliveries of major plant, equipment and materials, in accordance with the CTMP
- The designated haulage routes for each worksite will follow motorways, major roads and arterial roads to the extent practicable. A summary of the designated routes is provided in section 4. A detailed route study will be presented in each individual Construction Area Plan (CAP) and Work Pack (WP) after finalising arrangements with the quarry and other suppliers
- A road safety assessment has been conducted for the spoil haulage routes in order to manage and minimise the impacts of haulage on surrounding local communities, infrastructure, traffic and the environment. Specific checks will be carried out on load limits over underground tunnels viz. ICB and Clem 7, movement restrictions within the Mayne Yard and other critical infrastructure like Sneyd Drain
- The specific haulage routes will address any requirements of the CTMP and O-EMP. Necessary approvals of the specific haulage routes have been obtained from Brisbane City Council, DTMR and other relevant Authorities prior to commencing haulage operations that impact their respective roads. Further details may be provided in the respective CAP and/or Work Packs as applicable
- Haulage is undertaken during the designated haulage operating hours, as prescribed by the CG unless approved otherwise by the relevant road authority
- Haulage operations within the Queensland Rail rail corridor will be managed in accordance with established Queensland Rail protocols. Vehicle Management Plans will be reviewed with Queensland Rail prior to commencing operations to ensure alignment on controls to be implemented (eg. height gauges, speed limits, routes). At Mayne Yard personnel will undertake the Queensland Rail Mayne Yard induction that clarifies the specific access restrictions and protocols that apply in this operations yard (eg. trains have right of way at level crossings, height restrictions).

4 Haulage Scope and Routes

The overall quantity of material going in and out of site for the RIS Works is estimated significant less than the Tunnel Stations Development (TSD) section, with haulage not expected to have major impacts on the traffic and the local community.

A preliminary summary estimate of the haulage and delivery to and from various RIS site locations is provided in the table below. The estimate is deemed conservative. Haulage and delivery for Fairfield to Salisbury (F2S) stations will be minor and intermittent and is therefore excluded from this table.

The below summary may be further updated as the detailed design is advanced, and more information is available. The numbers given below are from the RIS project only and do not include TSD's spoil and delivery movements from the Victoria Park site access. The latter is captured in the TSD Haulage Management Plan.

Table 2: Preliminary summary estimate of the haulage and delivery to and from RIS sites

Construction Worksites	Site Access/Egress	Peak Spoil Movement Loads/day (one way)	Peak Delivery Movement Loads/day (one way)	Peak Traffic Movement Load/hour (one way)
Mayne Yard	Lanham Street	83	40	11
Exhibition Station	O'Connell Terrace	24	73	11
Northern Area	Gregory Terrace and Bowen Bridge Road	89	80	12
Clapham Yard	Fairfield Road	41	125	17

Given the location of the site access points to the rail corridor there are minimal routes options available. UNITY has selected the shortest route to surrounding arterial roads using the highest order roadway available between the site gate and the arterial road.

Material transfer from one to the other site is included in the overall vehicle movement assessment. For clarification, vehicles from each origin site will travel to the closest arterial road while destination sites are approached via the closest arterial road as outlined in Section 4. Travel on connecting arterial roads and/or motorways is not explicitly outlined in this management plan and not deemed required. Where material transfer between sites is planned entirely via sub-arterial or below roads over the complete length of transfer these routes are outlined specifically in Section 4 and listed in the road safety assessment table. Restrictions may apply.

Included as 'Attachment 1 Road Safety Assessment for Spoil Haulage Routes' is a road safety assessment for the spoil haulage route which considers the following items in the assessment:

- Peak Spoil Movement
- Peak Delivery Movement
- Peak Traffic Movement
- Roadway/Asset Owner
- Height Restrictions
- Length Restrictions
- Weight Restrictions
- Travel Time Restrictions (for haulage type vehicles)
- School Zones.

The road safety assessment of the haulage routes confirmed that all selected routes are suitable for the intended haulage vehicles to be utilised by UNITY (refer to Section 4.1). Any special load deliveries

(eg. bridge girders) that may be required will be undertaken under special permitting required by the relevant road authorities along with specific traffic management schemes also approved by the road authority.

4.1 Haulage Vehicles

Spoil haulage will be predominantly undertaken by truck and trailers and body trucks. Deliveries of materials will mainly be done by: truck and trailers; body trucks; semi-trailers; flat body trucks; and specialised vehicles for oversized items. All vehicles will comply with the Heavy Vehicle National Regulation requirements.

Haulage vehicles engaged to move material within the sites (haulage contractor) will be inspected by the designated UNITY Plant Manager or delegate for compliance with UNITY Plant minimum requirements.

Haulage vehicles which are delivering materials on behalf of a contracted supplier to UNITY (ie. quarry delivery trucks, concrete deliver agitators) will not be inspected specifically by the UNITY Plant Manager or delegate however the suppliers have regulatory obligations in this regard. UNITY will perform intermittent checks on the conformance of these items and manage any non-conformances accordingly.

4.1.1 Mayne Yard

Spoil generated in the Mayne Yard will mainly be from: excavation of the existing ground (for ground improvement and subgrade remove and replace); removal of existing track formation (mainly ballast); excavation of Breakfast Creek banks; and other miscellaneous excavation works.

Construction waste will be generated from: demolition of the existing buildings; demolition of the existing lighting towers, demolition of the existing truss bridge (carrying the suburban lines) and substructure; and other miscellaneous works.

In general, the different type of spoil types that will be generated are: unsuitable; usable fill; contaminated; acidified; and demolition waste. UNITY will regularly analyse the type of spoil generated and explore opportunities to reuse the spoil where possible or spread the spoil on site depending on the nature of the excavated material. The remaining will be disposed offsite. UNITY will ensure that all contaminated spoil is transported and disposed of in an appropriate manner at licenced landfill sites.

Contaminated material containing asbestos will be managed using the support of suitably qualified and licensed contractors. Material will be treated, handled and transported via appropriate means to minimise risk.

Major deliveries of material will include: imported fill; ballast; tracks; concrete; reinforcement; and other construction materials. Precast concrete items, girders and heavy or oversized items will be delivered using articulated vehicles with traffic and police escorts, and traffic control as required by the traffic and road regulations and legislations.

4.1.2 Exhibition Station

A majority of the spoil will be generated from: O'Connell Terrace rock excavation; rock excavation for construction of the new station plaza; removal of existing track formation; and other miscellaneous excavation works within the RNA showground area.

Construction waste will be from: demolition of existing Cattle crossing bridge, steel rail bridges, RNA underpasses, platforms, station buildings; and other minor demolition. The spoil will largely be made up of rocks of good quality. UNITY will explore opportunities to use this material in other parts of the project if practical.

Presence of asbestos have been reported in some parts of RNA showground. During construction works if asbestos is found in the buildings and the soil this will be handled, transported and disposed as per DES approved method using licensed subcontractors.

Deliveries will include: imported fill for the station; concrete; ballast, tracks; reinforcement steel; precast items; construction and building materials. Prefabricated steel girder bridge spans will also be delivered at night under proper traffic control.

4.1.3 Northern Section

Spoil generated from this section will include: rock excavation at O'Connell Terrace; removal of existing rail track formation; and other miscellaneous excavation works during construction. Construction waste will be from demolition of the Queensland Rail underpass, existing Queensland Rail, buildings and the BTS building in Victoria Park. The spoil will largely comprise good quality material, however, the material may be contaminated due to presence of an old stabling yard in this area.

Presence of asbestos have been reported in the BTS building. During demolition works if asbestos is found in other Queensland Rail buildings, all asbestos containing spoil will be handled, transported and disposed as per DES approved method using licensed subcontractors.

UNITY will explore opportunities for using this material in other parts of the project or spread on the site if practical. A portion of spoil will be removed and disposed offsite.

Deliveries will include: imported fill for the track formation; concrete; ballast; tracks; reinforcement steel; precast items; construction and building materials.

4.1.4 Clapham Yard

Spoil generated from this section will be mainly from: excavation of the existing ground (for ground improvement and subgrade remove and replace); removal of existing track formation; excavation of Moolabin Creek banks; and other miscellaneous excavation works.

Construction waste will mainly be from the demolition of the existing buildings. The spoil will largely comprise a mixture of existing fill and clayey alluvium material from natural ground. There is moderate potential for the spoil to be contaminated and/or acidified.

UNITY will explore opportunities of spreading the spoil on the site. A portion of the spoil will be removed and disposed offsite.

Deliveries will include: imported fill for the track formation; concrete; ballast; tracks; reinforcement steel; precast items; bridge girders; and other construction and building materials.

In this section, quantity of imported fill will far exceed the spoil disposed offsite.

4.1.5 F2S Stations

Spoil generated from this section will be mainly from: excavation of the existing ground for the platform; minor quantities from removing existing track ballast in Yeronga and Fairfield stations; and miscellaneous construction works (eg. drainage and under track crossings).

The quantity of excavation in the stations is small compared to other areas and therefore spoil haulage will not be a significant activity. Construction waste will be from demolition of the existing station buildings and structures.

New footbridges will be delivered and installed (for all stations except Yeerongpilly) in prefabricated sections (kit of parts) during night using large cranes and semitrailers from the adjoining road/area as given in the table below. Similarly, existing footbridges will be dismantled in sections and removed in sections at night from a nearby location. All such works will be done with traffic controls in place and lane closure as required. Necessary TGS will be prepared and submitted to BCC for approval in advance. All the necessary plans and documents (eg. haulage and delivery routes, lift studies, TGS, road closure permits etc.), will be contained within the relevant Work Packs. The dismantled structure will generally be scrapped but any salvageable materials will be recycled where possible.

Location	Delivery of Prefabricated Bridge Sections & Haulage of Dismantled Bridge Sections	Proposed Crane Location
Fairfield Station	via Equity Street & Mildmay Street	Cranes will be set-up on Equity Street & Mildmay Street under a road closure managed by Traffic Control
Yeronga Station	via Fairfield Road & Lake Street	Cranes will set-up on Fairfield Road & Lake Street under road closures managed by Traffic Control
Moorooka Station	via Fairfield Road	Crane will be set-up between the existing island platform and newly constructed 3rd platform
Rocklea Station	via Brooke Street	Crane will be set-up in station carpark
Salisbury Station	via Dollis Street	Crane will be set-up in station laydown area

Asbestos can be present in some of the old station structures. Investigations will be undertaken prior to demolition and any identified asbestos material will be handled, transported and disposed of using appropriately licensed contractors.

Deliveries will include: imported fill for station platform; precast structures; concrete; reinforcement steel; kit-of-parts structural steel components; overpass structures; stairs and platform canopies; and other construction and building materials.

