

The background of the entire page is a dark blue map. It features a complex network of thin white lines representing a street grid or property boundaries. A prominent, winding white line represents a river or waterway, flowing from the top center towards the bottom right. The map is semi-transparent, allowing the text to be clearly visible.

Cross River Rail Project

Monthly Environmental Report

August 2022

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Executive Summary

This Monthly Environmental Report (MER) has been produced for Project Works undertaken on site for August 2022 for the Rail, Integration and Systems (RIS), and Tunnel, Stations and Development (TSD) packages. The report addresses the obligations outlined in the Coordinator-General's change report – *Coordinator-General's change report – no. 13 (March 2022)*. Plus, the individual contractor's Construction Environmental Management Plans (CEMPs), which have been developed generally in accordance with the Project's Outline Environmental Management Plan (OEMP). The Cross River Rail Delivery Authority (Delivery Authority), as the Proponent of the Cross River Rail Project, is required to submit a monthly report to the Coordinator-General to demonstrate compliance with the imposed conditions.

Section 1 of this report provides a background to the project and the Coordinator-General's conditions. Section 2 provides a review of the contractor's reports contained in **Appendix A** (RIS Monthly Report) and **Appendix B** (TSD Monthly Report).

The Environmental Monitor (EM) has reviewed and endorsed this MER. This endorsement follows ongoing and new document reviews, and surveillance across the relevant project worksites.

The CEMPs prepared by both Unity Alliance (RIS Contractor) and CBGU JV on behalf of Pulse (TSD Contractor) for their Relevant Project Works were endorsed by the EM and submitted to the Coordinator-General in accordance with Condition 4(a) and 4(b) respectively.

The table below presents a summary of compliance status against each condition with a short comment for each:

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
1.	General conditions – compliance with the Project Changes relevant to the contractor's scope	Yes	The CEMP and site management plans are in accordance with the Project Changes.
2.	Outline Environmental Management Plan – timely submission to the Coordinator-General including required sub-plans	Yes	OEMP dated June 2020 is effective for the reporting period.
3.	Design – achievement of the Environmental Design Requirements	NA	Ongoing progress with design packages.
4.	Construction Environmental Management Plan – all relating to Relevant Project Works.	Yes	RIS – CEMP Revision 13 covering full scope of RIS works is effective from 14 March 2022. TSD – CEMP Revision 10 covering full scope of TSD works is effective from 28 June 2022.
5.	Compliance and Incident management – Non-compliance events, notifications and reporting.	Yes	There were no non-compliance events (NCEs) in August 2022. Refer to Section 2.5 of this report.

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
6.	Reporting – Monthly and Annual reporting.	Yes	This MER, including RIS and TSD Monthly Reports, has been submitted in accordance with the conditioned requirements. Refer to Appendix A and Appendix B .
7.	Environmental Monitor (EM) – engaged and functions resumed.	Yes	Ongoing weekly site inspections and document reviews continue to take place.
8.	Community Relations Monitor (CRM) – engaged and functions resumed	Yes	Ongoing.
9.	Community Engagement Plan – developed and endorsed by Environmental Monitor.	Yes	CEMPs endorsed with Community Engagement Plan.
10.	Hours of work – Project Works undertaken during approved hours.	Yes	Project Works have been undertaken in accordance with project requirements. This has been achieved through Standard Working Hours, Extended work hours and Managed Work.
11.	Noise – Project Works must aim to achieve internal noise goals for human health and well-being.	Yes	Noise monitoring met project noise requirements at Sensitive Places. RIS – Noise monitoring was not triggered based on the predictive noise assessments for the relevant project works during the reporting period. TSD – Noise monitoring was undertaken to validate predicted noise modelling and for stakeholder enquiries. Noise monitoring confirmed project requirements were met. Refer to Appendix B (Table 3 and Section 3.2).
	Vibration – Project Works must aim to achieve vibration goals for cosmetic damage, human comfort and sensitive building contents.	Yes	Vibration monitoring met project vibration requirements at Sensitive Places. RIS – Vibration monitoring was not triggered based on the predictive vibration assessments for the relevant project works during the reporting period. TSD – Vibration monitoring occurred at Albert Street and Woolloongabba. The results met the requirements of the endorsed CEMP.
12.	Property damage – relating to ground movement.	Yes	RIS – Vibration modelling has been undertaken for Relevant Project Works and Property Damage Sub-plans have been developed and implemented. Pre-condition surveys have been completed at heritage,

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
			commercial and residential buildings at RNA, Northern Corridor and Dutton Park to Salisbury stations. TSD – Vibration modelling has been prepared and is ongoing. Where required, building condition survey reports are completed for heritage and residential buildings. No enquiries relating to property damage were received during August.
13.	Air quality – Works must aim to achieve air quality goals for human health and nuisance.	Yes	Air quality monitoring met Project air quality goals. RIS – Refer to Appendix A (Tables 7, 8 and 9 and Section 3.2, plus Figures 1). TSD – Refer to Appendix B (Tables 4.2 and 5 plus Section 3.3).
14.	Traffic and transport – Works must minimise adverse impacts on road safety and traffic flow.	Yes	Traffic Management Plans are covered in the CEMPs. Sub-plans for all active worksites have been reviewed by the EM.
15.	Water quality – Works must not discharge groundwater from the construction site above the relevant environmental values and water quality objectives. Monitor and report on water quality in accordance with CEMP and Sub-plans.	Yes	Monitoring and reporting on groundwater and surface water quality was undertaken in accordance with RIS and TSD Water Quality Management Plans. RIS – No groundwater discharges occurred during August. Post-rainfall monitoring was not triggered during the monitoring period. TSD – Active discharge of groundwater occurred from Roma Street, Albert Street, Woolloongabba and Boggo Road worksites. Monitoring results of groundwater quality prior to discharge is consistent with the pre-construction water quality levels. Surface water discharges occurred at the Northern Portal worksite on 27 occasions. The monitoring results demonstrated the surface water discharges met project water quality discharge criteria. Routine in stream monthly monitoring met project water quality requirements. Refer to Appendix B (Table 6) for ground water monitoring results. Refer to Appendix B (Tables 7 and 8) for surface water monitoring results.

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
16.	Water resources – Evaluate potential impact, plan works, implement controls and monitor inflow of groundwater associated with drawdown.	Yes	RIS – There is no sustained groundwater extraction involved in the RIS scope of works so predictive modelling of groundwater drawdown is not required. Collection of hydrological data to model potential inflow rates into excavations during construction has been undertaken. TSD – Inflow of groundwater into the worksites is being continuously monitored to validate the predictive modelling.
17.	Surface water – Must be designed to avoid inundation from stormwater due to a 2-year (6hr) ARI rainfall event and flood waters due to a 5-year ARI rainfall event and constructed to avoid afflux or cause the redirection of uncontrolled surface water flows, including stormwater flows, outside of worksites.	Yes	Contractors continue to consider this condition in their site planning and design.
18.	Erosion and sediment control – Provisions for erosion and sediment control must be 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.	Yes	Site specific ESC plans for all active work sites have been reviewed by the EM and implemented on site.
19.	Acid sulfate soils – managed as per the Queensland Acid Sulfate Soil Technical Manual.	Yes	Acid Sulfate Soil Management Plans have been prepared and implemented for all active worksites.
20.	Landscape and open space – general requirement to minimise impacts on landscapes and open space values and specific requirements around Victoria Park.	Yes	The construction of a temporary access road through Victoria Park was undertaken under a Heritage Exemption Certificate approved by the Department of Environment and Science (DES) on 24 June 2021. Consideration has been taken to minimise loss of trees and the area of park impacted during these temporary works.
21.	Worksite rehabilitation – worksites rehabilitated as soon as practicable upon completion of works or commissioning, and in consultation with Brisbane City Council.	NA	N/A

Non-Compliance Events

There were no NCEs raised in August 2022.

Definitions

Acronym	Definition
ARI	Average Recurrence Interval - The average or expected value of the periods between exceedances of a given rainfall total accumulated over a given duration.
CEMP	Construction Environmental Management Plan
CGCR	Coordinator-General's Change Report
CRM	The Community Relations Monitor engaged in accordance with Imposed Condition 8
Contractor	The contractors appointed to design, construct, and commission the Project
Coordinator-General	The corporation sole preserved, continued, and constituted under section 8 of the SDPWO Act.
CRR	Cross River Rail
DES	Department of Environment and Science
EIS	Environmental Impact Statement
EM	The Environmental Monitor engaged in accordance with Imposed Condition 7
ESC	Erosion and sediment control
IECA	International Erosion Control Association
Imposed condition/s	A condition/s imposed by the Coordinator-General under section 54B of the SDPWO Act for the Project
MER	Monthly Environment Report
MRTS52	Transport and Main Roads Specifications MRTS52 Erosion and Sediment Control
NCE	Non-Compliance Event
OEMP	Outline Environmental Management Plan
Project	The Cross River Rail Project
Project Works	As defined in the Imposed Conditions
Proponent	The Cross River Rail Delivery Authority
RfPC	Request for Project Change
RIS	Rail, Integration and Systems
SDPWO Act	<i>State Development and Public Works Organisation Act 1971</i>
Sub-plan	Any sub-plan of the CEMP
The Delivery Authority	The Cross River Rail Delivery Authority
TSD	Tunnel, Stations and Development

1. Introduction

1.1. Background

The Cross River Rail Project (the Project) is a declared coordinated project under the *State Development and Public Works Organisation Act 1971* (SDPWO Act). The CRR Environmental Impact Statement (EIS) was evaluated by the Coordinator-General who recommended the Project proceed, subject to Imposed Conditions and recommendations. Since the evaluation of the EIS, several Requests for Project Change (RfPC) submissions have been evaluated by the Coordinator-General. RfPC 13 was endorsed in March 2022 by the Coordinator-General.

The Coordinator-General has imposed conditions on the Project that apply throughout the design, construction, and commissioning phases. These are referred to as the Imposed Conditions. In addition, the Coordinator-General has approved the Project's OEMP which outlines the environmental management framework for the Project. The OEMP includes environmental outcomes and performance criteria which must be achieved for the Project.

Imposed Conditions 5 and 6 nominate the compliance and reporting requirements for the Project. This monthly report addresses these requirements.

1.2. Project Delivery

The Delivery Authority is responsible for planning and delivering the Project. The Project established environmental management plans and secured some of the secondary environmental approvals in addition to enabling works.

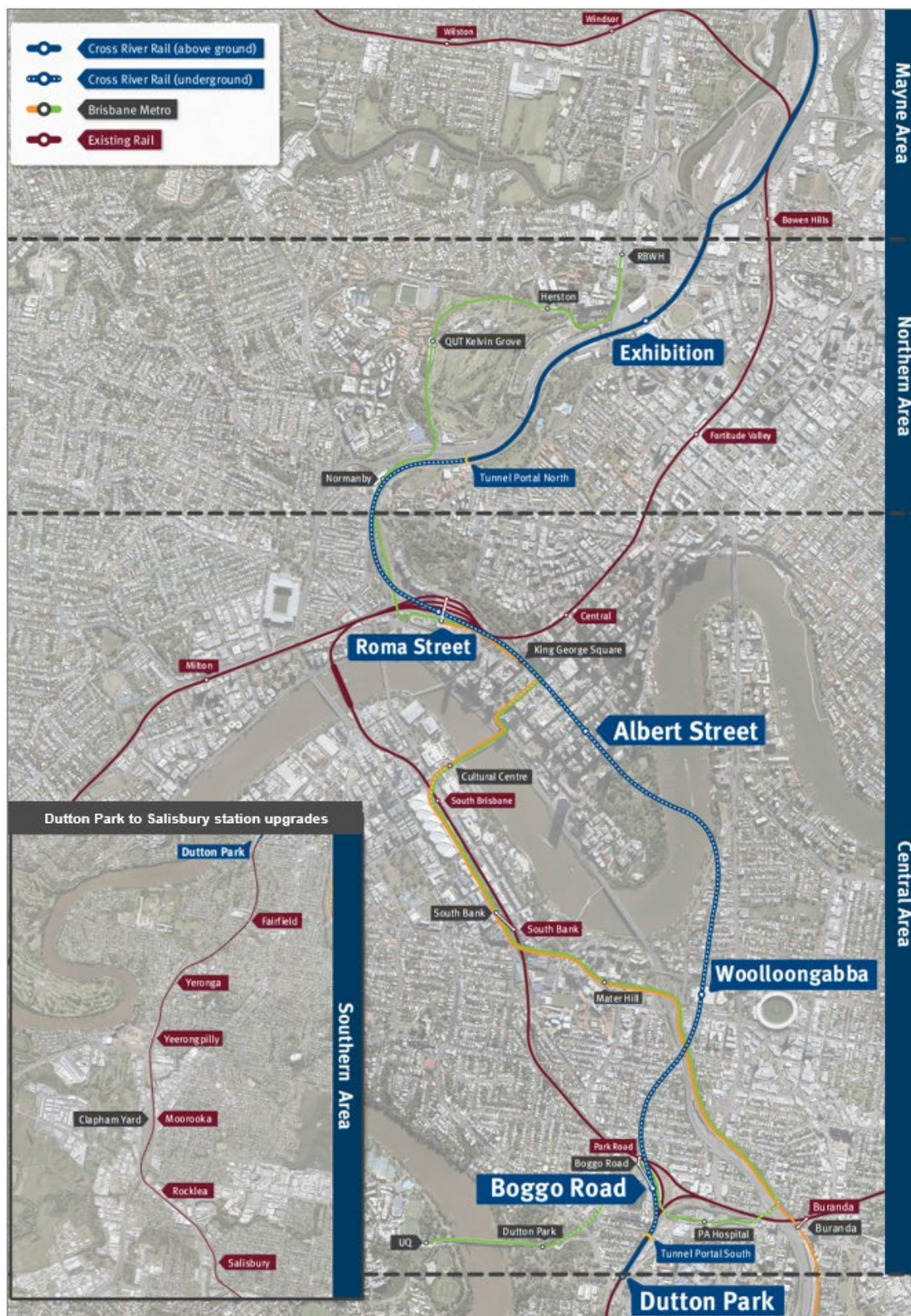
The two main delivery packages which require reporting under the Coordinator-General's imposed conditions are:

- Tunnel, Stations and Development (TSD) being delivered by CBGU JV; and
- Rail, Integration and Systems (RIS) being delivered by Unity Alliance.

The Project is geographically divided into four areas:

- Mayne Area;
- Northern Area;
- Central Area; and
- Southern Area.

These are shown in the figure over.



1.3. Reporting Framework

This MER has been prepared to comply with Imposed Conditions 6 and 7 of the Coordinator-General Change Report (CGCR) and includes:

- monitoring data and associated interpretation of the results required by the imposed conditions and Construction Environmental Management Plan (CEMP);
- details of any NCE's, including incidents, corrective actions, and preventative actions; and
- details of any complaints, including description, responses, and corrective actions.