4.1.6 TSD's Haulage and Delivery

Haulage of material to and from site will occur for the Northern Section due to construction of the Northern Portal by the TSD construction team. Haulage vehicles will enter and exit from the Victoria Park site access. Further details can be obtained from TSD's haulage management plan.

While it is expected that there will be increased number of haulage/delivery vehicles from the Gregory Terrace Access when both the projects are under construction concurrently, UNITY will actively coordinate with TSD Project Co. to ensure that the combined impact is reduced as far as practicable.

4.1.7 Standard Operating Hours

Haulage operating hours will be regulated, as per the requirements of the CG Conditions and the PSTR. Haulage and deliveries during the weekend track possessions will require consideration outside the current specification and will be negotiated further with the relevant authorities. Further information of standard operating hours for spoil haulage and deliveries is available in the C-EMP.

4.1.8 Haulage Routes

For the RIS construction works, the haulage routes are planned to reduce any direct impact on the local community and sensitive receptors, as far as practical, by using predominantly the motorways, urban arterial and sub-arterial roads. Suburban, district and local roads are not planned only used where there is otherwise no direct route.

The main entry/exit points will be:

- Lanham Street (Queensland Rail Yard) access for all works in the Mayne Yard
- Bowen Bridge Road and Victoria Park access for all works in the Northern Section and Exhibition Station
- Gate 5 of RNA showgrounds on O'Connell Terrace for Exhibition Station works
- Fairfield Road access via Chale Street for Clapham Yard
- Existing Queensland Rail Station gates for the F2S stations.

4.1.9 Lanham Street Access

Entry and exit from the Lanham Street Queensland Rail yard access is from O'Connell Terrace (suburban road) via Bowen Bridge Road (arterial road) or Hamilton Place/Brooks Street (suburban road). Both Bowen Bridge Road and Mayne Road are connected to motorways including ICB, Airport Link and Clem 7 for deliveries from south and north of Brisbane. This is also the designated entry/exit route for Queensland Rail deliveries to the yard. UNITY will use this route to avoid any additional impact on the surrounding location.

Material transfer from the Northern Section (Gregory Terrace site exit) to Mayne Yard may also occur via Gregory Terrace and Brooke Street to O'Connell Terrace including the return. This route is however planned only outside peak hours when traffic volumes on Gregory Terrace past the RNA are confirmed low.

UNITY is also considering use of Grafton Street entry/exit via Albion Street/McDonald Road for construction works to be carried out on the Mayne North yard. Detailed information will be presented in the relevant CAP.

4.1.10 Gregory Terrace Access

Entry and exit from the Gregory Terrace through Victoria Park and BTS building site will form a major access during construction of the Northern Area for the RIS project. Moreover, this access will be shared by TSD project for the Northern Portal construction works. The existing BTS building and its facilities will be demolished to create a rail corridor entry and exit point for the duration of the project.

UNITY will undertake modification of the existing BCC road in the Victoria Park and demolish the BTS building to create a dedicated construction site access for the two projects. Construction of this access will commence in late 2019.

Few alternative haulage routes for the RIS project to this area is proposed as given below. Haulage routes for the TSD project can be found in TSD's Haulage Management Plan.

UNITY will undertake further haulage route studies for each of these routes once the major quarry and construction material suppliers are engaged. This information will be presented in the CAP and the WPs. Alternative Route 1.

Heavy vehicles from north using the ICB will use the Kelvin Grove exit to Kelvin Grove Road, left turn to College Road and then left turn to Gregory Terrace, and follow the common route as identified on the diagram.

Alternative Route 2

Heavy vehicles from north can travel along Abbotsford Road to St Pauls Terrace, right turn into Leichhardt Street/Wickham Terrace and then right turn into Gregory Terrace, and follow the common route as identified on the diagram.

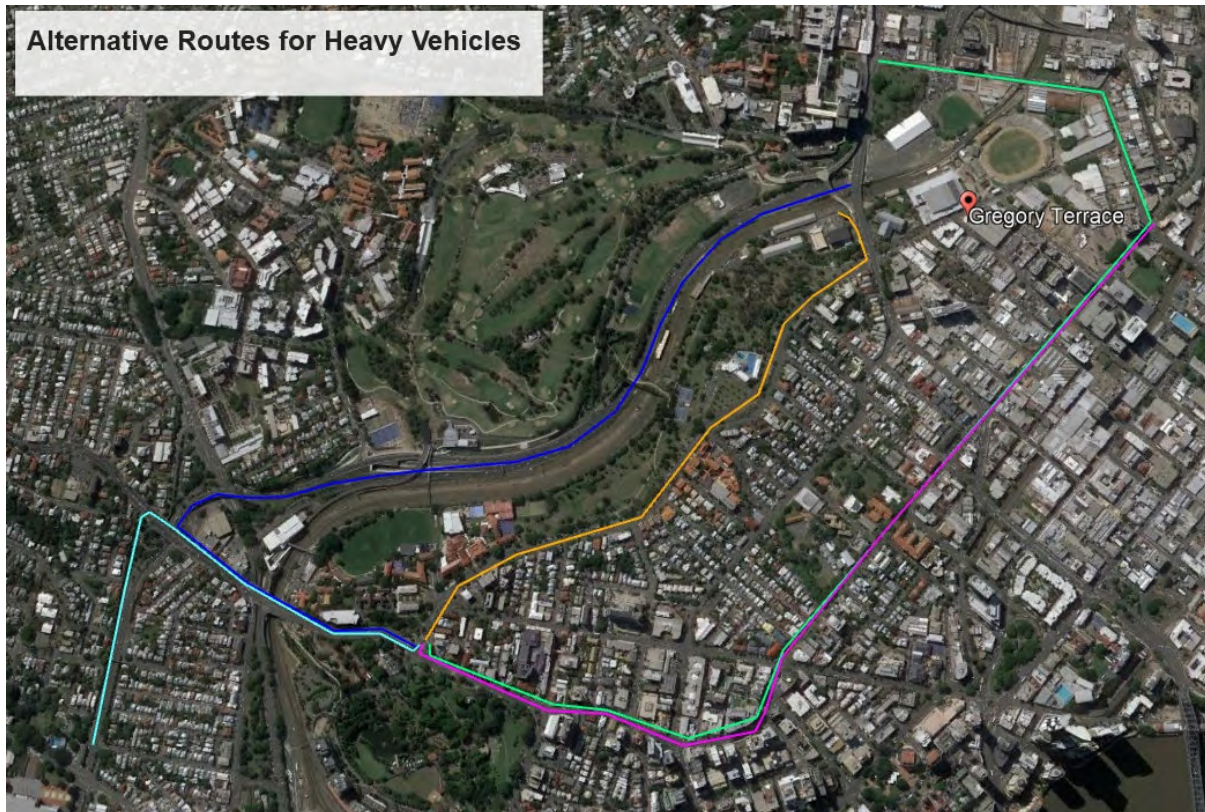
Alternative Route 3

Heavy vehicles using Bowen Bridge Road (north/west) can use O'Connell Terrace to Brookes Street and then right turn to St Paul's Terrace, right turn into Leichhardt Street/Wickham Terrace, and follow the common route as identified on the diagram.

Alternative Route 4

Heavy vehicles travelling from south or west will predominantly use College Road to left turn into Gregory Terrace and follow the common route as identified on the diagram.

The figure below outlines these alternative routes.



Key:

Common Route – Gregory Terrace	—
Alternative Route 1	—
Alternative Route 2	—
Alternative Route 3	—
Alternative Route 4	—

Figure 1: Alternative routes

Gate 5 RNA Showgrounds

Delivery and spoil haulage to and from Gate 5 will be from O'Connell Terrace via Bowen Bridge Road and Hamilton Place. Deliveries from Bowen Bridge Road will be via Campbell Street. This is a standard delivery route for RNA Showground activities and additional impact from spoil haulage and deliveries from the RIS Works will not be significant.

Clapham Yard Access

Entry/exit to Clapham Yard is from Chale Street via Fairfield Road (Arterial road). Fairfield Road is connected to the Ipswich Motorway for deliveries from south and north of Brisbane. Chale Street is within an industrial area and impact on the locality will be minimal.

F2S Station

Delivery routes on both sides of the F2S stations will be via the existing Queensland Rail delivery routes. The major deliveries will be from Fairfield Road for the dual gauge works including the prefabricated steel components (kit-of-parts). Additional deliveries for the suburban side will follow the standard Queensland Rail routes. Detailed information will be captured in the relevant CAP and Work Packs.

5 Impacts and Mitigation Measures

5.1 Impacts

Potential haulage related impacts may include:

- Reduced public safety within the local community due to increased movement of the heavy vehicles
- Increased congestion and delays for existing road users (reduced level of service)
- Increased road accidents and incidents
- Increased impact on wider network
- Increased noise, dust and vibration
- Reduced social amenities
- Increased dirt and mud on roads
- Spills and safety incidents.

5.2 Mitigation Measures

UNITY will implement the following key measures as relevant to reduce the potential impacts identified above:

- Explore opportunities to reuse or spread the spoil on site to reduce the quantity of the spoil to be disposed offsite
- Establish direct communication with spoil haulage companies engaged on the project
- Undertake relevant stakeholder communications prior to commencing spoil haulage
- Develop and implement procedures for managing and responding to traffic incidents involving project construction vehicles, including notification to the Cross River Rail Delivery Authority
- Allow spoil haulage vehicles to only travel on designated haulage routes unless agreed beforehand with the relevant road authority and the Environmental Monitor.
- Clearly mark spoil haulage vehicles and display a visible contact phone number
- Ensure that vehicles leaving a construction worksite pass over or through devices that remove soil and other debris before entering a public road (eg. rumble grids), and that all vehicles carrying spoil and other loose dusty material have covered loads. Where such facilities cannot be provided road sweepers will be used to clean the road, if there is any spoil evident from the RIS haulage operations
- Undertake spoil haulage during designated haulage hours to avoid disruption to the traffic flows during peak periods unless agreed beforehand with the relevant road authority and the Environmental Monitor
- Ensure compliance with ADR requirements (refer to Section 1)
- Ensure haulage vehicles are only operated by personnel who have undergone training in the project's Driver Code of Conduct
- Ensure haulage vehicles are maintained and approved by the project prior to commencing operations
- Avoid major haulage tasks for the RNA showground area works, as far as practicable, during the following scheduled major events including:
 - Ekka Show
 - Camping & Caravan Show
- Ensure local roads and infrastructure impacted by haulage are regularly maintained

- Implement traffic control measures on the local roads where required to improve public safety and reduce congestion and delay, as required by the CTMP and TGS
- Actively coordinate with the TSD Project Co., to reduce the impact of haulage on the road network, safety of the road users, and the local community when both the projects are under construction concurrently. This can be achieved by sequencing the haulage/delivery for the two projects, planning and arranging deliveries during off peak hours
- Spotters, excavator operators are to monitor the loading of spoil trucks to ensure they are not being overloaded when within site or when entering the surrounding road network
- All drivers are to cover their loads in accordance with regulatory requirements when operating on the surrounding road network
- Supervisory personnel will monitor haulage routes during haulage operations to confirm ongoing suitability when considering congestion, network incidents etc and adjust the haulage routes if required
- All drivers will be required to report on traffic conditions, congestion and incidents in real time back to the supervisor if conditions change to enable assessment and adjustment of the haulage routes if required
- Monitor haulage routes during construction to confirm that selected routes minimise impacts to local traffic. Traffic manager and supervisors to undertake inspection of haulage routes to main arterials during haulage operations to check for compliance of haulage vehicle with general road rules and adherence to nominated haulage routes.

Attachment 1 Road Safety Assessment for Spoil Haulage Routes

Construction Worksites	Site Access/ Egress	Peak Spoil Movement Loads/Day (one way)	Peak Delivery Movement Loads/day (one way)	Peak Traffic Movement Load/hour (one way)	Roadway Owner	Height Restrictions	Length Restrictions	Weight Restrictions	Travel Time Restrictions (for haulage type vehicles)	School Zones
Mayne Yard	Lanham Street	83	40	11	BCC	4.3m	19m	42.5t GMV	** NA	No
Mayne Yard	Gregory Terrace, Brookes Street, O'Connell Terrace	50	24	7	BCC	4.3m	19m	42.5t GMV	Limited to outside peak hours	No
Exhibition Station	O'Connell Terrace	24	73	11	BCC	4.3m	19m	42.5t GMV	** NA	No
Northern Section	Gregory Terrace and Bowen Bridge Road – Common Route	89	80	12	BCC	4.3m	19m	42.5t GMV	** NA	Yes
Northern Section	Gregory Terrace and Bowen Bridge Road – Alternative Route 01	89	80	12	BCC	4.3m	19m	42.5t GMV	** NA	Yes
Northern Section	Gregory Terrace and Bowen Bridge Road – Alternative Route 02	89	80	12	BCC	4.3m	19m	42.5t GMV	** NA	Yes
Northern Section	Gregory Terrace and Bowen Bridge Road – Alternative Route 03	89	80	12	BCC	4.3m	19m	42.5t GMV	** NA	Yes
Northern Section	Gregory Terrace and Bowen Bridge Road – Alternative Route 04	89	80	12	BCC	4.3m	19m	42.5t GMV	** NA	Yes
Clapham Yard	Fairfield Road	41	125	17	BCC	4.3m	19m	42.5t GMV	** NA	No

** NA: No travel time restriction

Attachment 2 Road Authority Approvals

Property Damage Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
Document number:	RIS-UNA-ENV-MPL-00284
Revision date:	09/07/2020
Revision number:	02

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	03/04/20	Environmental Advisor - UNITY	Acoustic Specialist and Heritage Specialist - UNITY		Comments from Acoustic Specialist and Heritage Specialist incorporated in Rev B
Signature:					
B	17/05/20	Environmental Advisor - UNITY			Incorporated advice from Structural Engineer in Rev 00
Signature:					
00	29/05/20	Environmental Advisor - UNITY		Environmental and Approvals Manager - UNITY	For issue
Signature:					
01	21/06/20	Environmental Advisor - UNITY		Environmental and Approvals Manager - UNITY	Incorporated advice for 8 Tufton Street
Signature:					
02	06/07/20	Environmental Advisor – UNITY		Environmental and Approvals Manager - UNITY	Incorporation of F2S Vibration model
Signature:					

Plan Control

This Property Damage Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates is in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Plan developed based on the outcomes of the predictive vibration model and outcomes of building surveys Plan provided to UNITY's Heritage and Acoustic Specialist for internal review and comments
B	Plan updated to include Structural engineer reports and additional information Plan updated to include information relevant to Queensland Heritage Council Recommendations
00	Submission to Queensland Heritage Council Submission to the Environmental Monitor
01	Update to 8 Tufton Street Vibration Limits
02	Incorporation of F2S Vibration Model

1 Purpose of this Plan

This sub-plan has been prepared to comply with:

- Coordinator-General's Imposed Condition – Appendix 1 – Part C:
 - Condition 12
- Final Outline-Environmental Management Plan (O-EMP) – Community and Stakeholder Engagement Plan
- Final Outline-Environmental Management Plan (O-EMP) – Non-Indigenous Heritage Management Plan.
- Queensland Heritage Council recommendation about Development by the state - 202002-10044 SD:
 - Condition 9 - Documentation of Construction Mitigation Measures
 - Condition 11 - Requirement to Report Damage
 - Condition 12 - Report on Post-Construction Building Condition Survey
 - Condition 13 - Damage Rectification

Component	Details
Outcome(s)	• Construction activities are managed to minimise impacts on the values of identified heritage places, within and adjacent to the construction worksites • Construction activities are managed to minimise property damage of residential, commercial and industrial property, within and adjacent to the construction worksites • Local communities, residents and businesses likely to be directly affected by potential property damage are aware of the nature, timing and predicted effects of the works in advance of their commencement • Potentially affected persons have access to an effective and responsive communication and complaints process to address and respond to property damage complaints • Ensure that the cultural heritage values of the place are appropriately managed
Relevant Area	• Heritage Buildings Where predictive modelling shows an exceedance of the recommended 2mm/s Peak particle Velocity threshold (PPV) for cosmetic damage – Refer Attachment 1 for details • Residential where predictive modelling shows an exceedance of 50mm/s PPV – There are no predicted exceedances of the residential vibration limit at any residential buildings • Industrial/Commercial where predictive modelling shows an exceedance of 50mm/s PPV – There are no predicted exceedances of the Vibration Limit at any Industrial or commercial buildings
Relevant Works / Activities	• Piling • Rock-breaking • General earthworks • Vibratory rolling • Jackhammering • Construction activities in close proximity to heritage, residential and commercial buildings.

Component	Details																																						
Performance Criteria	- Construction activities do not permanently damage residential or commercial buildings directly or indirectly through excessive vibration - Construction activities do not permanently damage places of historical heritage value directly or indirectly through excessive vibration - Compliance with the limits set out in Table 2 or where limits recommended in the Condition Assessment and Vibration Susceptibility Assessments undertaken by the project structural engineer for identified DAPs (Directly Affected Persons) (Table 3).																																						
	Table 2: Vibration limits as per the Coordinator General Change Report (Condition 11, Table 3)																																						
	<table><tr><th rowspan="2">Receiver type</th><th colspan="3">Cosmetic damage</th><th colspan="2">Human comfort (mm/s PPV)</th><th rowspan="2">Sensitive building contents (mm/s PPV)</th></tr><tr><th>Continuous vibration (mm/s PPV)</th><th>Transient vibration (mm/s PPV)</th><th>Blasting vibration (mm/s PPV)</th><th>Day</th><th>Night</th></tr><tr><td>Residential</td><td>According to BS7385 reduced by 50%⁴</td><td>According to BS7385</td><td>50¹</td><td>According to AS2670</td><td>0.5²</td><td>-</td></tr><tr><td>Commercial</td><td>According to BS7385 reduced by 50%⁴</td><td>According to BS7385</td><td>50</td><td>According to AS2670</td><td>-</td><td>0.5³</td></tr><tr><td>Heritage structures</td><td>2</td><td>-</td><td>10</td><td>-</td><td>-</td><td>-</td></tr></table>	Receiver type	Cosmetic damage			Human comfort (mm/s PPV)		Sensitive building contents (mm/s 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	-	-	-					
	Receiver type		Cosmetic damage			Human comfort (mm/s PPV)			Sensitive building contents (mm/s PPV)																														
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Heritage structures	2	-	10	-	-	-																																	
	Note 1: All residential receivers in the vicinity of the Project blasting sites are regarded as reinforced or framed structures (i.e. BS 7385). Note 2: Residential sleep disturbance Note 3: Equipment specific vibration criteria is required for highly sensitive equipment (i.e. electron microscopes, MRI systems or similar), as part of future site-specific detailed investigations. Note 4: If resonance is present, or if investigations to detect resonance were not able to be undertaken due to a lack of access																																						
	Table 3: DIN4150 Structural damage criteria																																						
	<table><tr><th colspan="6">Table 1: DIN 4150:Part 3: Structural Damage Criteria</th></tr><tr><th rowspan="3">Group</th><th rowspan="3">Type of Structure</th><th colspan="4">Peak Particle Velocity mm/s</th></tr><tr><th colspan="3">At Foundation</th><th>Plane of Floor Uppermost Storey</th></tr><tr><th>1Hz to 10Hz</th><th>10Hz to 50Hz</th><th>50Hz to 100Hz</th><th>All frequencies</th></tr><tr><td>1</td><td>Buildings used for commercial purposes, industrial buildings and buildings of similar design.</td><td>20</td><td>20 at 10Hz increasing to 40 at 50Hz</td><td>40 at 50Hz increasing to 50 at 100Hz</td><td>40</td></tr><tr><td>2</td><td>Dwellings and buildings of similar design and / or use.</td><td>5</td><td>5 at 10Hz increasing to 15 at 50Hz</td><td>15 at 50Hz increasing to 20 at 100Hz</td><td>15</td></tr><tr><td>3</td><td>Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Group 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order).</td><td>3</td><td>3 at 10Hz increasing to 8 at 50Hz</td><td>8 at 50Hz increasing to 10 at 100Hz</td><td>8</td></tr></table>	Table 1: DIN 4150:Part 3: Structural Damage Criteria						Group	Type of Structure	Peak Particle Velocity mm/s				At Foundation			Plane of Floor Uppermost Storey	1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz	All frequencies	1	Buildings used for commercial purposes, industrial buildings and buildings of similar design.	20	20 at 10Hz increasing to 40 at 50Hz	40 at 50Hz increasing to 50 at 100Hz	40	2	Dwellings and buildings of similar design and / or use.	5	5 at 10Hz increasing to 15 at 50Hz	15 at 50Hz increasing to 20 at 100Hz	15	3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Group 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order).	3	3 at 10Hz increasing to 8 at 50Hz	8 at 50Hz increasing to 10 at 100Hz	8
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Sustainability	Sta-1, Sta-2, Sta-4, Her-1, Her-2, Dis-3, Man-4																																						
Mitigation Measure	Prior to Construction Undertake predictive vibration modelling in accordance with the Noise and Vibration management Sub-plan																																						