Reporting on environmental elements captured in each monthly environmental report, including the annual environmental report, will be reviewed, and endorsed by the EM.

1.4. Monthly Environment Report Endorsement

This MER has been endorsed by the EM and the endorsement provided to the Coordinator-General.

2. Compliance Review

This MER has been reviewed and endorsed by the EM as per Imposed Condition 7 of the CGCR.

2.1. Relevant Project Works

The following Project Works were undertaken in August 2022:

Area	Project Works
Mayne Area	Mayne Yard North – <ul style="list-style-type: none">• Mayne Yard North and associated facilities have been completed by SCAS RIS #44, at the end of July, and is ready for QR acceptance;• Tripod Bridge (BR11/13) – RSS walls completed, deck units landed and barriers nearing completion;• Breakfast Ck Bridge (BR08) RW150 on the Northern side nearing completion; and• RW130 – Retaining wall on Eastern side under ICB overpass nearing completion.
Northern Area	RNA/ Northern Corridor – <ul style="list-style-type: none">• CSR scope ongoing throughout corridor;• Victoria Park Feeder Station – civil scope nearing completion;• Watermain underbore Bowen Bridge Road complete;• CSR scope GST and on Bridge structure BR34 nearing completion;• Demolition of RNA facilities and QR facilities commenced (Eastern side of EKKA Station); and• Successful EKKA 2022 and areas handed back to Unity. Northern Portal – <ul style="list-style-type: none">• Base slab works in the TBM extraction box 40% complete;• Portal sump permanent lining FRP works completed;• Inner wall and liner walls in progress;• Blinding, cavi drain and base slab installation in open trough section ongoing; and• Intermediary firewall works ongoing.
Central Area	Roma Street – <ul style="list-style-type: none">• Station Building – FRP walls Front of House (FoH), Back of House (BoH) continue in advance ahead of the suspended slabs. Escalator pits continue following completion of tunnels access to adits RA2 & 7;

Area	Project Works
	<ul style="list-style-type: none"> • Station cavern – ongoing arch pours and BoH slab and wall pours; • Services building – completed installation of northern exterior precast walls and commenced excavation works for the Energex room; • Platform 2 – structural steel fabrication commenced; and • INB underpinning – steel fixing ongoing for remaining biscuit 3 pours; <p>Albert Street –</p> <ul style="list-style-type: none"> • Lot 1 – completed roughly 90% of table forms for B9 level in preparation for slab pour. B10 slab and walls at 97% complete; • Lot 2 – Shaft AS1 excavation and ground retention ongoing and controlled blasting of adit AA2 complete. Permanent lining of station cavern commenced; and • Lot 3 – completed 27% of structural concrete for B4 slab & pits. Ongoing cutting of capping beam/piles 47% complete. <p>Woolloongabba –</p> <ul style="list-style-type: none"> • Foundation excavation for retaining wall RW01 along busway; • Installation of building services including ducting, sprinkler system and soffit thermal insulation; • North cavern back of house construction in progress; • Demobilisation of the jump form system in progress; • 28 mezzanine beams erected in the southern cavern; • Northern cavern back of house construction continues; and • Surface demobilisation of conveyor and other facilities continues. <p>Tunnels –</p> <ul style="list-style-type: none"> • Track completed in TBM 2 between Albert and Gabba with drill rig commissioned to drill holes for service fit-out. Low Vibration Track (LVT) blocks placed through TBM 1 and concreted in as part of stage 2 invert pours; • Southern mined upline and downline tunnels permanent lining complete with floating slab track (FST) being transported into tunnels using the FST gantry; and • XP1, XP2 and XP3 crown lining sprayed, smoothing layer yet to be installed. <p>Boggo Road –</p> <ul style="list-style-type: none"> • Northern cavern BoH internal structures ongoing 98% remaining structure to be completed after Vierendeel install; • Perimeter walls continuing with some locations now completed to full height; • Concrete to in-situ structure at 44% complete; • Reinforcement to in-situ structure 54% complete; and • Ancillary structure to southern end of station continuing, including new goods lift. <p>Southern Portal –</p> <ul style="list-style-type: none"> • Detailed excavation and shotcrete within cut and cover trough ongoing 70%; • Sewer and stormwater manhole tie in works at Kent Street; • Completed first section of open trough base slab drainage works; • Continued Boggo Road bridge piling with all piles to main bridge and western approach completed 33 of 46 piles completed in total; and • Establishment of the site at the Park Road triangle and commencement of traction sectioning cabinet foundation works at Park Road triangle.
Southern Area	<p>Dutton Park –</p> <ul style="list-style-type: none"> • Demolition of Cope Street properties completed in August following removal of unexpected asbestos in the final property; <p>Fairfield Station –</p> <ul style="list-style-type: none"> • Ongoing installation of inground services; water, sewer, stormwater, electrical, communications, signaling conduiting;

Area	Project Works
	<ul style="list-style-type: none"> • Ongoing installation of 'flowable' backfill operation throughout PL1 & PL2/3; • Finalising Platform 01 canopy foundations completion; • Successful completion of the first section of the final height platform concrete pour – Platform 01; and • Mildmay Street gravity wall – excavation and blinding slab completion. <p>Yeronga Station –</p> <ul style="list-style-type: none"> • Continuation of building trades fit-out & rough-in throughout the platform facilities; • Continuation of building trades fit-out & rough-in throughout the overpass facilities; • Installation of stair structure, lift structure, lift precast, stair roofing on stair / lift 03; • Installation of glazing to lift 01 and lift 02; and • Station electrical, communications, cable pulling works ongoing. <p>Clapham Yard –</p> <ul style="list-style-type: none"> • RSS wall construction of BR94 (Chale Street Road over rail bridge) commenced; • Drainage outlet at Rocky Water Hole completed; • SEQ watermain protection works completed; • CSR works ongoing; • Retaining wall RW650 (in front of Aurizon facility) completed; and • Capping along dual Gauge alignment commenced.

2.2. Key Environmental Elements

2.2.1. Noise

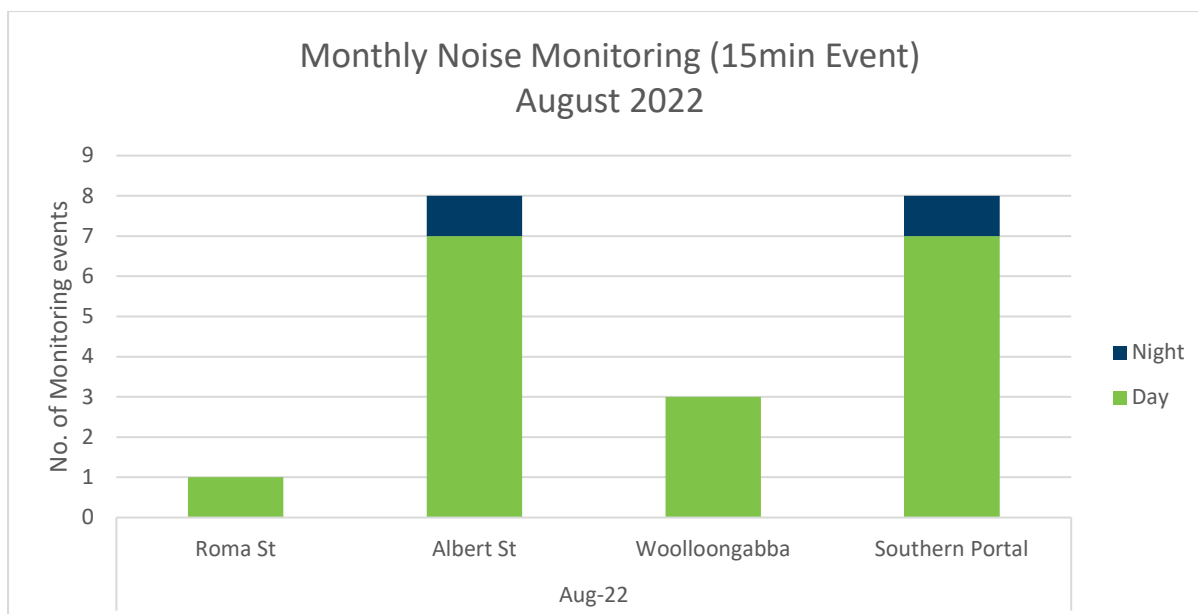
The Coordinator-General's conditions establish a framework for managing the impacts of noise. The Imposed Conditions do not establish noise limits. Compliance with the Imposed Conditions noise requirements involves demonstrating the implementation of the endorsed CEMP and associated Noise and Vibration Management Plan. This establishes the management measures to be applied which aims to achieve the identified noise goals as far as reasonably practicable. The CEMP also includes requirements for the provision of the required community notifications of upcoming work, potential impacts, and how the project team can be contacted in relation to any potential impacts.

For Project Works where potential noise impacts are modelled to be above the noise goal but below the noise goal plus 20dBA, this work is authorised where the endorsed CEMP and associated Noise and Vibration Management Plan is being implemented, including communicating construction activities to potential and actual Directly Affected Persons (DAPs). For Project Works where potential noise impacts are predicted to be more than 20dBA above the relevant noise goal, specific engagement is required with DAPs for these works.

Where internal monitoring was not possible, contractors have undertaken external monitoring at nominated locations. To determine compliance with the project's noise requirements and to calibrate modelled predictions the project applies recommended façade attenuation corrections, which consider receiver property type.

In the Central Area, noise monitoring was undertaken to validate predictive modelling at Sensitive Places close to the project worksites and in response to noise complaints. The TSD contractors reported that the project noise requirements have been met during this reporting month. Monitoring results for the Central Area are detailed in **Appendix B** (Table 3).

A summary of noise monitoring events for the month is provided in the chart below:



2.2.2. Vibration

In the Central Area, vibration monitoring was triggered at Albert Street during several controlled blasts and at Woolloongabba during excavation works. Monitoring results are detailed in **Appendix B** (Table 2). The TSD contractors reported that the project vibration requirements have been met.

2.2.3. Air Quality

2.2.3.1. Dust Deposition

Dust deposition monitoring was conducted at Mayne, Northern, Central and Southern Areas. Results met the project air quality goal¹ for all active worksites.

Dust deposition results are detailed in **Appendix A** (Table 7 and figure 1) and **Appendix B** (Table 4.2).

A summary of dust deposition monitoring is provided in the table below.

Air Quality – Dust Deposition Monitoring			
Area	Worksite	Monitoring Location	Comments
Mayne Area	Mayne Yard	Mayne Yard	- Results met air quality goal
Northern Area	RNA / Exhibition	RNA Showgrounds	- Results met air quality goal
	Northern Portal	Northern Portal (near Brisbane Girls Grammar School)	- Results met air quality goal
Central Area	Albert Street	Mary Street	- Results met air quality goal
		Elizabeth Street	- Results met air quality goal

¹ CG air quality goal for dust deposition - 120µg/m² (over an averaging period of 30 days).

Air Quality – Dust Deposition Monitoring			
Area	Worksite	Monitoring Location	Comments
	Boggo Road	Quarry Street (north of the site)	- Results met air quality goal
		Peter Doherty Street/Leukemia Foundation	- Results met air quality goal
	Southern Portal	Dutton Park Station	- Results met air quality goal
		PA Hospital - Central Energy Unit along Kent Street	- Results met air quality goal
	Roma Street	Roma Street Station	- Results met air quality goal
	Woolloongabba	Russian Orthodox Cathedral	- Results met air quality goal
		Woolloongabba Busway	- Results met air quality goal
Southern Area	Dutton Park	Dutton Park	- Results met air quality goal
	Clapham Yard	Clapham Yard	- Results met air quality goal

2.2.3.2. Particulate Matter and Total Suspended Particulates

Monitoring for particulate matter (PM₁₀) and total suspended particulates (TSP) was conducted at Northern, Central and Southern Area worksites. Results met the project goals at all active worksites.

The Woolloongabba air quality monitor experienced technical difficulties during the month and the monitor stopped functioning on 25 – 31 August 2022. The monitor has been sent away for repairs and a hire unit has been ordered. The review of a nearby DES air quality monitoring station (South Brisbane) demonstrated PM₁₀ levels during the period when the monitor was down, were compliant with project air quality goals.

Unity received a courtesy rental air quality monitor from the manufacturer whilst the previous Clapham Yard monitor is still being assessed in New South Wales. The monitor was installed at Mayne Yard East on 26 August 2022 as per the CAQP's advice due to upcoming works in this area.

The positioning and of the Clapham Yard air quality monitor was modified in an attempt to increase the sunlight absorption of the solar panel to reduce the number of days not meeting the minimum measurement requirements. As noted in the past 2 months of reporting, the air quality monitor had failed to gather a minimum measurement of 18 hours over a 24-hr period (or 75%) on several occasions at Clapham Yard since being reinstated.

Where TSP and PM₁₀ monitoring data was not recorded or did not meet the minimum measurement period over a 24-hour period, other qualitative parameters were used to ascertain compliance with the Air Quality Project Objectives. This included:

- The dust deposition results recorded no exceedance of the relevant goal;
- There was no evidence of dust being generated and leaving the site boundaries when routine inspections were carried out;
- DES regional air quality monitoring demonstrated air quality levels below project goals; and
- There were no complaints received associated with air quality concerns during the reporting period across the Mayne and Clapham Yard sites.

Particulates results are detailed in **Appendix A** (Section 3.2.2) and **Appendix B** (Table 5).

A summary of particulate monitoring is provided in the table below.

Air Quality – PM ₁₀ / TSP Monitoring			
Area	Worksite	Monitoring Location	Comments
Mayne Area	Mayne Yard	Mayne Yard North	- Monitoring not required as per Project's CAQP advice
	Mayne Yard	Mayne Yard East	- Monitoring unit installed on 26 August 2022 - Results met air quality goals
Northern Area	RNA / Exhibition	RNA showgrounds	- Results met air quality goals
	Northern Portal	Brisbane Girls Grammar School	- Results met air quality goals
Central Area	Albert St	iStay River City and Capri (Corner of Mary Street and Albert Street)	- Results met air quality goals
	Boggo Rd / Southern Portal	North-east of Boggo Road worksite	- Results met air quality goals
	Woolloongabba	Place Park, Woolloongabba	- Results met air quality goals - Monitoring unit experienced a technical fault with no results between 25 – 31 August 2022
Southern Area	Clapham Yard	Clapham Yard	- 20 days of monitoring data was recorded during August - Results met air quality goals

2.2.4. Water Quality

Water quality monitoring and reporting was undertaken in accordance with the contractors CEMP and Water Quality Management Plans.

2.2.4.1. Surface Water

Active surface water discharges occurred from the Northern Portal worksite through dewatering activities. Post-rainfall water quality monitoring was not triggered during the month.