Component	Details
	- Confirm the list of Buildings requiring pre-condition surveys (refer Attachment 2) - Undertake precondition building condition surveys by a suitably qualified person (typically structural engineer or equivalent) prior to works, including the provision for consultation with property owners and occupants - Structural Engineer to determine the actual building specific vibration goals based on the findings of their assessment (Attachment 3) - Brief owners/occupiers of properties requiring a survey/report via letter or in person (if required) and answer any enquiries about the process in accordance with the Community Engagement Plan - All personnel involved in, or supervising construction works will complete the heritage, community, noise and vibration portion of the site induction. Further inductions and toolboxes to be run when relevant works are commencing - For all impact to state heritage places, obtain the relevant approvals or exemptions under the <i>Queensland Heritage Act 1992</i> - For all impacts to QR or BCC heritage places (other than state heritage places), notify the relevant Stakeholders prior to the relevant works commencing - Prepare a building specific vibration monitoring plan where deemed necessary by the project structural engineer. This is to include the acceptable limits, location, frequency and timing of the monitoring as well as the activities triggering the need for vibration monitoring. - For Heritage Buildings to be demolished – undertake Archival recording as agreed with relevant Heritage Departments prior to demolition During Construction - Comply with the relevant Heritage Approvals throughout the works - Incorporate the construction requirements for the management of heritage values and potential property damage in the relevant work packs and SEPs - Implement the vibration monitoring plan - Any damage to State Listed building fabric and/or significant elements or artefacts must be reported to the Department of Environment and Science. Post Construction - A suitably qualified person is to undertake of post construction dilapidation survey to identify changes (if any) to the structure. - Undertake repairs as required by either the - Heritage Approvals requirements (Burra Charter), or - The agreed rectification plan with the property owner - For State Heritage Listed Building the timing, method and extent of the repair works must be agreed to with the DES and implemented within a timeframe agreed with the DES Heritage Unit. Complaints - All complaints pertaining to property damage will be managed in accordance with the requirements of the community engagement plan and with the support of the Community and Stakeholder and Engagement team (CSET) as necessary.
Monitoring	- Monitoring of residential and commercial / industrial buildings will be undertaken in response to validated complaints and as agreed with property owners - Monitoring for Heritage buildings will be undertaken as per Attachment 4 to Attachment 7 - Visual site inspections may be undertaken during scheduled weekly inspections
Reporting	- Reporting will be undertaken in accordance with the approved heritage impact statements and associated heritage permit conditions. - Alternatively, reporting will be in accordance with section 8.2 of the C-EMP.
Corrective Action	- Management of corrective actions will be undertaken in accordance with imposed heritage approvals conditions - Alternatively, management of corrective actions will be as per section 6 of the C-EMP
Auditing	- Auditing will be undertaken in accordance with the relevant Heritage Approvals - Alternatively, auditing will be as per section 7 of the C-EMP.

Attachment 1 List of sensitive buildings along the project Footprint

Area	HIS Reference (If applicable)	Location	Type of Structure	CGCR vibration goals for cosmetic damage
RNA Precinct / Northern Corridor		8 Tufton Street, Bowen Hills	Residential / Local Heritage	2mm/s
RNA Showgrounds	ID01	John MacDonald Stand	State Heritage	2mm/s
RNA Showgrounds	ID02	Toilet Block (John MacDonald Stand)	State Heritage	2mm/s
RNA Showgrounds	ID03	Toilet Block (Interwar)	State Heritage	2mm/s
RNA Showgrounds	ID05	Rail Corridor Fencing	State Heritage	2mm/s
RNA Showgrounds	ID06	Wall (Bowen Bridge Road)	State Heritage	2mm/s
RNA Showgrounds	ID08	Turnstiles	State Heritage	2mm/s
RNA Showgrounds	ID09	Beef Cattle Pavilion	State Heritage	2mm/s
RNA Showgrounds	ID13	Cattle Underpass	State Heritage	2mm/s
RNA Showgrounds	ID14	Rail Corridor Fencing	State Heritage	2mm/s
RNA Showgrounds	ID15	Toilet Block (O'Connell Terrace)	State Heritage	2mm/s
RNA Showgrounds	ID16	Members Stand	State Heritage	2mm/s
RNA Showgrounds	ID17	RNA Council Stand	State Heritage	2mm/s
RNA Showgrounds	ID18	Former Commonwealth Bank Building	State Heritage	2mm/s
RNA Showgrounds	ID19 and ID70	Machinery Hill Stands including cattleman's box	State Heritage	2mm/s
RNA Showgrounds	ID21	Ernest Baynes Stand	State Heritage	2 mm/s
RNA Showgrounds	ID22	Marshalling Yard and Stands	State Heritage	2mm/s
RNA Showgrounds	ID24	Commentators Building	State Heritage	2mm/s
RNA Showgrounds	ID25	Industrial Pavilion (facade)	State Heritage	2mm/s
RNA Showgrounds	ID27	Stock Pavilion and adjoining toilet block	State Heritage	2mm/s
RNA Showgrounds	ID29	Horse Stables	State Heritage	2mm/s
RNA Showgrounds	ID30	Horse Stalls	State Heritage	2mm/s
RNA Showgrounds	ID31	Stock Agents Offices	State Heritage	2mm/s
RNA Showgrounds	ID32	Stockman's Bar and Grille	State Heritage	2mm/s
RNA Showgrounds	ID33	Toilet Block	State Heritage	2mm/s
RNA Showgrounds	ID34	Lady Forster Building	State Heritage	2mm/s
RNA Showgrounds	ID50	Wall (O'Connell Terrace)	State Heritage	2mm/s
RNA Showgrounds	ID51	Wall – Brookes Street	State Heritage	2mm/s
RNA Showgrounds	ID52, 53 and 54	Gregory Terrace fence, wall and gates	State Heritage	2mm/s
RNA Showgrounds	ID58	Pedestrian Underpass	State Heritage	2mm/s
RNA Showgrounds	ID62	Fence	State Heritage	2mm/s
RNA Showgrounds	ID65	Retaining Wall	State Heritage	2mm/s

Area	HIS Reference (If applicable)	Location	Type of Structure	CGCR vibration goals for cosmetic damage
RNA Showgrounds	ID68	Community Swimming Club café	State Heritage	2mm/s
RNA Showgrounds	ID69	Lady Competitors Box	State Heritage	2mm/s
RNA Showgrounds	ID71	Entry Shed – O'Connell Terrace	State Heritage	2mm/s
RNA Showgrounds	ID91	RNA Showgrounds Vet Office and Quarters	State Heritage	2mm/s
Northern Corridor		Brisbane Girls Grammar School – Main Building	Local Heritage	2mm/s
Northern Corridor		Brisbane Girls Grammar School – Western Wing	Local Heritage	2mm/s
Northern Corridor		Brisbane Grammar School	State Heritage	2mm/s
Northern Corridor		Old Museum Building	State heritage	2mm/s
F2S		Fairfield Station – Platform Shelter	QR Heritage	2mm/s
F2S		Fairfield Station - Footbridge	QR Heritage	2mm/s
F2S		Fairfield Passenger Station	QR Heritage	2mm/s
F2S		Yeronga Station Footbridge	Local Heritage/QR Heritage	2mm/s
F2S		Yeerongpilly Passenger Station	QR Heritage	2mm/s
F2S		Rocklea Passenger Station	QR Heritage	2mm/s
F2S		Rocklea Platform Shelter	QR Heritage	2mm/s
F2S		Rocklea Footbridge	QR Heritage	2mm/s
F2S		Salisbury Passenger Station	QR Heritage	2mm/s
F2S		Salisbury Footbridge	QR Heritage	2mm/s

Attachment 2 Predictive Vibration Model Outcomes

The below table summarises the outcomes of the Predictive Vibration Model. This table may be amended from time to time.

Area	HIS Reference (If applicable)	Location Locations	Exceedance of CGCR Cosmetic Vibration Goals Predicted?	Building condition surveys required?
RNA Precinct / Northern Corridor		8 Tufton Street, Bowen Hills	Yes	Yes – Survey undertaken 10 June 2020
RNA Showgrounds	ID01	John MacDonald Stand	Yes	Yes – Survey undertaken on 23 January 2020
RNA Showgrounds	ID02	Toilet Block (John MacDonald Stand)	Yes	Yes – Survey undertaken on 23 January 2020
RNA Showgrounds	ID03	Toilet Block (Interwar)	Yes	To be demolished Archival Recording only
RNA Showgrounds	ID05	Rail Corridor Fencing	Yes	To be demolished – Survey undertaken on 6 May 2020
RNA Showgrounds	ID06	Wall (Bowen Bridge Road)	Yes	Yes – a building inspection to be scheduled prior to track works using a vibratory roller. Sub-plan to be updated upon provision of this report.
RNA Showgrounds	ID08	Turnstiles	No	No
RNA Showgrounds	ID09	Beef Cattle Pavilion	Yes	Yes – Survey undertaken on 14 February 2020
RNA Showgrounds	ID13	Cattle Underpass	Yes	To be demolished - Archival recordings to be undertaken
RNA Showgrounds	ID14	Rail Corridor Fencing	No	No
RNA Showgrounds	ID15	Toilet Block (O'Connell Terrace)	Yes	To be demolished - Archival recordings to be undertaken
RNA Showgrounds	ID16	Members Stand	Yes	Yes – survey undertaken on 21 February 2020
RNA Showgrounds	ID17	FA	Yes	Yes – a building inspection to be scheduled prior to platform works. Sub-plan to be updated upon provision of this report.
RNA Showgrounds	ID18	Former Commonwealth Bank Building	No	No
RNA Showgrounds	ID19 and ID70	Machinery Hill Stands including cattleman's box	Yes	Yes – Survey undertaken on 28 April 2020
RNA Showgrounds	ID21	Ernest Baynes Stand	Yes	Yes – Survey undertaken 6 May 2020
RNA Showgrounds	ID22	Marshalling Yard and Stands	No	No
RNA Showgrounds	ID24	Commentators Building	No	No

Area	HIS Reference (If applicable)	Location Locations	Exceedance of CGCR Cosmetic Vibration Goals Predicted?	Building condition surveys required?
RNA Showgrounds	ID25	Industrial Pavilion (facade)	Yes	Yes – Survey undertaken on the 6 May 2020
RNA Showgrounds	ID27	Stock Pavilion	Yes	Yes – Survey undertaken on the 28 April 2020
RNA Showgrounds	ID29	Horse Stables	No	No
RNA Showgrounds	ID30	Horse Stalls	No	No
RNA Showgrounds	ID31	Stock Agents Offices	No	No
RNA Showgrounds	ID32	Stockman's Bar and Grille	No	No
RNA Showgrounds	ID33	Toilet block	No	No
RNA Showgrounds	ID34	Lady Forster Building	No	No
RNA Showgrounds	ID50	Wall (O'Connell Terrace)	Yes	Yes – Survey undertaken on 28 th April 2020
RNA Showgrounds	ID51	Wall – Brookes Street	No	No
RNA Showgrounds	ID52, 53 and 54	Gregory Terrace fence, wall and gates	No	No
RNA Showgrounds	ID58	Pedestrian Underpass	Yes	To be demolished Archival Recording Only
RNA Showgrounds	ID62	Fence	No	No
RNA Showgrounds	ID65	Retaining Wall	No	To be demolished Archival Recording Only
RNA Showgrounds	ID68	Community Swimming Club café	Yes	Yes – Survey undertaken on 21 February
RNA Showgrounds	ID69	Lady Competitors Box	No	No
RNA Showgrounds	ID71	Entry Shed – O'Connell Terrace	No	No
RNA Showgrounds	ID91	RNA Showgrounds Vet Office and Quarters	Yes	To be demolished Archival Recording Only Survey undertaken on the 14 February 2020 in the event demolition does not proceed
Northern Corridor		Brisbane Girls Grammar School – Main Building	No	No
Northern Corridor		Brisbane Girls Grammar School – Western Wing	No	No
Northern Corridor		Brisbane Grammar School	No	No

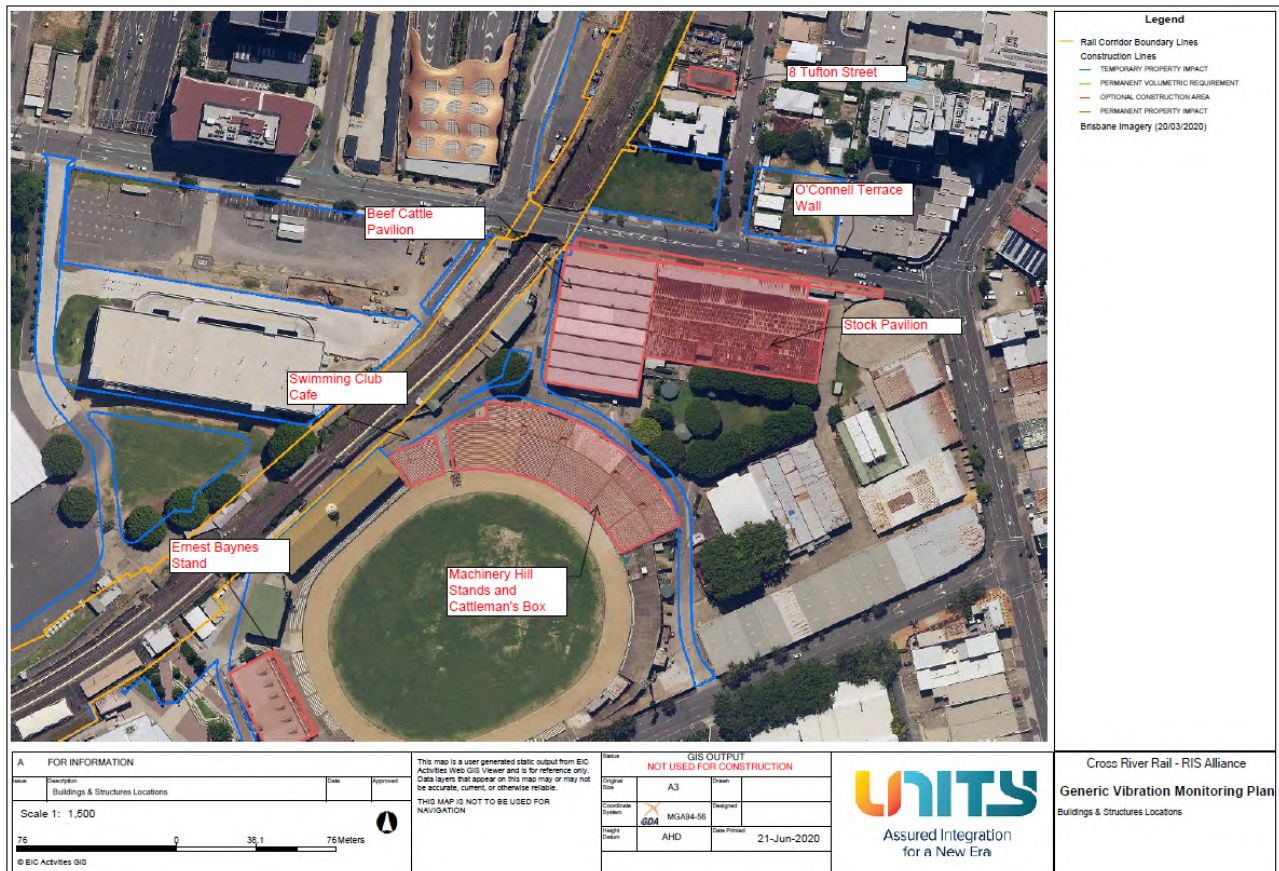
Area	HIS Reference (If applicable)	Location Locations	Exceedance of CGCR Cosmetic Vibration Goals Predicted?	Building condition surveys required?
Northern Corridor		Old Museum Building	Yes	Yes – a building inspection is to be scheduled prior to track works using a vibratory roller. Sub-plan to be updated upon provision of this report.
F2S		Fairfield Station – Platform Shelter	Awaiting updated vibration model	To be demolished Archival Recording Only
F2S		Fairfield Station - Footbridge	Awaiting updated vibration model	To be demolished Archival Recording Only
F2S		Fairfield Passenger Station	Awaiting updated vibration model	To be demolished Archival Recording Only
F2S		Yeronga Station Footbridge	Awaiting updated vibration model	To be demolished Archival Recording Only
F2S		Yeerongpilly Passenger Station	Awaiting updated vibration model	To be demolished Archival Recording Only
F2S		Rocklea Passenger Station	Awaiting updated vibration model	To be demolished Archival Recording Only
F2S		Rocklea Platform Shelter	Awaiting updated vibration model	To be demolished Archival Recording Only
F2S		Rocklea Footbridge	Awaiting updated vibration model	To be demolished Archival Recording Only
F2S		Salisbury Passenger Station	Awaiting updated vibration model	To be demolished Archival Recording Only
F2S		Salisbury Footbridge	Awaiting updated vibration model	To be demolished Archival Recording Only

Attachment 3 Revised Vibration Limits (dependant on frequency) and Associated Recommended monitoring Program

Area	Locations	Revised Vibration Limit (dependant on frequency)	Relevant Project Works / Predicted vibration levels	Exceedance of revised limit Predicted?	Monitoring Program recommended
RNA Precinct / Northern Corridor	8 Tufton Street, Bowen Hills	20mm/s-40mm/s	Stage 1 Modelling: 5mm/s	No	Generic Refer Attachment 4
RNA Showgrounds	Wall (O'Connell Terrace) ID50	20mm/s-40mm/s	Stage 1 modelling: 8mm/s	No	Generic Refer Attachment 4
RNA Showgrounds	Beef Cattle Pavilion ID09	20mm/s-40mm/s	Stage 1 modelling: 8mm/s	No	Generic Refer Attachment 4
RNA Showgrounds	Stock Pavilion ID27	20mm/s-40mm/s	Stage 1 Modelling: 3mm/s	No	Generic Refer Attachment 4
RNA Showgrounds	Machinery Hill Stands including cattleman's box ID70 and ID19	20mm/s-40mm/s	Stage 1 Modelling: 5mm/s	No	Generic Refer Attachment 4
RNA Showgrounds	Community Swimming Club café ID68	20mm/s-40mm/s	Stage 1 Modelling: 6mm/s	No	Generic Refer Attachment 4
RNA Showgrounds	John MacDonald Stand ID01	3mm/s-10mm/s	Demolition works modelling: 10mm/s Station demolition works modelling: 45mm/s	Yes	Specific Refer Attachment 6
RNA Showgrounds	Members Stand ID16	20mm/s-40mm/s	Stage 1 works: 37mm/s	Yes	Specific Refer Attachment 7
RNA Showgrounds	Ernest Baynes Stand ID21	20mm/s-40mm/s	Stage 1 Modelling: 7mm/s	No	Generic Refer Attachment 4
RNA Showgrounds	RNA Council Stand ID17	Assessment yet to be undertaken	Demolition works: 2mm/s Station demolition works: 2.5mm/s	Not yet assessed	to be determined
RNA Showgrounds	Industrial Pavilion (facade) ID25	3mm/s-10mm/s	Stage 1 works 3.5mm/s	Yes	Specific Refer Attachment 5
Northern/RNA Showgrounds	Old Museum Building	Assessment yet to be undertaken	Stage 1 works 3mm/s	Not yet assessed	to be determined

Attachment 4 Generic Vibration Monitoring Plan

- Location of affected buildings: identified in Attachment 3 and below Figure.



- Vibration limits (DIN4150)

The buildings identified have all been deemed to be in group 1 as per the below Table.

Initial Action levels are to be nominated based on the most conservative limits for the Building Group.