In the Northern Area, water quality monitoring was triggered on 27 occasions from the Northern Portal worksite as water used for construction activities was treated and actively discharged to the stormwater network. The contractor confirmed the discharge criteria was met. See **Appendix B** (Table 7) for further details.

Routine surface water quality monitoring was undertaken in the receiving waters of all TSD worksites in accordance with the Contractor's Water Quality Management Plan. The monitoring results reflect the condition of a broader catchment upstream from the worksites. See **Appendix B** (Table 8) for further details.

Surface water quality monitoring is summarised in the table below:

Surface Water Quality Monitoring					
Area	Worksite	Discharge	Post-Rain Monitoring	Routine Monitoring	Comments
Mayne Area	Mayne Yard North	No	No	No	- ESC was implemented in accordance with site specific ESC Plan.

Surface Water Quality Monitoring					
Area	Worksite	Discharge	Post-Rain Monitoring	Routine Monitoring	Comments
Northern Area	Northern Portal	Yes	No	Yes	<ul style="list-style-type: none"> - Active surface water discharge met water quality investigation criteria. - Routine in-stream monitoring undertaken in accordance with WQMP.
	Northern Corridor	No	No	N/A	<ul style="list-style-type: none"> - ESC was implemented in accordance with site specific ESC Plan.
	RNA/Exhibition	No	No	N/A	<ul style="list-style-type: none"> - ESC was implemented in accordance with site specific ESC Plan.
Central Area	Albert Street	No	No	Yes	<ul style="list-style-type: none"> - Routine in-stream monitoring undertaken in accordance with WQMP.
	Boggo Road	No	No	Yes	<ul style="list-style-type: none"> - Routine in-stream monitoring undertaken in accordance with WQMP.
	Roma Street	No	No	Yes	<ul style="list-style-type: none"> - Routine in-stream monitoring undertaken in accordance with WQMP.
	Woolloongabba	No	No	Yes	<ul style="list-style-type: none"> - Routine in-stream monitoring undertaken in accordance with WQMP.
	Southern Portal	No	No	Yes	<ul style="list-style-type: none"> - Routine in-stream monitoring undertaken in accordance with WQMP.
Southern Area	Clapham Yard	No	No	No	<ul style="list-style-type: none"> - ESC was implemented in accordance with site specific ESC Plan.

2.2.4.2. Groundwater

There were no groundwater discharges at Mayne, Northern or Southern Area worksites.

Groundwater discharge occurred in the Central Area at Roma Street, Albert Street, Woolloongabba, and Boggo Road worksites. Groundwater discharge results exceeded relevant water quality objectives (WQO's)² for total nitrogen, ammonia nitrogen, oxidised nitrogen and dissolved oxygen. However, these results are consistent with the receiving environment baseline monitoring pre-construction data except for Albert Street which recorded nitrogen levels above the baseline monitoring pre-construction data. Given the sites are located in highly urbanised inner-city settings, there are many influences on

² The Brisbane River Estuary environmental values and water quality objectives (Basin no 143 – mid-estuary) in the Environmental Protection (Water) Policy 2009.

groundwater external to the project. The contractor confirmed no changes have occurred onsite to the construction methodologies that would have affected the groundwater results.

Groundwater Quality Monitoring			
Area	Worksite	Discharge	Comments
Mayne Area	Mayne Yard North	No	- No groundwater discharges.
Northern Area	RNA/Exhibition	No	- No groundwater discharges.
	Northern Portal	No	- No groundwater discharges.
Central Area	Albert Street	Yes	- Groundwater discharge (dewatering). - Discharge of groundwater did not meet Project WQO's but was generally consistent with pre-construction conditions except for nitrogen levels that were recorded above the baseline monitoring pre-construction data.
	Boggo Road / Southern Portal	Yes	- Groundwater discharge (dewatering). - Discharge of groundwater did not meet Project WQO's but was generally consistent with pre-construction conditions.
	Roma Street	Yes	- Groundwater discharge (dewatering). - Discharge of groundwater did not meet Project WQO's but was generally consistent with pre-construction conditions.
	Woolloongabba	Yes	- Groundwater discharge (dewatering). - Discharge of groundwater did not meet Project WQO's but was generally consistent with pre-construction conditions
Southern Area	Clapham Yard	No	- No groundwater discharges.

2.2.5. Erosion and Sediment Control

Site specific Erosion and Sediment Control (ESC) Plans have been prepared, updated, and implemented at Mayne Yard, Northern Portal, RNA Showgrounds, Roma Street, Albert Street, Woolloongabba, Boggo Road, Southern Portal, Dutton Park, Fairfield, Yeronga and Clapham Yard worksites.

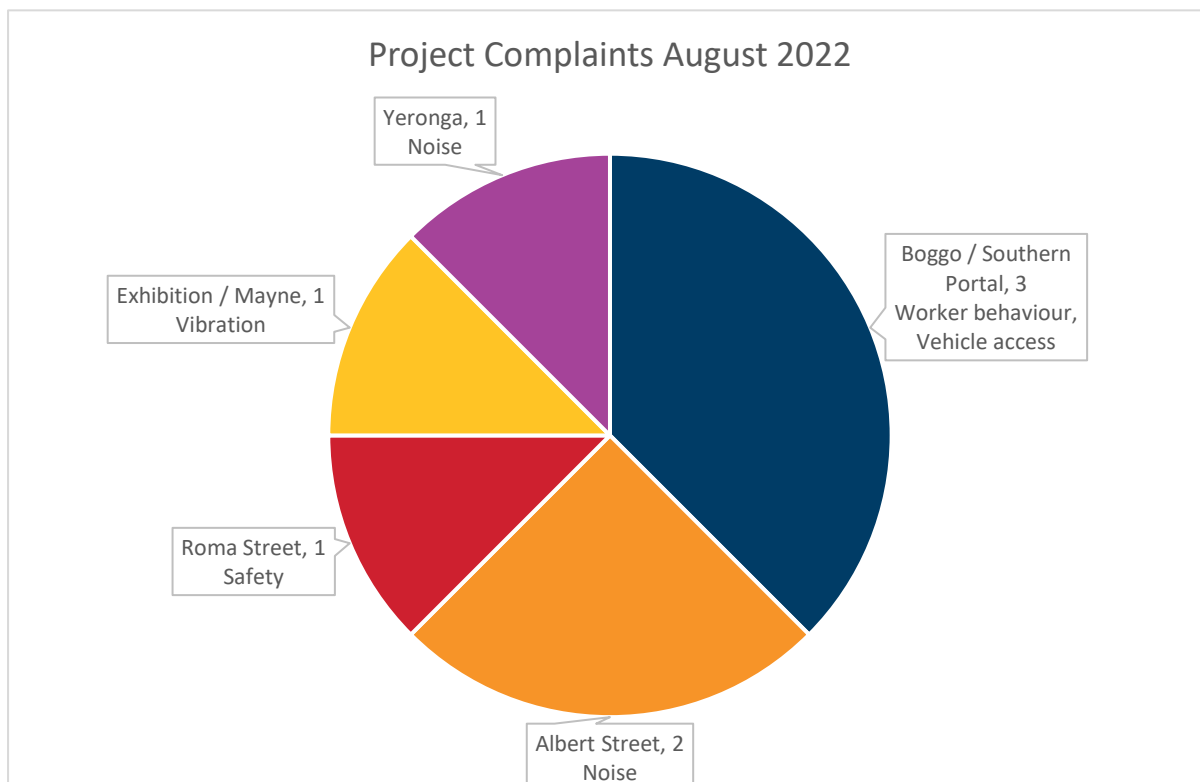
2.3. Complaints Management

A total of 8 complaints were received during the month all of which were project related.

RIS works received 2 complaints this month related to noise at Yeronga and vibration at Mayne Yard. For further details refer to **Appendix A** (Table 3).

TSD activities received a total of 6 complaints related to noise, worker behaviour, safety and vehicle access from the Albert Street, Roma Street and Boggo Road sites. For further details refer to **Appendix B** (Table 10) and below.

The Project Works complaints summary for the month is provided in the following chart.

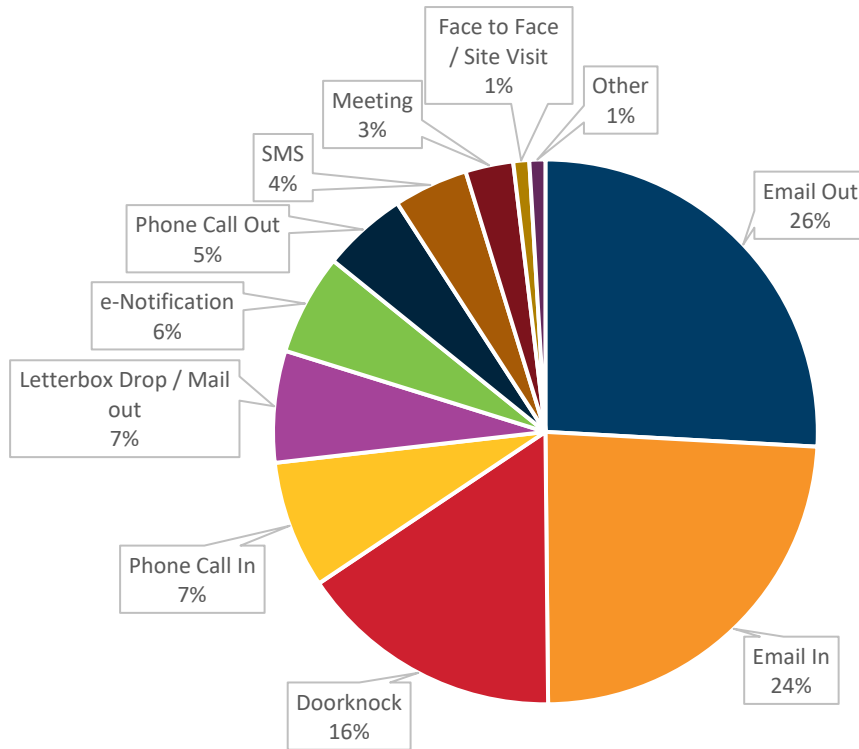


Where attended noise monitoring was undertaken in response to a complaint, the contractor confirmed on all occasions that works undertaken at the time of the complaint adhered to project requirements. In some instances, previous attended noise monitoring data, representative of the relevant construction activities was used to confirm the works adhered to the project noise requirements.

To close out a complaint, the monitoring data is reviewed (where applicable) against compliance with the CEMP, site environmental management plans and permits, and checks that required community notification has taken place. Contractors have also confirmed that planned mitigation to reduce the impact was implemented. This is reviewed together to verify if project requirements have been met.

For scheduled out of hours works, community notification was provided, as well as regular project updates. Stakeholder engagement undertaken on the project during the month is summarised in the chart below.

Stakeholder Engagement August 2022



2.4. New Upcoming Project Works

The key new planned Project Works for the coming months include:

Area	New planned works in the coming months
Mayne Area	Mayne Yard North – <ul style="list-style-type: none"> DLP area (East of MY-East) commence demolition of QR facilities; Drainage and pavements of Access Road; Surcharge Load release and commence cross drainage repairs of pre-load introduction post drainage install; Commence soil nailed wall RW115; and BR08 (Breakfast Creek Bridge) landing Span 3 (centre Super T).
Northern Area	RNA/ Northern Corridor – <ul style="list-style-type: none"> Victoria Park Feeder Station handover to HV team by the civil team; Commence OHLE foundations through corridor; Rock excavation south-eastern area of Ekka Station; and Service relocations East (between Bowen Bridge Road and Ekka Station). Northern Portal – <ul style="list-style-type: none"> Installation of remaining deck units in October; and Completion of MCO1 headwall.
Central Area	Roma Street – <ul style="list-style-type: none"> Cavern permanent arch pours and commencement of mezzanine beam delivery; Station building ongoing perimeter wall and slab pours; Services building pre-cast panel installation and concrete pours; and

Area	New planned works in the coming months
	<ul style="list-style-type: none"> • infill around INB underpinning columns. <p>Albert Street –</p> <ul style="list-style-type: none"> • Lot 1 – commence delivery and installation of slip form modules; • Lot 2 – complete AS1 shaft shotcrete and blinding; and • Lot 3 – commence FRP for sloping slab. <p>Woolloongabba –</p> <ul style="list-style-type: none"> • Commence cable trays in Levels B9/B7; • Complete mezzanine units in southern cavern; and • Northern cavern ongoing back of house works. <p>Boggo Road –</p> <ul style="list-style-type: none"> • Concrete wall steel fixing and concrete pours ongoing; and • Cavern back of house blockwork to commence in September. <p>Southern Portal –</p> <ul style="list-style-type: none"> • 2nd bench breakthrough into Boggo Road station in September; • Internal roof installation in November in dive structure; and • Permanent commissioning of stormwater diversion to occur in early October.
Southern Area	<p>Dutton Park –</p> <ul style="list-style-type: none"> • Continue foundation works for the Park Road triangle 'Traction Sectioning Cabinet (TSC); • Continue site establishment and creating site access through August 2022; and • Major works will commence in the Dutton Park area from October 2022 in readiness for the closure of the Up Platform in November. <p>Yeronga Station –</p> <ul style="list-style-type: none"> • Fairfield Overpass (over track component) – ongoing fit-out, lift installation, cladding, finishing and stair fit-out; • Station buildings – Fit out, painting, joinery, flooring; and • Station entrances – Completion of FRP, landscaping and general tidy up scope. <p>Fairfield Station –</p> <ul style="list-style-type: none"> • Continue with the inground services installation (water, stormwater, sewer, electrical, communications, security) and structural foundations for the overpass and platform structures; • Continuation of Platform 1 slab pours; • Mildmay street gravity wall installation (stage 01); • Platform 1 canopy foundations to be completed; and • Installation of new overpass planned to be installed over mid-week nightshifts in late September (subject to TOA access being maintained). <p>Clapham Yard –</p> <ul style="list-style-type: none"> • Commence creek works for drainage outlet in Moolabin Creek; and • Continue CSR scope and commence pavements.

2.5 Non-Compliance Events

No new NCEs have been raised this month. The summary of NCEs to date is shown in the table below.

Status	Date of event	Category	Area as on the Report	Conditions affected	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Open									
Closed									
CRRDA-001-RIS-001	11/09/19	Noise	Yeronga Station	4, 10, 11	11/10/19	14/11/19	26/11/19	18/12/19	01/10/20
CRRDA-002-TSD-001	27/03/20	ESC	Woolloongabba	4, 15, 18	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
CRRDA-003-TSD-002	27/03/20	ESC	Boggo Rd	4, 15, 18	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
CRRDA-005-TSD-004	27/03/20	Reporting	Albert St, Boggo Rd, Roma St, Woolloongabba	4, 6, 11, 13	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
CRRDA-006-TSD-005	27/03/20	Air Quality	Albert St, Boggo Rd, Roma St, Woolloongabba	13	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
CRRDA-004-TSD-003	28/03/20	Traffic	Boggo Rd	4, 10, 14	30/03/20	31/03/20	22/04/20	06/11/20	31/05/20
Withdrawn									
CRRDA-007-RIS-002	04/01/20	Air Quality	Mayne Yard, Victoria Park, Yeronga, Fairfield	13	28/04/20	30/04/20	Withdrawn		
CRRDA-008-TSD-006	04/08/20	Working Hours	Roma Street	4, 10	28/04/20	30/04/20	Withdrawn		
Gate 1 - EM notification to contractor, NCE confirmed Gate 2 - 48 hour NCE notification submitted to CG Gate 3 - 14 day report submitted Gate 4 - 14 day report uploaded to CRR website Gate 5 - Records of mitigation / preventative measures submitted to the CG					Complete				

Throughout construction activities, events and incidents are routinely investigated to verify compliance with the Imposed Conditions and to verify that management and mitigation measures are implemented in accordance with CEMP and sub-plans.

Appendix A RIS Monthly Report

Monthly CGCR Report August 2022

**Cross River Rail – Rail, Integration and Systems
Alliance**

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1 Progress Summary - Relevant Project Works

The following Project Works were undertaken during the reporting period:

Table 1: Summary of Project Works completed during the reporting period

Area	Project Works
Mayne Area	Mayne Yard North <ul style="list-style-type: none"> Mayne Yard North and associated facilities have been completed by SCAS RIS #44, at the end of July, and is ready for QR acceptance. Tripod Bridge (BR11/13) – RSS walls completed, deck units landed and barriers nearing completion Breakfast Ck Bridge (BR08) – RW150 nearing completion RW130 – Retaining wall on Eastern side under ICB overpass nearing completion.
Northern Area	RNA / Northern Corridor <ul style="list-style-type: none"> CSR scope ongoing throughout corridor Victoria Park Feeder Station civil scope nearing completion Watermain underbore at Bowen Bridge Road completed CSR scope GST and on Bridge structure BR43 nearing completion Demolition of RNA facilities and QR facilities commenced (Eastern side of Ekka Station) Successful Ekka 2022 and areas handed back to UNITY.

Area	Project Works
Southern Area	<p>Yeronga Station</p> <ul style="list-style-type: none"> Continuation of building trades fit-out & rough-in throughout the platform facilities Continuation of building trades fit-out & rough-in throughout the overpass facilities Installation of glazing to Lift 01 & Lift 02 Installation of stair structure, lift structure, lift precast, stair roofing on Stair / Lift 03 Station electrical, communications, cable pulling works ongoing. <p>Fairfield Station</p> <ul style="list-style-type: none"> Ongoing installation of inground services; water, sewer, stormwater, electrical, communications, signalling conduiting Installation of structural columns for the overpass central Pier 01 (Equity Street) and Pier 03 (Mildmay Street) Ongoing installation of 'flowable' backfill operation throughout PL1 & PL2/3 Finalising Platform 01 canopy foundations completion Successful completion of the first section of final height platform concrete pour – Platform 01. Many more to come. Mildmay Street Gravity Wall – Excavation and blinding slab completion. <p>Southern Portal / Dutton Park</p> <ul style="list-style-type: none"> Demolition of Cope Street properties completed in August following removal of unexpected asbestos in the final property. Establishment of the site at the Park Rd triangle and commencement of traction sectioning cabinet foundation works at Park Rd triangle (Park Road TSC). <p>Clapham Yard</p> <ul style="list-style-type: none"> RSS wall construction of BR94 (Chale Street Road over Rail Bridge) commenced Drainage outlet at Rocky Water Hole completed SEQ Watermain protection completed CSR works ongoing Retaining Wall RW650 (in front of Aurizon facility) completed Capping along Dual Gauge alignment commenced.

Acronyms:

CIP – Cast in Situ Piles

CSR – Combined Services Route

DL – Drainage Line

FRP – Form Reo Pour

HV – High Voltage

OHLE – Overhead Line Equipment

OTV – On Track Vehicle

PUP – Public Utility Plant

RNA - Royal National Agricultural and Industrial Association of Queensland

R&R – Remove and Replace

RSS – Reinforced Soil Slopes

RW – Retaining Wall

SCAS – Scheduled Corridor Access Schedule

UTX – Under Track Crossing

The following table summarises the upcoming Project Works:

Table 2: Summary of upcoming Project Works

Area	Project Works
Mayne Area	Mayne Yard North <ul style="list-style-type: none"> • DLP area (East of Mayne Yard East) commence demolition of QR facilities • Drainage and pavements of Access Road • Surcharge Load release and commence cross drainage repairs of pre-load introduction post drainage install • BR08 (Breakfast Creek Bridge) landing Span 3 (centre Super-T). • Commence soil nailed wall RW115
Northern Area	RNA / Northern Corridor <ul style="list-style-type: none"> • Victoria Park Feeder Station handover to HV team by the civil team • Commence OHLE foundations through the corridor • Demolition • Rock excavation south-eastern area of Ekka Station (not impacted by EXH Stage 2 switch) • Service relocations East (between Bowen Bridge Road and Ekka Station)

Area	Project Works
Southern Area	<p>Yeronga Station</p> <ul style="list-style-type: none"> • Fairfield Overpass – Ongoing fit-out, lift installation, cladding, finishing, stair fit-out • Station buildings – Fit-out, painting, joinery, FF&E and flooring. • Station entrances – Completion of FRP, landscaping and general tidy-up scope. <p>Fairfield Station</p> <ul style="list-style-type: none"> • The focus will be to continue with the inground services installation (water, stormwater, sewer, electrical, communications, security) and structural foundations for the overpass and platform structures. • Continuation of Platform 01 slab pours • Mildmay Street gravity wall installation (stage 01) • Platform 01 canopy foundations to be completed • Installation of Platform 01 canopy structural steel • Installation of new overpass planned to be installed over mid-week nightshifts in late September (subject to TOA access being maintained). <p>Southern Portal / Dutton Park</p> <ul style="list-style-type: none"> • Continue foundation works for the Park Rd triangle 'traction sectioning cabinet' (TSC) • Continue site establishment and create site access • Major works will commence in the Dutton Park area from October 2022 in readiness for the closure of the UP Platform in November 2022. <p>Clapham Yard</p> <ul style="list-style-type: none"> • Commence creek works for drainage outlet in Moolabin Creek • Continue CSR scope and commence pavements.

2 Complaints

The below section summarises the complaints relating to the Project Works to be reported in accordance with condition 6(b)(iii) of the CGCR.

Table 3: Summary of Complaints

Date Received	Location	Issue	Project Works / Activity source of the concern	Reporting Period	Complaint Detail	Unity Response	Status
Tuesday 2 August 2022	Mayne Yard North	Vibration	BR08 Works	August 2022	Stakeholder emailed the project to complain about vibration from a drum roller .	Team issued the owner of the building the pre-construction survey that was undertaken for the developer. Site Supervisor contacted and roller switched to static rolling. Team discussed with the construction team regarding the future use of a roller in this location.	Closed
Monday 8 August 2022	Yeronga Station	Noise	Night Works	August 2022	Stakeholder emailed noise complaint from Yeronga structural steel installation works (rattle gun).	Team responded to advise of activity, traffic permitting constraints and provided further information about upcoming works. In response to the complaint, the construction methodology was changed to fix the screens at night and finish installation during daytime.	Closed

3 Environmental Monitoring Results

The below section summarises the monitoring results to be reported in accordance with condition 6(b)(i) of the CGCR.

3.1 Acoustics

Condition 11(b) of the CGCR requires that during construction, monitoring and reporting on noise and vibration in accordance with the Noise and Vibration Management Plan, a sub-plan of the Construction Environmental Management Plan (C-EMP) occurs.

3.1.1 Noise Monitoring

Attended noise monitoring was not triggered based on the predictive noise assessments for the Relevant Project Works during the reporting period.

Complaint-based noise monitoring because of Project Works was not triggered during the reporting period.

3.1.2 Noise Monitoring Results

Table 4: Summary of Noise Monitoring Data

Location	Receiver Type Details	Type of Monitoring	Work Hours	Monitoring date and time	Noise Type	Purpose of Monitoring	Predictive model (dBA)	Performance Goal 1 (dBA) (Condition 11(a), Table 2, LA _{10/eq} noise goals)	Performance Goal 2 (dBA) – (Condition 11(c), Table 2 LA ₁₀ noise goal + 20dBA))	Measured LA ₁₀ (dBA)	Measured LA _{eq} (dBA)	DAP engagement prior to works	Is performance Goal exceeded?	Comments For interpretation, please refer to Error! Reference source not found.
	N/A – not triggered during monitoring period													

- Note 2 of Imposed Condition 11 Table 2 states *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 2017 (PFNC) apply.*
- The monitoring was undertaken to validate the model therefore external noise measurements are appropriate to determine the impact of construction noise.
- Note (2) – Façade Attenuation
 - Note 2 of Imposed Condition 11 Table 2 states *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 2017 (PFNC) apply.*
 - The PFNC guideline can no longer be accessed. The Department of Environment and Science (DES) website still states this guideline is under review and is yet to release an alternative guideline
 - Former revisions of the PFNC table 7 stated the following regarding typical noise reductions through the building façade:
 - 5 dB – Window wide open
 - 10 dB – Partially closed
 - 20 dB – Single glazed, closed
 - 25 dB – Thermal double glazing, closed
 - The RfPC-4 Technical Report considered that all receptors had closed external single glazing for the assessment of construction noise impacts.
 - The Queensland Ombudsman assessed this assumption for the Airport Link Project and recommended that 10dB be adopted for major infrastructure projects in Queensland¹.
 - Additionally, several acoustic studies have shown that 10 dB is a suitable assumption for open windows. Most importantly this requirement only applies to temporary rail works within the project footprint and does not apply to long-term operational rail noise exposure.
 - Accordingly, it is considered appropriate to consider a 10 dB reduction on this basis. This assumption can be used for predictive modelling and for noise measurements, where indoor noise measurements are not practicable.

² Refer to the waterways and water quality management plan, a C-EMP sub-plan for details of derivation of the discharge criteria

3.1.3 Vibration Monitoring

There were no vibration intensive activities during the reporting period that triggered the need to undertake vibration monitoring.

Complaint-based vibration monitoring was not triggered. No complaints related to vibration occurred during the reporting period.

Vibration monitoring to address property damage was not triggered by the predictive assessment.

3.1.4 Vibration Monitoring Results

Table 5 Summary of Vibration Data

Location	Date (Start and Finish)	Time of day	Closest DAP / Sensitive Place	Receiver Type (table 3 – Imposed Condition 11(e))	Purpose of Monitoring	Vibration intensive equipment	Maximum predicted vibration Level (mm/s)	Shortest distance between Equipment and Sensitive Place (m) @Time of Monitoring"	Maximum recorded vibration level (mm/s)	Vibration goal for receiver (mm/s)	Exceedance of vibration limit?	Comments
	N/A – not triggered during monitoring period											

3.1.5 Interpretation

The RIS scope of works continues to achieve the outcomes set out by the CGCR and OEMP.

3.1.6 Vibration Monitoring

The RIS scope of works continues to achieve the outcomes set out by the CGCR and OEMP.

3.2 Air Quality

Imposed Condition 13(b) of the CGCR requires that during construction, monitoring, and reporting on air quality in accordance with the Air Quality Management Plan, a sub-plan of the C-EMP occurs.

Visual monitoring was undertaken during routine environmental inspections. A total of 24 inspections were undertaken by the Environment Team across Mayne Yard, RNA Showgrounds, Southern Area, Fairfield Station, Yeronga Station, Clapham Yard, and the Northern Corridor.

UNITY has installed the following air quality monitoring devices, therefore data collected from these devices, when active, is reported on in the monthly report regardless of the Project Works occurring.

Table 6: Summary of Air Quality monitoring devices

Monitoring Device Installed by UNITY	Area	Name	Date Installed	Status for the Reporting Period
Dust Deposition Gauge	RNA Showgrounds	AQ-01	13 December 2019	Active
Dust Deposition Gauge	Mayne Yard (Eastern Air Shed)	AQ-04	13 February 2020	Invalid Dust deposition bottle was damaged during replacement and results could not be sent for analysis
Dust Deposition Gauge	Clapham Yard (Eastern Air Shed)	AQ-06	1 February 2021	Active
Dust Deposition Gauge	Yeronga Station	AQ-07	12 August 2021	Inactive DDG was decommissioned on 10 December 2021 following the completion of earthworks
Dust Deposition Gauge	Dutton Park	AQ-08	8 July 2022	Active
TSP / PM ₁₀ Monitor	Mayne Yard (Eastern Air Shed)	Mayne Yard East	26 August 2022	Partially active from 26 August 2022 DMP was reinstated for Mayne Yard East Works
TSP / PM ₁₀ Monitor	Clapham Yard (Eastern Air Shed)	Clapham Yard	9 August 2021	Active
TSP / PM ₁₀ Monitor	RNA (Western Air Shed)	RNA	25 August 2020	Active

3.2.1 Dust results

As passive dust deposition gauges (DDG) are analysed monthly, results span:

- RNA and Clapham Yard:
 - 11 July 2022 to 9 August 2022
- Mayne Yard
 - No results for this monitoring period due to bottle damage during replacement. Results could not be sent for analysis.

- Dutton Park
 - 8 August 2022 to 9 September 2022

As per AS/NZS 3580.10.1, section 7.3, for routine monitoring programs, the period of exposure is 30±2 days. RNA and Clapham Yard met the required exposure period.

The deposited dust results are detailed below. RNA and Clapham Yard complied with Imposed Condition 13(b) of the CGCR.

Dutton Park results will be reported in the September 2022 report, as the results had not been received at the time of writing this report.