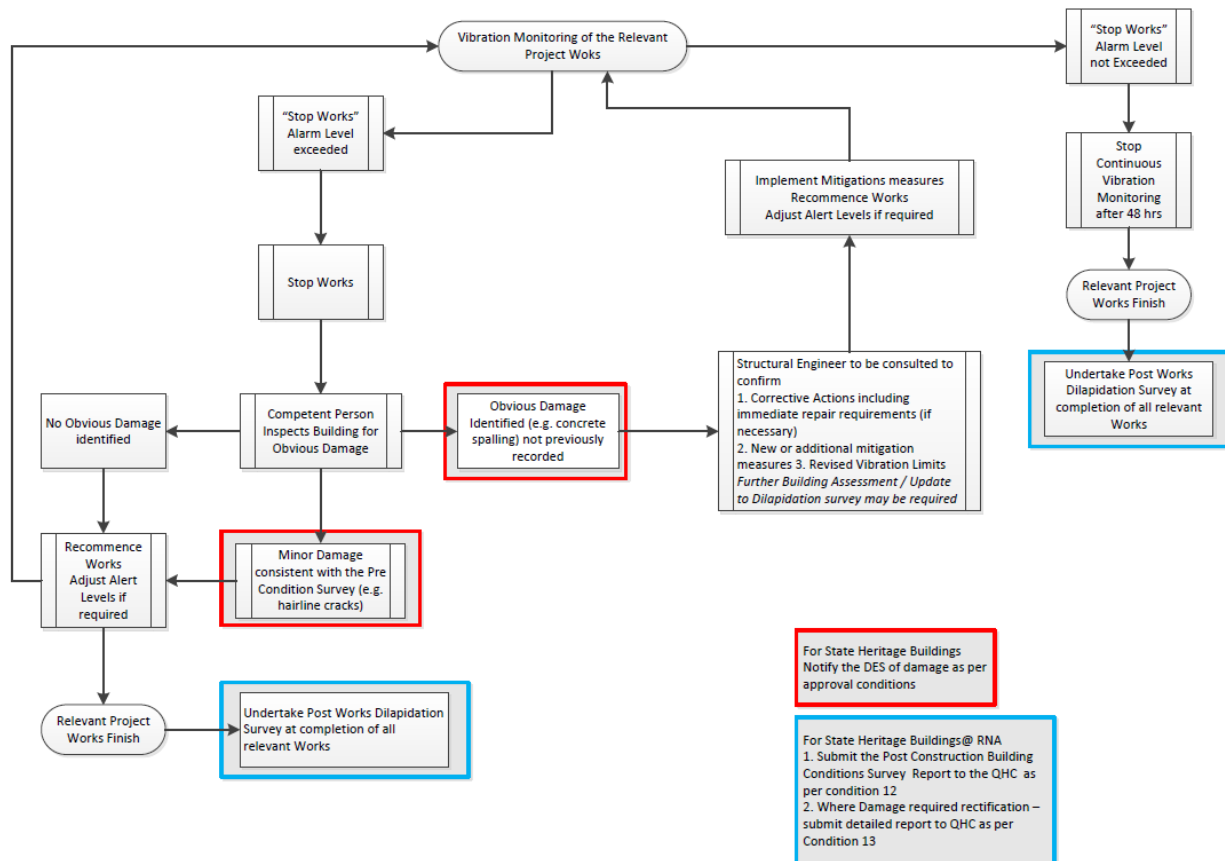
The Action Levels may be revised as monitoring data are reviewed.

Group	Type of Structure	Peak Particle Velocity mm/s			
		At Foundation			Plane of Floor Uppermost Storey
		1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design.	20	20 at 10Hz increasing to 40 at 50Hz	40 at 50Hz increasing to 50 at 100Hz	40
2	Dwellings and buildings of similar design and / or use.	5	5 at 10Hz increasing to 15 at 50Hz	15 at 50Hz increasing to 20 at 100Hz	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Group 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order).	3	3 at 10Hz increasing to 8 at 50Hz	8 at 50Hz increasing to 10 at 100Hz	8

- Relevant Project Works (Stage 1):
 - RNA Showgrounds – Stage 1 building demolition

- RNA Showgrounds – Retaining wall removal with jackhammer
- RNA Showgrounds – O’Connell Terrace / Rail corridor Rock breaking
- RNA Showgrounds – Track and capping works with Vibratory Roller
- RNA Showgrounds – Piling Works
- RNA Showgrounds – Platform demolition
- Any other Project Works deemed to be high risk by the acoustic team
- Relevant Construction Equipment:
 - Excavator with hydraulic hammer attachment
 - Jackhammer (hand-held)
 - Vibratory roller
 - Piling Equipment
 - Any other activity deemed to be high risk by the acoustic team
- Monitoring Equipment:
 - SYSCOM MR3000C or
 - Texcel ETM or
 - Similar models of vibration meters
- Action Levels to be used for the vibration monitors:
 - Alert – 16mm/s (early warning – no action required) and
 - Stop Works Alarm – 19mm/s
- Monitoring Procedure:
 - Set up of vibration meter at the closest location between the directly affected building and where the works are occurring
 - Set up real time alerts on the vibration meter based on the Action Levels detailed before.
 - Monitoring Data to be reviewed as they are collected and compared against the predictive assessment
 - If the model is verified as accurate or as conservative by the acoustic team, vibration monitoring can be ceased at the specific building after two (2) full days of monitoring.
 - If the monitoring data indicate that the model under-predicted potential exceedances – monitoring must continue at additional set back distances (to be nominated) to ascertain whether additional buildings need to be considered for dilapidation surveys.
 - Implement the monitoring response procedure as detailed in the below flowchart.

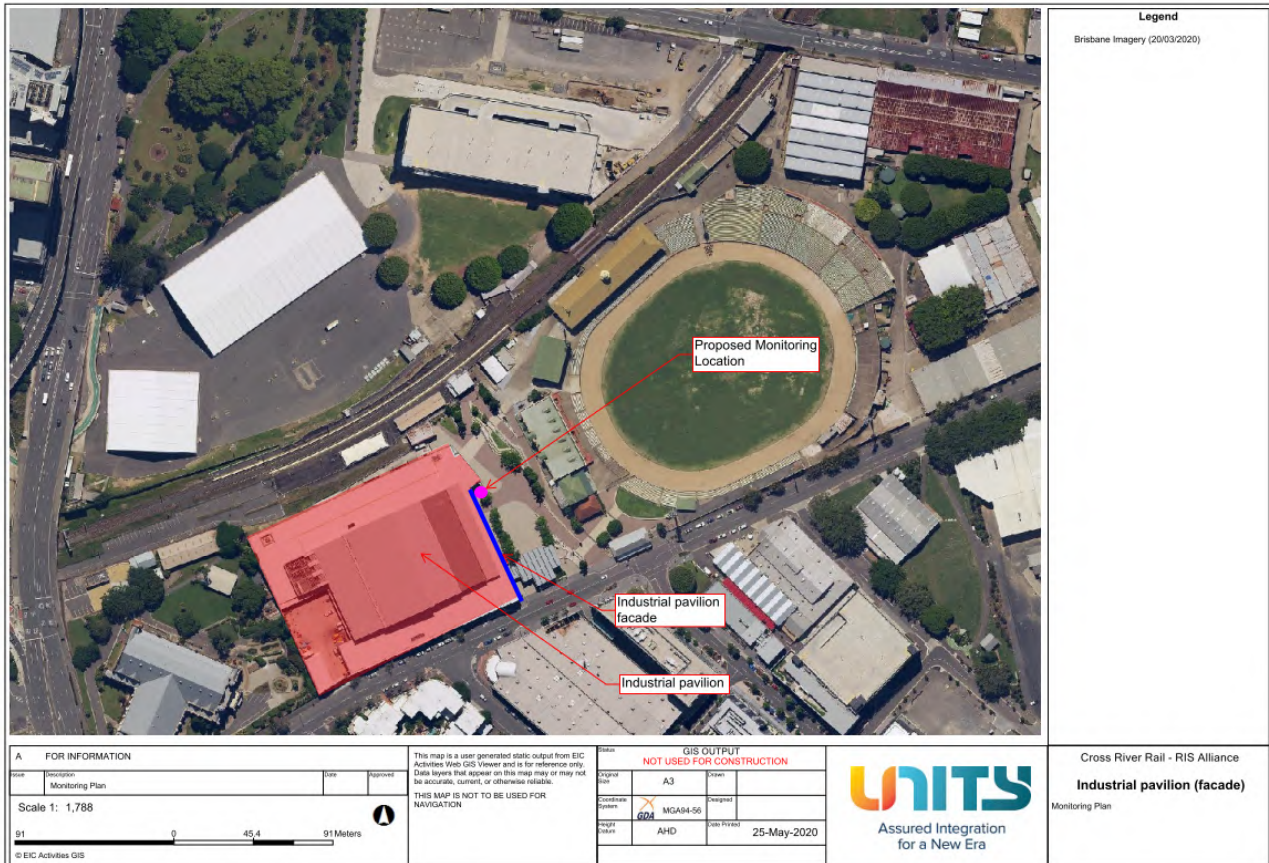
NOTE: In the event that two or more buildings are affected by the same activity, preference will be given to monitoring the building that is either the closest to the works or the one with the higher heritage value.



Flowchart 1: Monitoring Response Procedure

Attachment 5 Industrial Pavilion (façade) Specific Monitoring plan

- Location of affected building:



- Vibration limits:

The industrial pavilion facade has been deemed to be in group 3 in the below table.

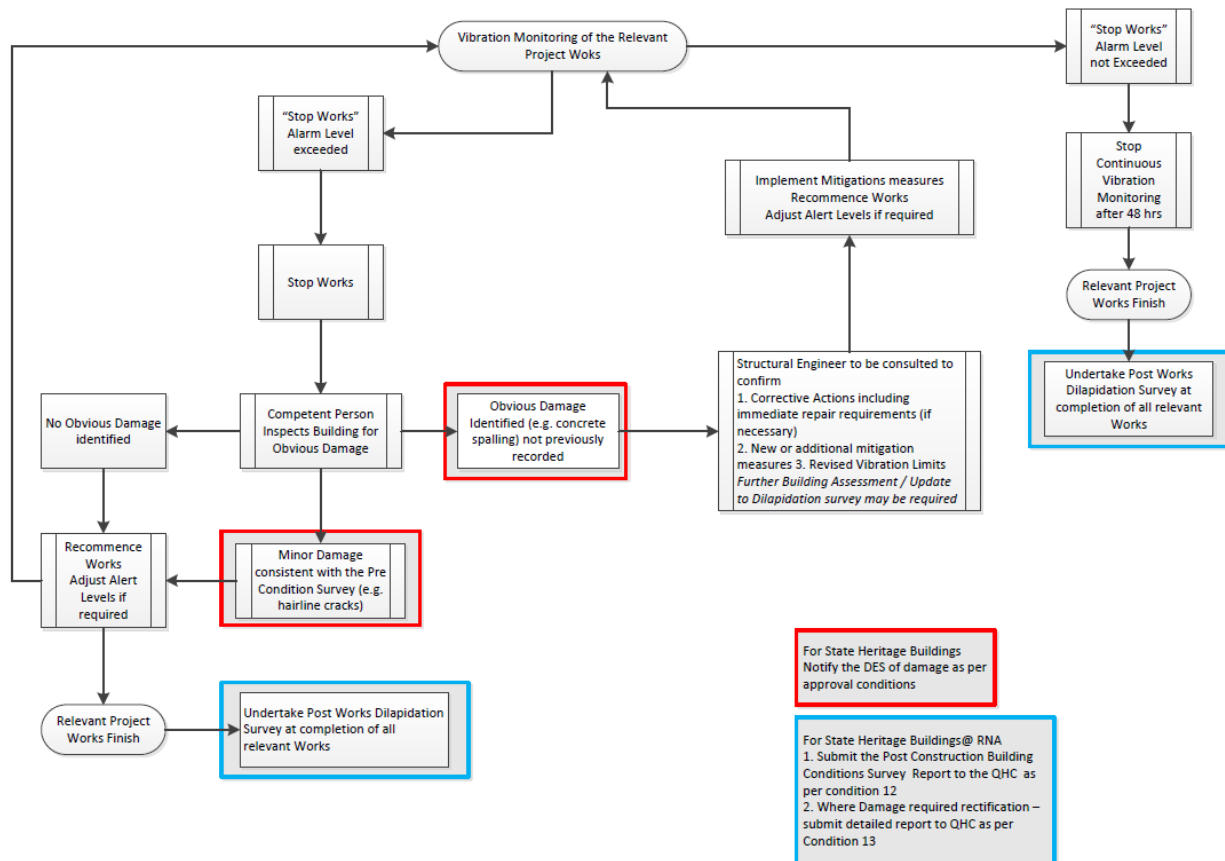
Group	Type of Structure	Peak Particle Velocity mm/s			
		At Foundation			Plane of Floor Uppermost Storey
		1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design.	20	20 at 10Hz increasing to 40 at 50Hz	40 at 50Hz increasing to 50 at 100Hz	40
2	Dwellings and buildings of similar design and / or use.	5	5 at 10Hz increasing to 15 at 50Hz	15 at 50Hz increasing to 20 at 100Hz	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Group 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order).	3	3 at 10Hz increasing to 8 at 50Hz	8 at 50Hz increasing to 10 at 100Hz	8