Table 7 Dust deposition gauge results for the reporting period

CGCR Goal (mg/m ² /day)	AQ-01 - RNA Showgrounds (mg/m ² /day)	AQ-04 Abbotsford Rd (E Mayne) (mg/m ² /day)	AQ-06– Clapham Yard (mg/m ² /day)	AQ-08 – Dutton Park (mg/m ² /day)
Monitoring Period	11 July 2022 to 9 August 2022	11 July 2022 to 9 August 2022	11 July 2022 to 9 August 2022	08 August 2022 to 9 September 2022
120	30	N/A	13	57
Total Rainfall during Period (mm)	10	13.8	21	10

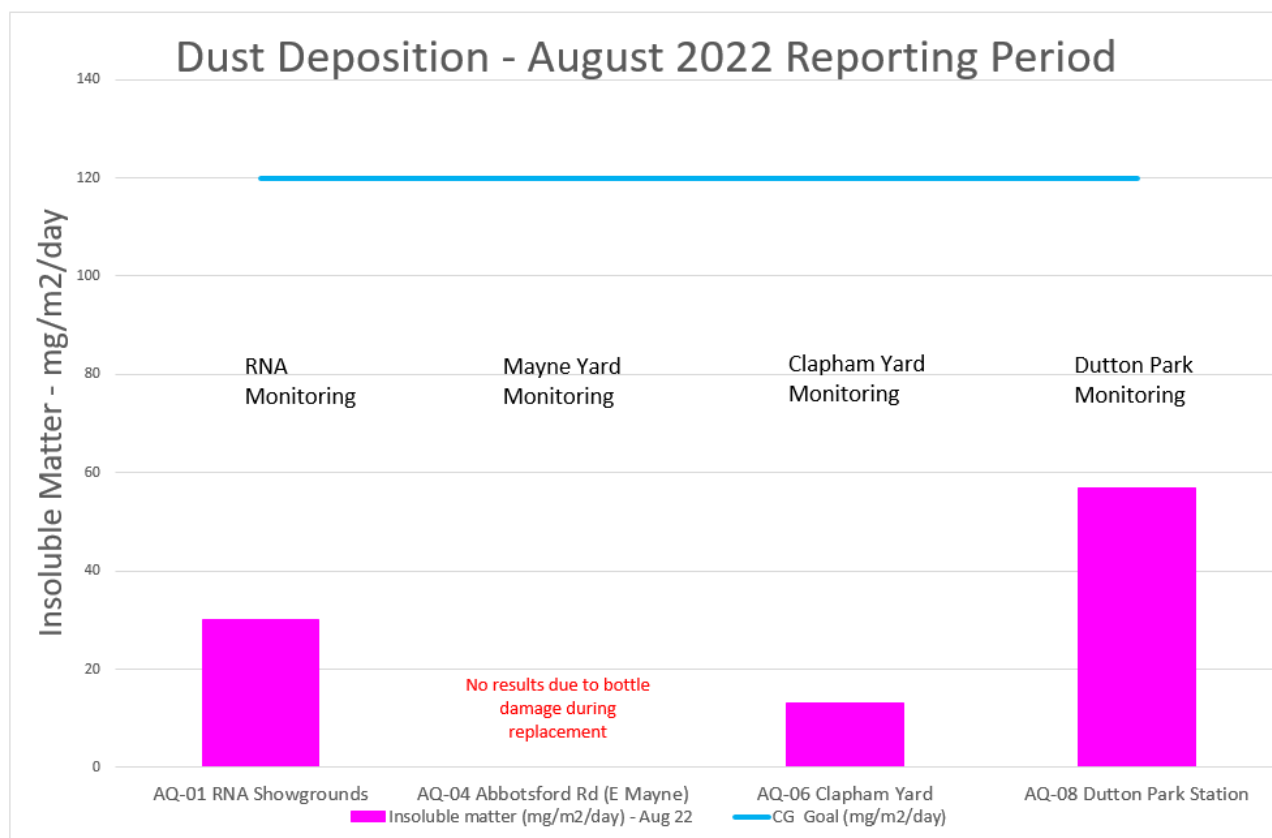


Figure 1 Air Quality Monitoring (Deposited Dust) Results

3.2.2 Particulates results

3.2.3 Air Quality Monitoring Stations

UNITY had one (1) active and two (2) partially active air quality monitoring stations in place for the reporting period as detailed in Table 6.

UNITY received a courtesy rental DMP from the manufacturer whilst the previous Clapham Yard DMP is being assessed by the manufacturer in New South Wales.

The rental DMP was installed at Mayne Yard East on 26 August 2022 (refer to Attachment 3 for location). The DMP was not reinstated at Mayne Yard North as the advice provided by the Project's CAQP confirmed that the current Works at Mayne Yard North do not require TSP or PM₁₀ monitoring (refer to the June report). There is also sufficient monitoring data at Mayne Yard North that supports the CAQP's advice that current Works are not at risk of triggering exceedances of the air quality goals in CG Condition 13 Table 4.

The Clapham Yard DMP was active for the entire reporting period. As stated in the July Report, the Project's CAQP has advised that for data to be considered sufficiently accurate, a minimum measurement of 18 hours over a 24-hour period (or 75%) is required.

The Clapham Yard DMP had only twenty (20) days of measurement that met the minimum measurement requirement. This issue is under investigation as the DMP frequently sent battery trip alerts during the monitoring period.

As this has been a recurring issue, UNITY modified the DMP siting on 14 September 2022 in an attempt to increase the sunlight absorption of the solar panel and reduce the number of days not meeting the minimum measurement requirement. The results of the siting modification will be reported in the September report.

The RNA DMP was active for the entire reporting period. Each day met the minimum measurement requirement.

3.2.4 Monitoring Results – Annual Averaging

Imposed Condition 13 (a) sets annual average air quality goals for TSP (Human health) and PM₁₀ (Human health).

The below table summarises where TSP and PM₁₀ monitoring have been carried out over the last 12 months.

The National Environment Protection (Ambient Air Quality) Measure Technical Paper No.5 provides guidance and procedures for uniform data recording and handling.

(<https://www.nepc.gov.au/system/files/resources/9947318f-af8c-0b24-d92804e4d3a4b25c/files/aaqprctp05datacollection200105final.pdf>).

For air quality data to be officially reported, as per section 4.5 of Technical Paper No. 5, the minimum data capture would be 75% of the year or 274 days.

"It is essential that data loss is kept to an absolute minimum. For representative monitoring data and for credible compliance assessment it is desirable to have data capture rates higher than 95%. 75% data availability is specified as an absolute minimum requirement for data completeness".

In some instances, Relevant Project Works, which triggered TSP and PM₁₀ monitoring was carried out for less than 274 days (e.g., at the Northern Corridor). In such instances the annual averages are still reported but are indicative only as data capture did not meet the 75% data capture requirements of *National Environment Protection (Ambient Air Quality) Measure Technical Paper No. 5 – Data Collection and Handling*.

Table 8: Summary of Air Quality monitoring devices over 12 months

Monitoring Device Installed by UNITY	Area	Date Installed	Date Decommissioned	Number of days data was captured over 365 days period	Data capture over an annual period	Annual performance reporting
TSP / PM ₁₀ Monitor	Northern Corridor (Eastern Air Shed)	23 April 2020	13 January 2021	260 over 365 days	71% over 365 days	<i>Indicative only</i> Data capture did not meet the minimum data capture requirements
TSP / PM ₁₀ Monitor	Mayne Yard North (Eastern Air Shed)	23 April 2020	12 May 2022	Period 1 (to 23 April 2021) 358 over 365 days Period 2 (24 April 2021 to 25 April 2022) 364 over 365 days Period 3 (26 April 2022 to 12 May 2022) 3 days over 17 days	Period 1 98% over 365 days Period 2 99% Over 365 days Period 3 17% Over 17 days	Applicable for Period 1 Data capture met minimum data capture requirements Applicable for Period 2 Data capture has met minimum data capture requirements Applicable for Period 3 Data capture has not met minimum data capture requirements
TSP / PM ₁₀ Monitor	Mayne Yard East (Eastern Air Shed)	26 August 2022	Not yet decommissioned	Period 1 (started 26 August 2022) 6 over 6 days	Period 1 100% Over 6 days	Applicable for Period 1 Data capture has not yet met minimum data capture requirements
TSP / PM ₁₀ Monitor	RNA (Western Air Shed)	11 June 2020	Not yet decommissioned	Period 1 (to 11 June 2021) 314 over 365 days Period 2 (12 June 2021 to 12 June 2022) 290 over 365 days Period 3 (started 13 June 2022) 34 over 80 days	Period 1 86% over 365 days Period 2 79% Over 365 days Period 3 43% Over 49 days	Applicable for Period 1 Data capture met minimum data capture requirements Applicable for Period 2 Data capture met minimum data capture requirements Period 3 Data capture has not yet met minimum data capture requirements

Monitoring Device Installed by UNITY	Area	Date Installed	Date Decommissioned	Number of days data was captured over 365 days period	Data capture over an annual period	Annual performance reporting
TSP / PM ₁₀ Monitor	Clapham Yard (Eastern Air Shed)	1 February 2021	Not yet decommissioned	Period 1 (to 31 January 2022) 326 over 364 days Period 2 (started 01 February 2022) 107 over 211 days	Period 1 90% over 364 days Period 2 51% Over 180 days	Applicable for Period 1 Data capture met minimum data capture requirements Not Applicable for Period 2 Data capture has not yet met the minimum data capture requirements

The below table summarises the applicable and indicative annual data results for TSP and PM₁₀ against the performance goals imposed under Condition 13(a). Results in *italic* are indicative only.

Table 9 Annual Performance Results

Air Quality Indicator	Goal	Period	Northern Corridor	Mayne Yard North	Mayne Yard East	RNA	Clapham Yard
TSP 90 µg/m ³		Period 1	<i>8 µg/m³</i>	11 µg/m ³	Not yet applicable	18 µg/m ³	8 µg/m ³
		Period 2	-	10 µg/m ³	-	15 µg/m ³	Not yet applicable
		Period 3	-	Not applicable	-	12 µg/m ³	-
PM ₁₀ 25 µg/m ³		Period 1	<i>5 µg/m³</i>	7 µg/m ³	Not yet applicable	11 µg/m ³	5 µg/m ³
		Period 2	-	7 µg/m ³	-	10 µg/m ³	Not yet applicable
		Period 3	-	-	-	7 µg/m ³	-

3.2.5 Interpretation

External ambient air quality data was collected for total suspended particulates (TSP), and particulate matter less than 10µm (PM₁₀).

TSP is one of the indicators for which the Coordinator General has imposed a goal of 80µg/m³ (over an averaging period of 24 hours) the project must aim to achieve under Imposed Condition 13(a).

PM₁₀ is one of the indicators for which the Coordinator General has imposed a goal of 50µg/m³ (over an averaging period of 24 hours) the project must aim to achieve under Imposed Condition 13(a).

These stations have been installed on-site as per AS/NZS 3850 1.1 following consultation with UNITY Certified Air Quality Professionals (CAQP).

As explained in section 3.2.3, the results presented for the reporting period cover RNA and Clapham Yard. The Mayne Yard DMP was active at Mayne Yard East for only 6 days during the reporting period.

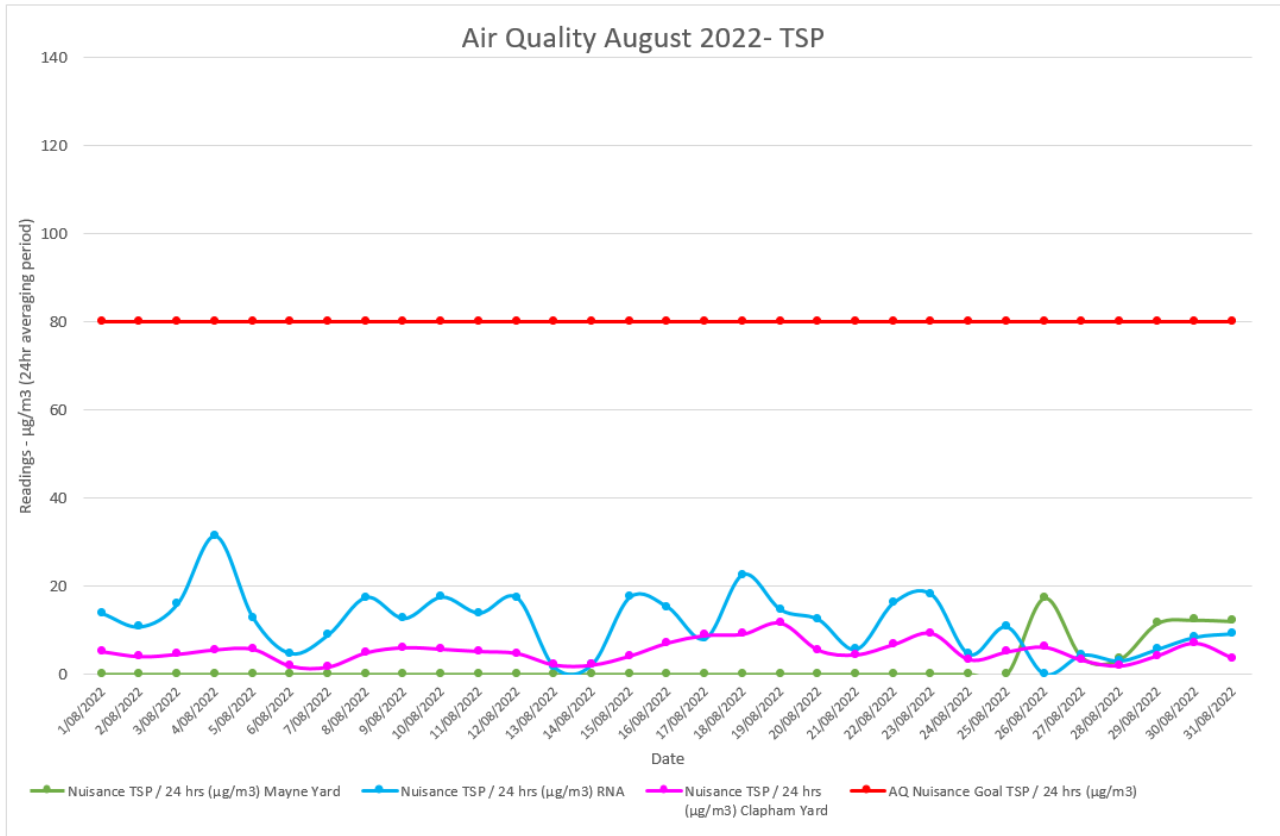


Figure 2 Air Quality Monitoring (TSP) Results

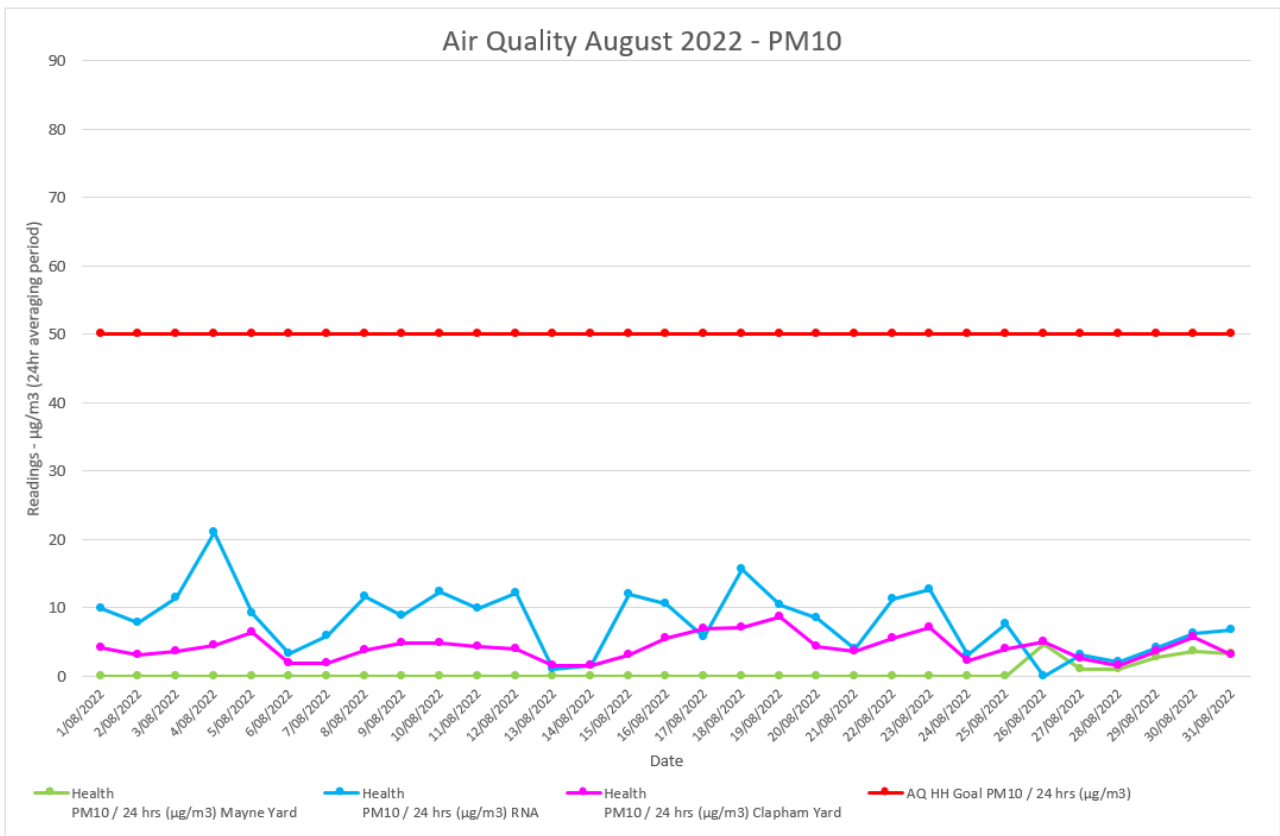


Figure 3 Air Quality Monitoring (PM₁₀) Results

During the reporting period there is limited quantitative data available. However, consistent with Attachment 4 of the C-EMP other qualitative parameters can be used to ascertain compliance with the Air Quality project objectives:

- None of the dust deposition results (when data can be relied upon) exceeded the relevant goal
- There was no evidence of dust being generated during routine site inspections
- There were no complaints received associated with air quality concerns during the reporting period

Therefore, the RIS scope of works has met the project outcomes set out by the CGCR and OEMP.

3.3 Water Quality

Condition 15(b) of the CGCR requires that during construction, monitoring, and reporting on water quality in accordance with the Water Quality Management Plan, a sub-plan of the C-EMP, occurs.

Condition 15(a) requires that discharges of groundwater from Project Works within the Breakfast Creek catchment must comply with the Brisbane River Estuary environmental values and water quality objectives (Basin no.143 – mid-estuary) in the *Environment Protection (Water) Policy 2009*.

Condition 15(a) requires that discharges of groundwater from Project Works within Moolabin Creek, Yeerongpilly – Oxley Creek catchment must comply with the Oxley Creek - Lowland freshwater environmental values and water quality objectives (Basin no.143 (part) – including all tributaries of the Creek) in the *Environment Protection (Water) Policy 2009*.

Water quality monitoring to demonstrate compliance with Condition 15(a) was not triggered during the reporting period. There were no groundwater discharges during the reporting period.

Water quality monitoring to demonstrate compliance with Condition 15(b) and Condition 18 was not triggered during the reporting period.

3.3.1 Rainfall Records

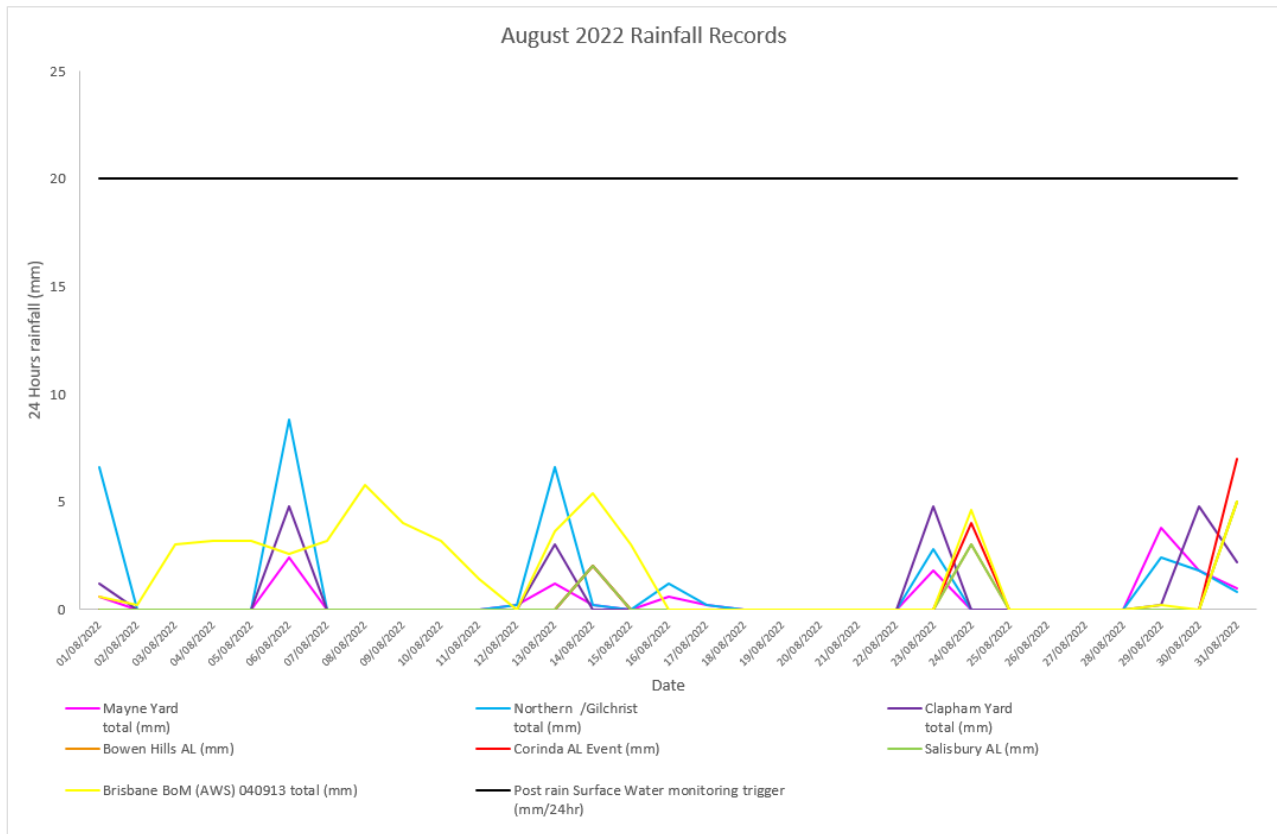


Figure 4: August 2022 Rainfall Records

3.3.2 Post Rainfall Monitoring Results

Post rainfall monitoring is triggered 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 of a higher intensity may cause run-off which would also trigger post-rain monitoring consistent with the C-EMP.

Post rainfall monitoring was not triggered as per Condition 15(b) and Condition 18.

Table 10 Surface Water Post Rainfall Monitoring Results

Date	Location	Waterway	Tide	Discharge Criteria ²				TSS Delta
				Turbidity (NTU) Nil until Turbidity / TSS correlation achieved ³	TSS (mg/L) <50	DO (%) Nil	pH (pH Unit) Stable pH reading; and General sites: 6.5 – 8.5, or Wallum/Acidic Ecosystems: 5.0 – 7.0	change of 5mg/L or 10% increase (whichever is the greatest)
N/A – not triggered during monitoring period								

² Refer to the waterways and water quality management plan, a C-EMP sub-plan for details of derivation of the discharge criteria

³ Correlations are typically run on the source water (i.e., basins) not the receiving system where there is a dilution component of potentially diffuse sources of sediments from non-Project related areas. Due to the very limited amount of discharges the RIS Scope of Works has experienced, there is no correlation available. Typically, a minimum of 20 data points is used to determine TSS / in field turbidity correlation for site waters.

3.3.3 Routine Surface Water Monitoring Results

During the reporting period, UNITY did not undertake routine surface water quality monitoring.

A review of the data sample has identified that over 12 months of continuous data collection has occurred with over 20 monitoring events. The frequency of background monitoring has therefore been reduced to bi-annually, with the dry season monitoring completed in June 2022. This was due to the unseasonal precipitation experience at the start of the dry season (April to September).

This reduction of monitoring frequency is acceptable to continue informing the Dis-1 Credit for the ISCA 'Excellent Rating' the Project is pursuing.

3.3.4 Groundwater Discharge Monitoring Results

Groundwater discharge monitoring was not triggered during the reporting period.

3.3.5 Surface Water Discharge Monitoring

Surface water discharge monitoring was not triggered during the reporting period.

4 Compliance Review

4.1 Non-Compliance Events

The below section summarises the events to be reported in accordance with Condition 5 and Condition 6(b)(ii) of the CGCR. A non-compliance event (NCE) is defined as Project Works that do not comply with the Imposed Conditions.

4.1.1 Non - Compliance Events Summary

Table 11 Summary of Non-Compliance Events

Event Title	Location, Date, and time of event	Date the Event was Formally Notified to CG/IEM	Conditions Affected	Date the Event Report Formally Sent to CG/IEM	Status of Event
None for this reporting period					

4.2 C-EMP Compliance

The below table summarises compliance status with the C-EMP and monitoring requirements of relevant sub-plans for the reporting period.

Table 12 C-EMP and relevant Subplans monitoring requirements – Compliance Status for the reporting period

Aspect	Monitoring requirement	Activities risk profile	Monitoring undertaken	Compliance status with C-EMP / Subplan	Effect of the non-compliance
Air Quality	Visual monitoring program + Additional particulate monitoring as required based on the outcomes of the predictive assessment/risk profile	Moderate to High	Yes – visual monitoring is undertaken as part of routine inspections. Monitoring for TSP, PM ₁₀ , and deposited dust was also undertaken TSP, PM ₁₀ monitoring was carried out for two active Worksites and partial monitoring was carried out for a third site	Compliant	Not Applicable
Air Quality	Complaint's response	Moderate to High	Not triggered No complaints	Compliant	Not Applicable
Noise	Buffer distance tests based on the outcomes of the predictive assessment based / risk profile of activities	Moderate to High	Not triggered	Compliant	Not Applicable
Noise	Plant noise audits for noisy plant to validate models input as required	Moderate to High	No	N/A	Not Applicable
Noise	Complaint's response	Moderate to High	Not triggered No complaints	Compliant	Not Applicable
Vibration	Construction Monitoring at Sensitive Places / DAPs - Model verification based on the outcomes of the predictive assessment based / risk profile of activities	Moderate to High	Not triggered	Compliant	Not Applicable
Vibration	Complaint's response	Moderate to High	Not triggered No complaints	Compliant	Not Applicable

Aspect	Monitoring requirement	Activities risk profile	Monitoring undertaken	Compliance status with C-EMP / Subplan	Effect of the non-compliance
Water Quality	Bi-Annual monitoring	N/A	Wet season monitoring completed in January 2022 Dry Season monitoring completed in June 2022	Compliant	Not Applicable
Water Quality	Post Rainfall	Moderate to High	Not triggered	Compliant	Not Applicable
Water Quality	Dewatering	Moderate to High	Not triggered	N/A	Not Applicable

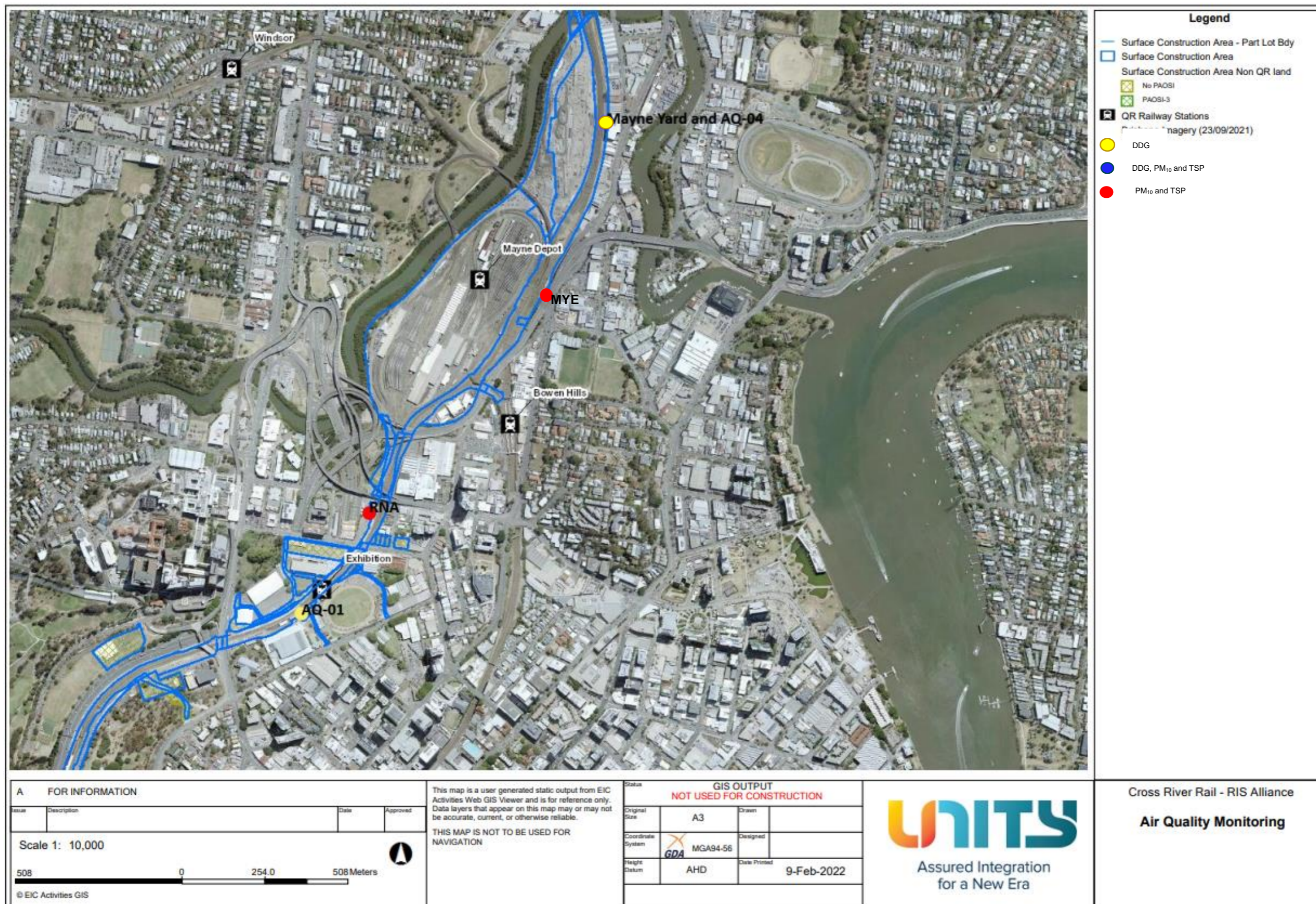
Attachment 1 CGCR Non-Compliance Event Report (if required)

None for this reporting period.