- Relevant Project Works:
 - Exhibition – Stage 1 building demolition
 - Platform Demolition

- Relevant Construction Equipment:
 - Excavator with hydraulic hammer attachment
 - Jackhammer
 - Vibratory roller
 - Any other activity deemed to be high risk by the acoustic team
- Monitoring Equipment:
 - SYSCOM MR3000C or
 - Texcel ETM or
 - Similar models of vibration meters
- Action levels to be used for the vibration monitors:
 - Alert – 2mm/s (early warning – no action required) and
 - Stop Works Alarm – 2.5mm/s
- Monitoring Procedure:
 - Set up of vibration meter at the closest location between the directly affected building and where the works are occurring
 - Set up real time alerts on the vibration meter based on the Action Levels detailed before.
 - Commence Relevant Project Works at a setback distance¹
 - Monitoring Data to be reviewed as they are collected and compared against the predictive assessment
 - If the model is verified as accurate or as conservative by the acoustic team, vibration monitoring can be ceased at the specific building after two (2) full days of monitoring and the setback distance will be voided.
 - If the monitoring data indicate that the model under-predicted potential exceedances – monitoring must continue at additional set back distances (to be nominated) to ascertain whether additional buildings need to be considered for dilapidation surveys.
 - Implement the monitoring response procedure as detailed in the below flowchart.

NOTE: In the event that two or more buildings are affected by the same activity, preference of monitoring will be given to the buildings with the greater potential exceedance

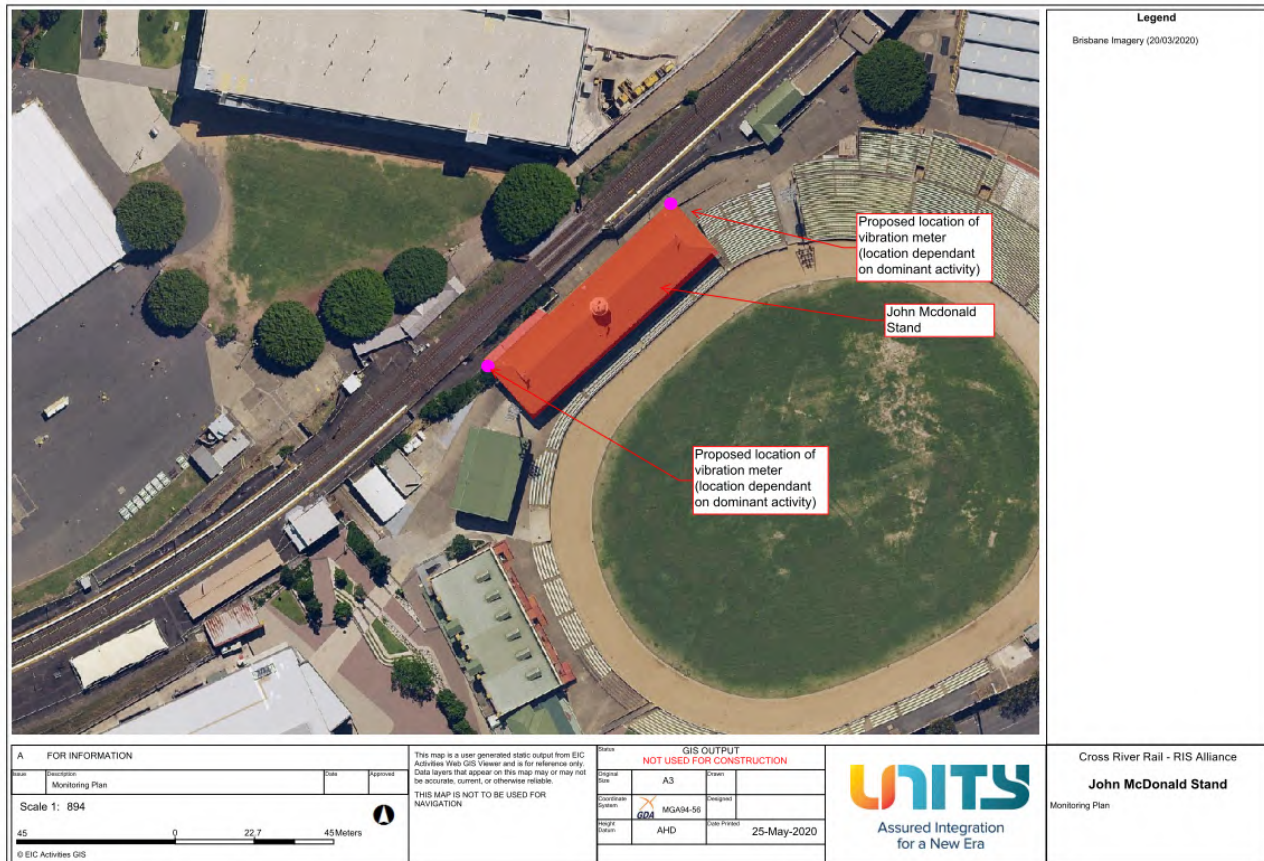
¹ Set back distance: distance from the affected building at which the relevant project works at not predicted to exceed the action levels. This distance is to be set based on the predictive assessment



Flowchart 1: Monitoring Response Procedure

Attachment 6 John MacDonald Stand Specific Monitoring Plan

- Location of affected building:



- Vibration limits:

The John MacDonald Stand has been deemed to be in group 1 in the below table.

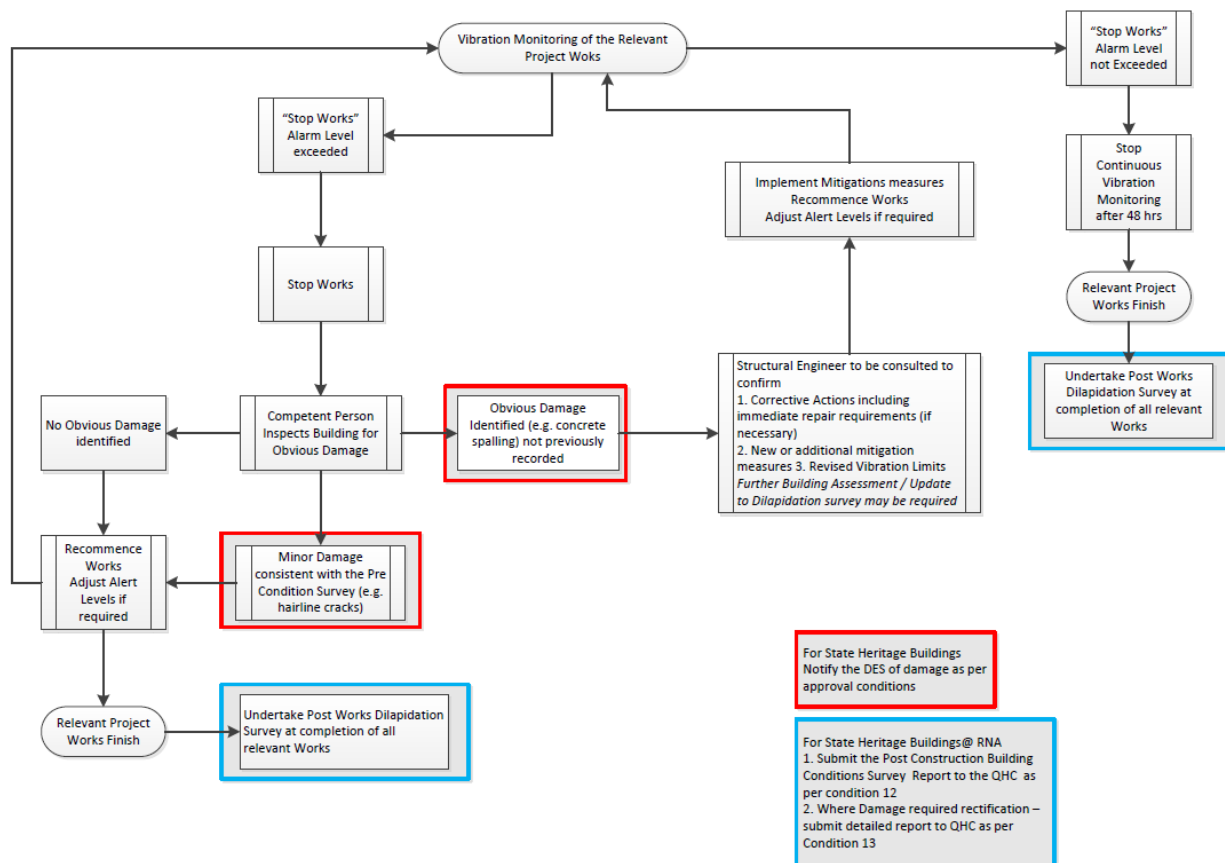
Group	Type of Structure	Peak Particle Velocity mm/s			
		At Foundation			Plane of Floor Uppermost Storey
		1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design.	20	20 at 10Hz increasing to 40 at 50Hz	40 at 50Hz increasing to 50 at 100Hz	40
2	Dwellings and buildings of similar design and / or use.	5	5 at 10Hz increasing to 15 at 50Hz	15 at 50Hz increasing to 20 at 100Hz	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Group 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order).	3	3 at 10Hz increasing to 8 at 50Hz	8 at 50Hz increasing to 10 at 100Hz	8

- Relevant Project Works
 - Exhibition – Stage 1 building demolition
 - O'Connell Terrace rock breaking activities

- Monitoring Equipment:
 - SYSCOM MR3000C
- Relevant Construction equipment:
 - - Excavator with hammer attachment
 - - Jackhammer
 - - Vibratory roller
 - - Any other activity deemed to be high risk by the acoustic team
- Action levels to be used for the vibration monitors:
 - Alert – 2mm/s (early warning – no action required) OR 75% of the DIN4150 limits for group 3 and
 - Stop Works Alarm – 2.5mm/s OR 90% of the DIN4150 limits for group 3
- Monitoring Procedure:
 - Set up of vibration meter at the closest location between the directly affected building and where the works are occurring
 - Set up real time alerts on the vibration meter based on the Action Levels detailed before.
 - Commence Relevant Project Works at a setback distance²
 - Monitoring Data to be reviewed as they are collected and compared against the predictive assessment
 - If the model is verified as accurate or as conservative by the acoustic team, vibration monitoring can be ceased at the specific building after two (2) full days of monitoring and the setback distance will be voided.
 - If the monitoring data indicate that the model under-predicted potential exceedances – monitoring must continue at additional set back distances (to be nominated) to ascertain whether additional buildings need to be considered for dilapidation surveys.
 - Implement the monitoring response procedure as detailed in the below flowchart.

NOTE: In the event that two or more buildings are affected by the same activity, preference of monitoring will be given to the John MacDonald Stand.

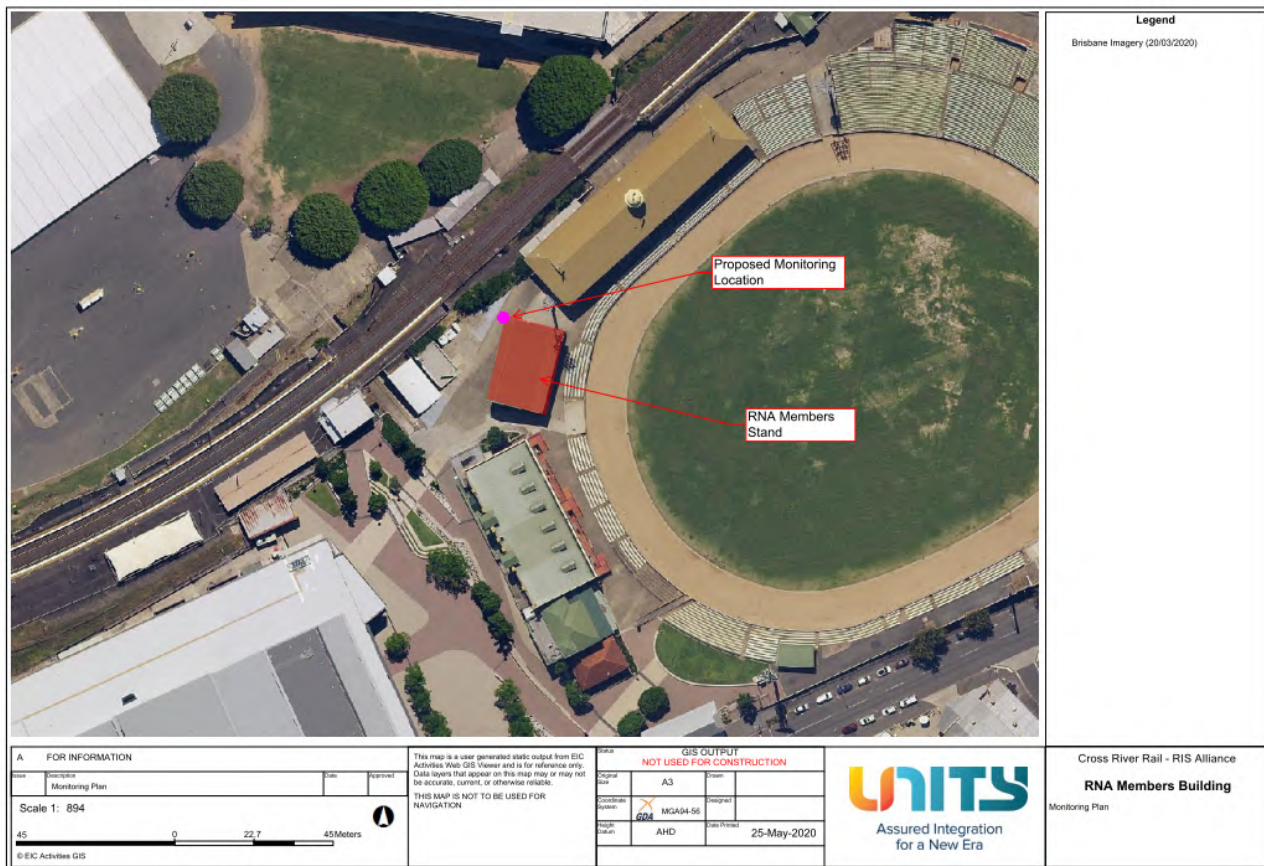
² Set back distance: distance from the affected building at which the relevant project works at not predicted to exceed the action levels. This distance is to be set based on the predictive assessment



Flowchart1: Monitoring Response Procedure

Attachment 7 RNA Members Stand Specific Monitoring

- Location of affected building:



- Vibration limits:

The RNA members stand has been deemed to be in group 1 in the below table.

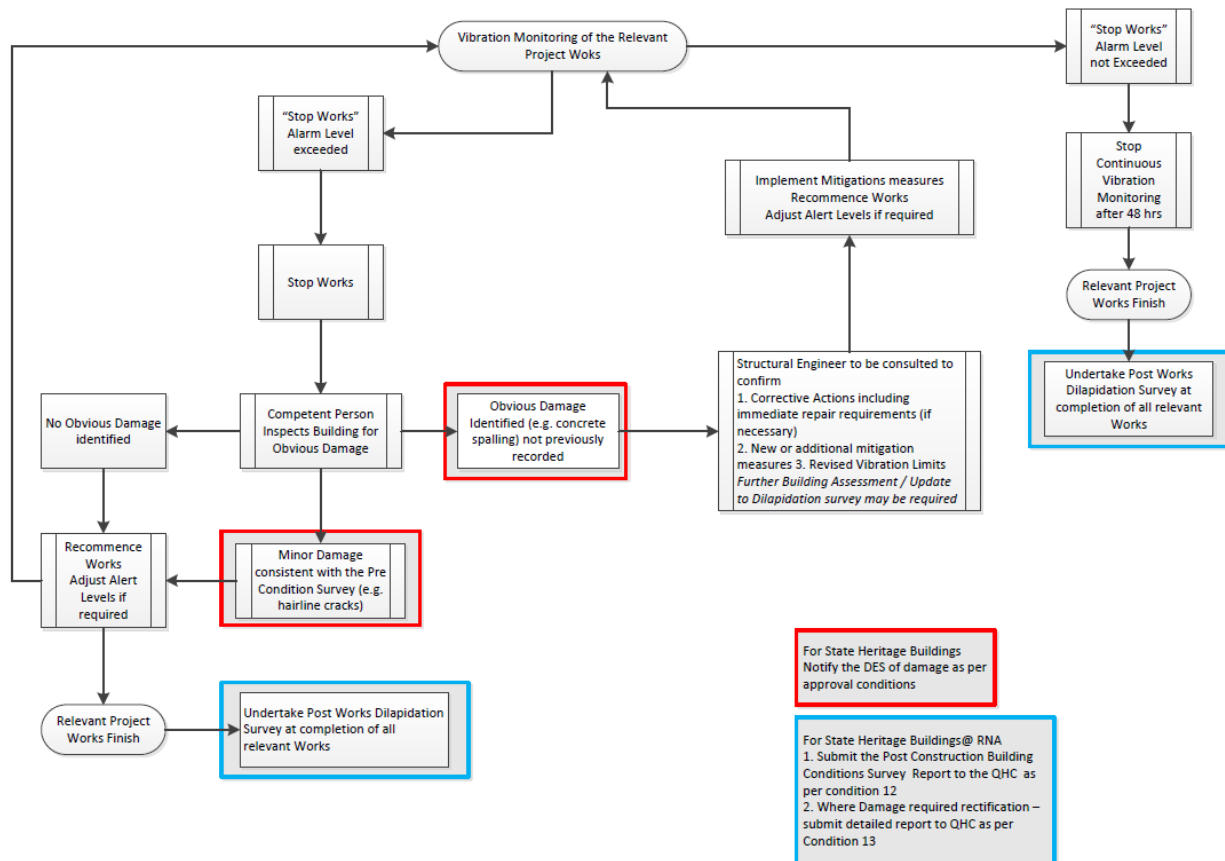
Group	Type of Structure	Peak Particle Velocity mm/s			
		At Foundation			Plane of Floor Uppermost Storey
		1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz	All frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design.	20	20 at 10Hz increasing to 40 at 50Hz	40 at 50Hz increasing to 50 at 100Hz	40
2	Dwellings and buildings of similar design and / or use.	5	5 at 10Hz increasing to 15 at 50Hz	15 at 50Hz increasing to 20 at 100Hz	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Group 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order).	3	3 at 10Hz increasing to 8 at 50Hz	8 at 50Hz increasing to 10 at 100Hz	8

- Relevant Project Works:
 - Exhibition – Stage 1 building demolition
- Relevant Construction Equipment:
 - Excavator with hammer attachment
 - Jackhammer

- Vibratory roller
- Any other activity deemed to be high risk by the acoustic team
- Monitoring Equipment:
 - SYSCOM MR3000C or
 - Texcel ETM or
 - Similar models of vibration meters
- Action levels to be used for the vibration monitors:
 - Alert – 16 mm/s (early warning – no action required) and
 - Stop Works Alarm – 19mm/s
- Monitoring Procedure:
 - Set up of vibration meter at the closest location between the directly affected building and where the works are occurring
 - Set up real time alerts on the vibration meter based on the Action Levels detailed before.
 - Commence Relevant Project Works at a setback distance³
 - Monitoring Data to be reviewed as they are collected and compared against the predictive assessment
 - If the model is verified as accurate or as conservative by the acoustic team, vibration monitoring can be ceased at the specific building after two (2) full days of monitoring and the setback distance will be voided.
 - If the monitoring data indicate that the model under-predicted potential exceedances – monitoring must continue at additional set back distances (to be nominated) to ascertain whether additional buildings need to be considered for dilapidation surveys.
 - Implement the monitoring response procedure as detailed in the below flowchart.

NOTE: In the event that two or more buildings are affected by the same activity, preference of monitoring will be given to the buildings with the greater potential exceedance

³ Set back distance: distance from the affected building at which the relevant project works are not predicted to exceed the action levels. This distance is to be set based on the predictive assessment



Flowchart 1: Monitoring Response Procedure