Attachment 2 Monitoring Locations – Noise and Vibration

None for this reporting period.

Attachment 3 Monitoring Locations – Air Quality





Legend

- 210 - Alignment Lines**
- Centre Line
 - Chainage Symbol
 - Centre Line - Cleveland
 - Centre Line - Cleveland Proposed
 - Centre Line - Dual Gauge Proposed
 - Centre Line - Dual Gauge
 - Centre Line - Fisher Proposed
 - Centre Line - Freight
 - Centre Line - Freight Proposed
 - Sub_CRR_UP_CL; Sub_UP_CRR_CL
 - Sub_UP_CRR_CL Mainline
 - Track - Centreline - Dual Gauge
 - Track - Centreline - Narrow Gauge
 - Track - Centreline Dual Gauge New
 - Track - Centreline Existing
 - Track - Centreline Proposed
 - Track - Centreline To Be Removed
 - Centre Line - Turnout Above
 - Centre Line - Turnout Proposed
 - Centre Line - Sub CRR Existing
- Surface Construction Area - Part Lot Bdy
- Surface Construction Area
- QR Railway Stations
- Brisbane Imagery (12/07/2022)
- DDG
 - DDG, PM₁₀ and TSP
 - PM₁₀ and TSP

A FOR INFORMATION

Issue	Description	Date	Approved
	Dutton Park		

Scale 1: 1,606

82 0 40.8 82 Meters

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This map is a user generated static output from EIC Activities Web GIS Viewer and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

GIS OUTPUT NOT USED FOR CONSTRUCTION

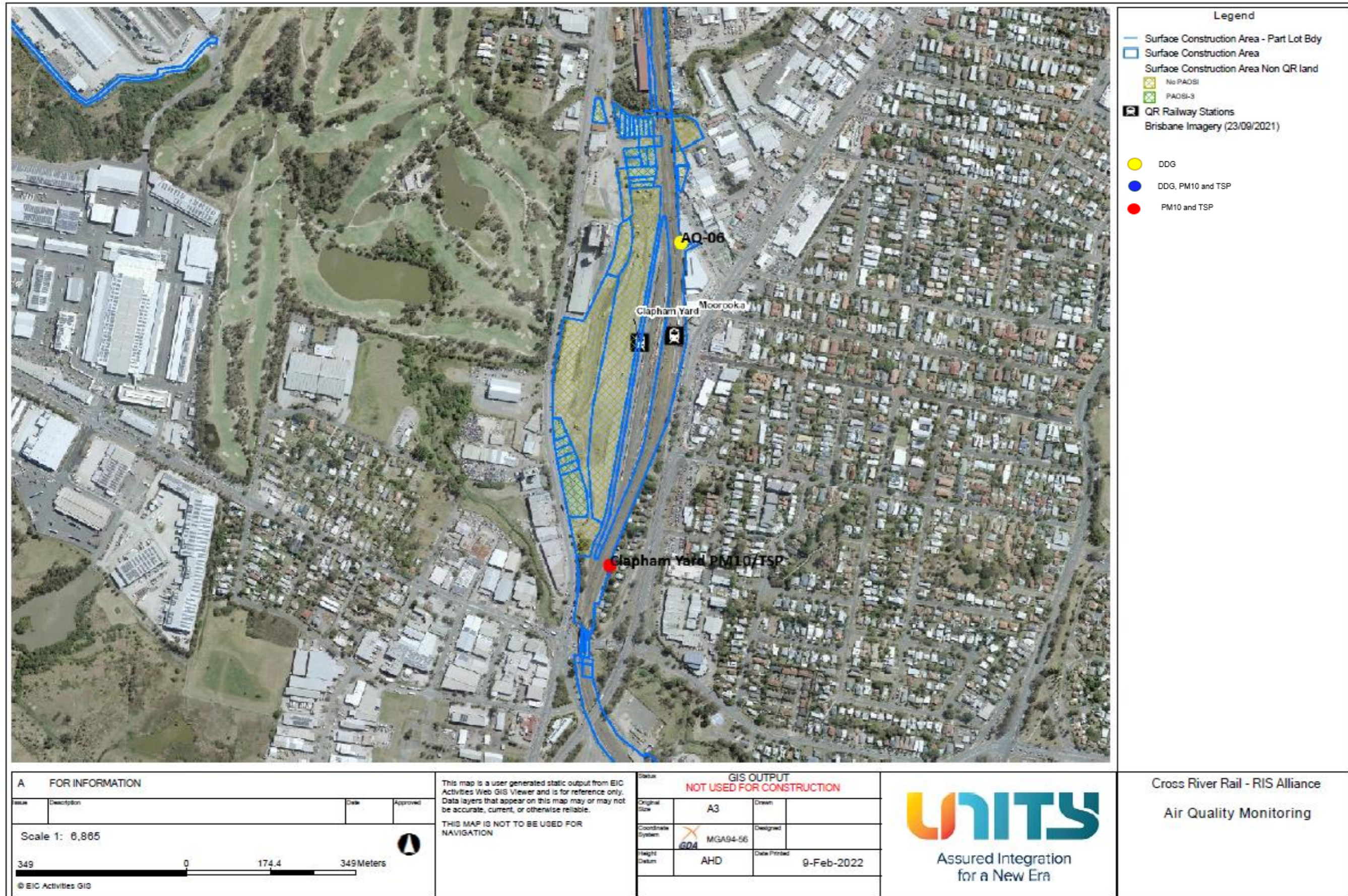
Original Size	A3	Drawn	
Coordinate System	MGA94-56	Designed	
Height Datum	AHD	Date Printed	19-Sep-2022



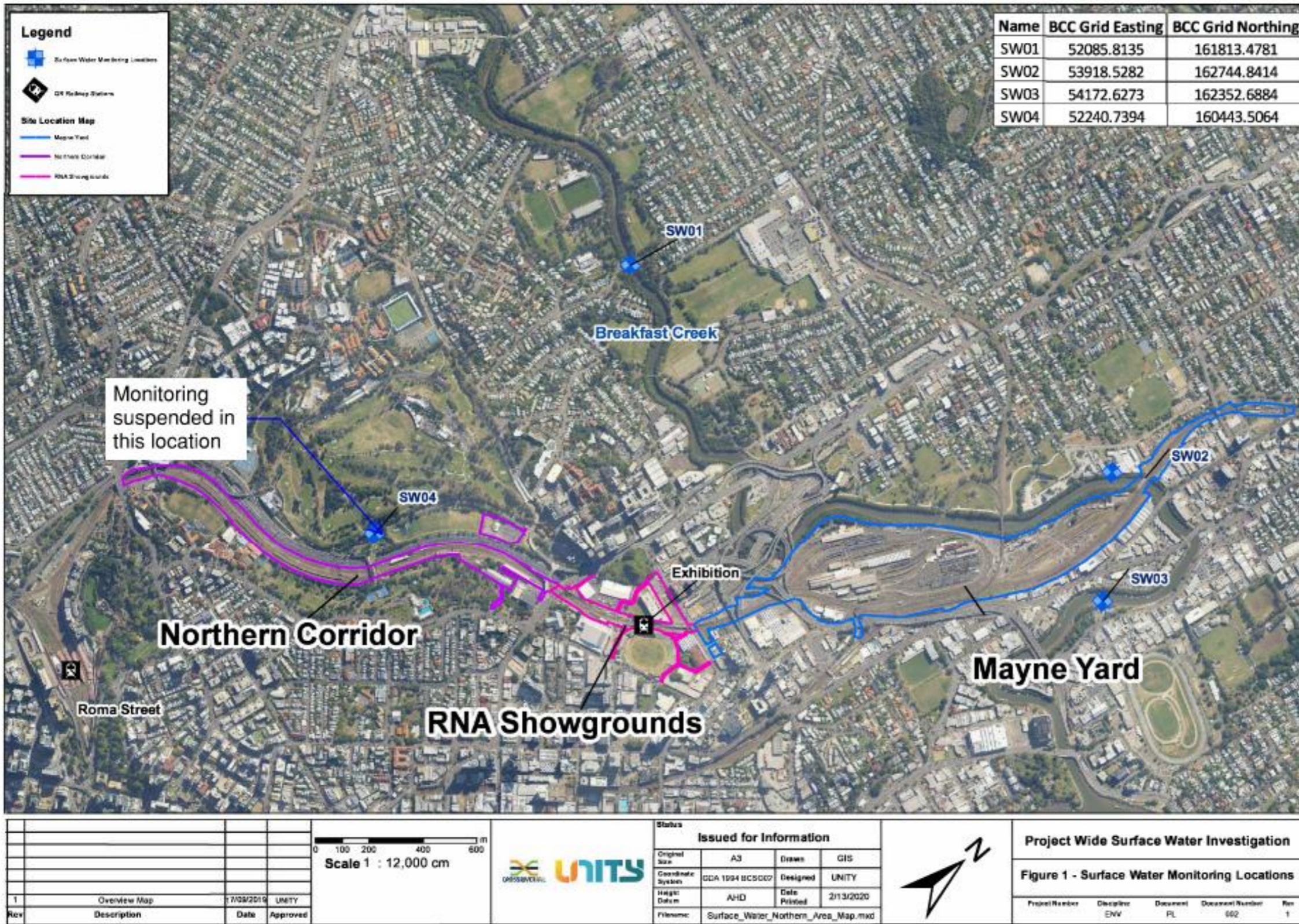
Cross River Rail - RIS Alliance

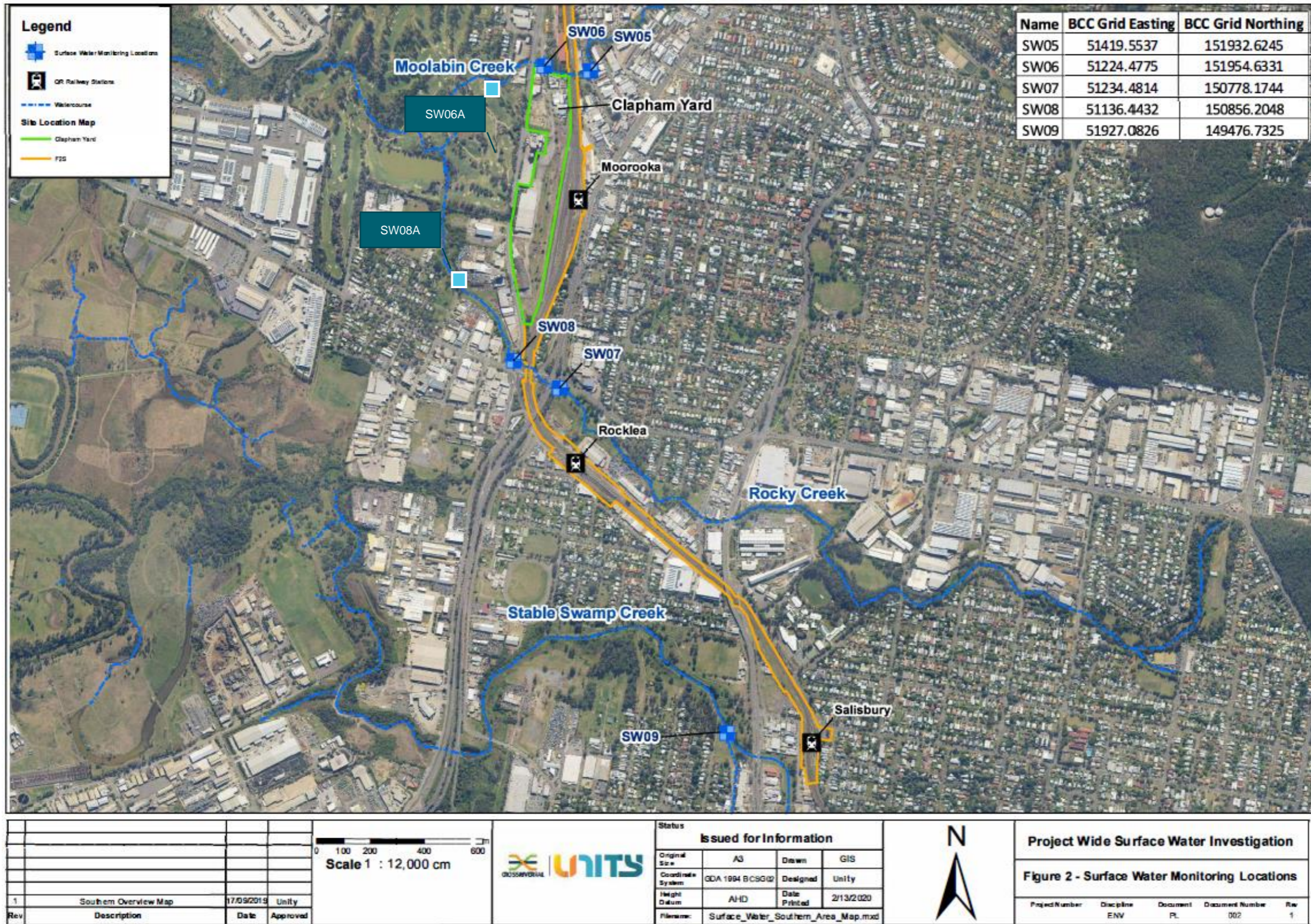
Air Quality Monitoring

Dutton Park



Attachment 4 Monitoring Locations – Surface Water





Appendix B TSD Monthly Report

COORDINATOR-GENERAL'S MONTHLY REPORT: August 2022

Prepared in accordance with Coordinator-General Imposed Condition 6 - Reporting.

1. Monthly Monitoring Summary

It is CBGU Joint Venture's intent to aim for the Goals and Objectives relevant to vibration, noise, air quality and water monitoring within the practical extent of delivering the Project.

Vibration monitoring was conducted on nine (9) occasions, noise monitoring was conducted on twenty (20) occasions during August 2022. Each noise and vibration monitoring event that was undertaken confirmed works adhered to project requirements.

Ambient air quality monitoring was conducted at Roma Street, Albert Street, Woolloongabba, Boggo Road, Southern Portal and Northern Portal precinct sites during August 2022. Air quality monitoring confirmed works adhered to project requirements.

Water quality monitoring was conducted before the release of water from the site on twenty-seven (27) occasions. Each monitoring event confirmed project requirements were adhered to. One (1) round of surface water quality monitoring was conducted; the monitoring events confirmed no impacts were generated by the Project.

2. CG Monthly Report – Compliance Assessment Against Imposed Conditions

Whilst not a requirement of Imposed Condition 6, CBUGU offers the below Compliance Status Table as a good-will gesture to demonstrate the Project's ongoing environmental performance.

Table 1: Compliance Status – CG Imposed Conditions

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
1.	General conditions – compliance with the Project Changes relevant to the Contractor's scope.	Yes	CBUGU project works have been conducted in compliance with the Imposed Conditions.
2.	Outline Environmental Management Plan – timely submission to the Coordinator-General, including required sub plans.	N/A	The OEMP is not an obligation of the CBUGU Joint Venture.
3.	Design – the achievement of the Environmental Design Requirements.	Yes	Design and implementation proceeded in accordance with the Environmental Design Requirements.
4.	Construction Environmental Management Plan – all relating to Relevant Project Works.	Yes	All CBUGU works were conducted in accordance with the Construction Environmental Management Plan (CEMP) (Rev 10).
5.	Compliance and Incident management – Non-compliance events, notifications, and reporting.	Yes	Nil non-compliances occurred during the monitoring period (refer to Section 0).
6.	Reporting – Monthly and Annual reporting.	Yes	All reporting requirements are completed in accordance with Imposed Condition 6.
7.	Environmental Monitor – engaged and functions resumed.	Yes	An Environmental Monitor (EM) is appointed to the Project, and CBUGU is committed to working collaboratively to aid the EM's functions under Imposed Condition 7.
8.	Community Relations Monitor – engaged and functions resumed.	Yes	A Community Relations Monitor (CRM) is appointed to the Project, and CBUGU is committed to working collaboratively to aid the CRM's functions under Imposed Condition 8.
9.	Community engagement plan – developed and endorsed by Environmental Monitor.	Yes	A Community Engagement Plan (CEP) has been developed and implemented in accordance with Imposed Condition 9. The CEMP has been endorsed with the CEP.
10.	Hours of work – works undertaken during approved hours.	Yes	CBUGU project works have been conducted in accordance with the approved hours of work.

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
11.	Noise – Work must aim to achieve internal noise goals for human health and well-being.	Yes	CBGU project work has aimed to achieve internal noise goals for human health and well-being. Where internal noise levels have been unable to be measured, suitable noise reductions have been applied in accordance with Imposed Condition 11. Noise monitoring data is provided within Section 3.2.
	Vibration – Works must aim to achieve vibration goals for cosmetic damage, human comfort and sensitive building contents.	Yes	CBGU project work has aimed to achieve vibration goals for cosmetic damage, human comfort and sensitive buildings. Vibration monitoring data is provided within Section 3.1.
12.	Property damage relating to ground movement	Yes	The management of potential impacts relating to property damage has been completed in accordance with Imposed Condition 12.
13.	Air quality – Works must aim to achieve air quality goals for human health and nuisance.	Yes	CBGU project works have aimed to achieve air quality goals. Air quality monitoring data is provided within Section 3.3.
14.	Traffic and transport – Works must minimise adverse impacts on road safety and traffic flow.	Yes	CBGU project works have been conducted in a manner that has minimised adverse impacts on road safety and traffic flow.
15.	Water quality – Works must not discharge surface water and groundwater from the construction site above the relevant environmental values and water quality objectives.	Yes	CBGU has prepared and manages processes to ensure water quality is managed in accordance with Imposed Condition 15.
16.	Water resources – evaluate potential impact, plan works, implement controls and monitor the inflow of groundwater associated with drawdown.	Yes	CBGU project works are managed in accordance with Imposed Condition 16.
17.	Surface water – Must be designed to avoid inundation from stormwater due to a 2-year (6hr) ARI rainfall event and flood waters due to a 5-year ARI rainfall event and constructed to avoid afflux or cause the redirection of uncontrolled surface water flows, including stormwater flows, outside of worksites.	Yes	Design of the CBGU project works considers the requirements of Imposed Condition 17.
18.	Erosion and sediment control – Provisions for erosion and sediment control must be 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.	Yes	CBGU has prepared and manages processes to ensure erosion & sediment control is managed in accordance with Imposed Condition 18.

CG Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
19.	Acid Sulfate Soils managed as per the <i>Queensland Acid Sulfate Soil Technical Manual</i> .	Yes	CBGU has prepared and manages processes to ensure acid sulphate soils are managed in accordance with Imposed Condition 19.
20.	Landscape and open space – general requirement to minimise impacts on landscapes and open space values and specific requirements around Victoria Park	Yes	CBGU project works are designed and implemented in accordance with Condition 20.
21.	Worksite rehabilitation – worksites rehabilitated as soon as practicable upon completion of works or commissioning, and in consultation with Brisbane City Council.	Yes	CBGU project works are designed and implemented in accordance with Condition 21.
22.	Flood Water – Temporary emission to allow the release of Flood Waters to high flow receiving waters.	Yes	CBGU project works have been conducted in accordance with the provisions available to manage floodwaters.

3. Environmental Monitoring Results

Monitoring data is provided below in accordance with Imposed Condition 6(b)(i).

3.1 Vibration

Vibration requirements (levels) are defined as goals within Imposed Condition 11. The goals are to be aimed for.

The Coordinator-General Change Report acknowledges instances that exist that these goals may not be achieved.

Nine (9) vibration monitoring session was conducted during August 2022. All vibration monitoring adhered to project requirements and is detailed in the table below.

Table 2: Vibration Monitoring Data

No.	Start Date	Time (AM/PM)	Finish Date	Location	Average Vibration level (mm/s)	Max Vibration Level (mm/s)	Vibration Goal (mm/s)	Receiver / Goal Type	Adhered to Project Requirements (Yes / No)
1.	01/08/2022	16:23	01/08/2022	Mary Street (Albert Street Precinct)	-	0.7	10	Commercial Structure (Controlled Blast)	Yes
2.	05/08/2022	13:00	05/08/2022	Mary Street (Albert Street Precinct)	-	0.55	10	Commercial Structure (Controlled Blast)	Yes
3.	08/08/2022	16:00	08/08/2022	Mary Street (Albert Street Precinct)	-	0.7	10	Commercial Structure (Controlled Blast)	Yes
4.	11/08/2022	10:38	16/08/2022	Stanley Street (Woolloongabba)	0.11	0.17	0.5	Commercial structure	Yes
5.	15/08/2022	16:00	15/08/2022	Mary Street (Albert Street Precinct)	-	0.55	10	Commercial Structure (Controlled Blast)	Yes

6.	17/08/2022	16:00	17/08/2022	Mary Street (Albert Street Precinct)	-	0.45	10	Commercial Structure (Controlled Blast)	Yes
7.	19/08/2022	16:00	19/08/2022	Mary Street (Albert Street Precinct)	-	0.6	10	Commercial Structure (Controlled Blast)	Yes
8.	22/08/2022	16:00	22/08/2022	Mary Street (Albert Street Precinct)	-	0.6	10	Commercial Structure (Controlled Blast)	Yes
9.	24/08/2022	13:03	24/08/2022	Albert Street (Albert Street Precinct)	-	4.75	50	Commercial Structure (Controlled Blast)	Yes

3.2 Noise

Noise requirements (levels) are defined as goals within Imposed Condition 11. The goals are to be aimed for.

The Coordinator-General Change Reports acknowledge instances exist that these goals may not be achieved.

Noise monitoring was conducted on twenty (20) occasions during August 2022. All noise monitoring data adhered to project requirements and is provided in the table below.

Table 3: Noise Monitoring Data

No.	Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External ^[3] Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 ^[1]	Noise level LA10	Noise Goal LAeq ^[2]	Noise level LAeq	Adhered to Project Requirements (Yes / No)
1.	3/08/2022	11:32:00 AM	Reid Street (Woolloongabba Precinct)	Model Verification	External	Concrete works	Construction and Road Traffic	62	60.6	52	58.6	Yes
2.	4/08/2022	19:25:00 PM	Peter Doherty Street (Southern Portal Precinct)	Construction Monitoring at Sensitive Places	External	Installation of road barriers	Construction	59	70.7	57	67.7	Yes
3.	5/08/2022	1:00:00 PM	Albert Street (Albert Street Precinct)	Controlled blasting	External	Controlled Blast	Blast	-	-	130	123.2	Yes
4.	8/08/2022	4:00:00 PM	Albert Street (Albert Street Precinct)	Controlled blasting	External	Controlled Blast	Blast	-	-	130	120.8	Yes
5.	11/08/2022	11:12:00 AM	Peter Doherty Street (Southern Portal Precinct)	Construction Monitoring at Sensitive Places	External	Utilities Investigation	Construction	72	73.1	62	71.9	Yes

No.	Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External ^[3] Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 ^[1]	Noise level LA10	Noise Goal LAeq ^[2]	Noise level LAeq	Adhered to Project Requirements (Yes / No)
6.	12/08/2022	1:56:00 PM	Stanley Street (Woolloongabba Precinct)	Model Verification	External	Excavation	Road traffic	67	67.8	57	64.3	Yes
7.	12/08/2022	2:19:00 PM	Reid Street (Woolloongabba Precinct)	Model Verification	External	Excavation	Road traffic	62	59.8	52	58	Yes
8.	15/08/2022	10:37:00 PM	Albert Street (Albert Street Precinct)	Model Verification	External	Concreting Works	General Public and Road traffic	59	63.5	52	62.6	Yes
9.	15/08/2022	4:00:00 PM	Albert Street (Albert Street Precinct)	Controlled blasting	External	Controlled Blast	Blast	-	-	130 ^[3]	121.1	Yes
10.	16/08/2022	10:02:00 AM	Peter Doherty Street (Southern Portal Precinct)	Construction Monitoring at Sensitive Places	Internal	Piling/ Rock breaking	Construction	42	42.5	35	40.5	Yes
11.	16/08/2022	9:46:00 AM	Peter Doherty Street (Southern Portal Precinct)	Construction Monitoring at Sensitive Places	External	Piling	Construction	72	65.9	62	63.5	Yes
12.	17/08/2022	4:00:00 PM	Albert Street (Albert Street Precinct)	Controlled blasting	External	Controlled Blast	Blast	-	-	130 ^[3]	117.2	Yes
13.	19/08/2022	4:00:00 PM	Albert Street (Albert Street Precinct)	Controlled blasting	External	Controlled Blast	Blast	-	-	130 ^[3]	118.7	Yes

No.	Date	Time (AM / PM)	Location (Street Name) (Construction Precinct)	Purpose of Monitoring	Internal or External ^[3] Monitoring	Activity	Dominant Noise Source	Noise Goal LA10 ^[1]	Noise level LA10	Noise Goal LAeq ^[2]	Noise level LAeq	Adhered to Project Requirements (Yes / No)
14.	22/08/2022	1:00:00 PM	Albert Street (Albert Street Precinct)	Controlled blasting	External	Controlled Blast	Blast	-	-	130 ^[3]	117	Yes
15.	24/08/2022	1:03:00 PM	Albert Street (Albert Street Precinct)	Controlled blasting	External	Controlled Blast	Blast	-	-	130 ^[3]	120.4	Yes
16.	25/08/2022	7:50:00 AM	Peter Doherty Street (Southern Portal Precinct)	Construction Monitoring at Sensitive Places	External	Piling	Construction	72	80.1	62	77.1	Yes
17.	29/08/2022	11:27:00 AM	Railway Terrace (Southern Portal Precinct)	Construction Monitoring at Sensitive Places	External	Demolition	Construction	57	96.8 ^[4]	47	93.5	Yes
18.	30/08/2022	8:30:00 AM	Roma Street (Roma Street Precinct)	Model Verification	External	Excavation	Road Traffic	62	72	52	69.3	Yes
19.	30/08/2022	3:15:00 PM	Railway Terrace (Southern Portal Precinct)	Construction Monitoring at Sensitive Places	External	Demolition	Construction	57	76.7 ^[4]	47	72.5	Yes
20.	30/08/2022	3:35:00 PM	Railway Terrace (Southern Portal Precinct)	Construction Monitoring at Sensitive Places	External	Demolition	Construction	57	98.1 ^[4]	47	93.4	Yes

- [1] Intermittent noise goal (LA10)
- [2] Continuous noise goal (LAeq)
- [3] Blasting is measured in dB Linear Peak.
- [4] Imposed Condition 11(c) implemented

- *Note: In accordance with Imposed Condition 11, where internal noise levels were unable to be measured, external noise goals were developed by an acoustic specialist using the following standards: ISO 140-5:1998 Acoustics – Measurement of Sound Insulation in Buildings and of Building Elements, Part 5: Field measurements of airborne sound insulation of façade elements and facades and ISO 354:1985 Acoustics – Measurement of sound absorption in a reverberation room.*

3.3 Air Quality

3.3.1 Deposited Dust Results

Air quality requirements (levels) are defined as goals within Imposed Condition 13. The goals are to be aimed for. The Coordinator-General Change Report acknowledges instances that exist that these goals may not be achieved. Dust deposition monitoring was performed in August 2022. The dust deposition gauges result for the reporting period are detailed below, and all monitoring data adhered to project requirements.

Table 4.2: Air Quality Monitoring – Deposited Dust Data

Location	Project Wide Air Quality Goals ^[1]			Monitoring results (mg/m ² /day)	Comments
	Criterion	Air Quality Indicator	Goal (mg/m ² /day)		
Northern Portal	Nuisance	Deposited dust	120	21.21	Air quality monitoring was performed during the reporting period. All results adhered to project requirements.
Roma Street Precinct				10.34	
Albert Street Precinct (North)				38.71	
Albert Street Precinct (South)				12.90	
Woolloongabba Precinct (North)				31.03	
Woolloongabba Precinct (South)				34.48	
Boggo Road Precinct (North)				8.82	
Boggo Road Precinct (South)				44.12	
Southern Portal (South)				17.65	
Southern Portal (East)				17.65	

3.3.2 Particulates and Ambient Air Quality Results

Total Suspended Particles (TSP) and particulate matter less than 10µm (PM10) monitoring were conducted during August 2022.

TSP and PM10 are monitored using portable air quality units and nearby Government air quality stations. Targeted monitoring of potential dust-generating activities is conducted by the mobile air quality units and was completed at Albert Street, Woolloongabba, Boggo Road and Northern Portal Precincts during August 2022. Three (3) Government air quality stations near the Construction Precincts are also utilised.

Table 5: Targeted Air Quality Monitoring – Total Suspended Particles and PM10 Data

Date	TSP Project Goal ^[1]	PM10 Project Goal	Woolloongabba		Albert		Boggo Road		Northern Portal	
			TSP	PM 10	TSP	PM 10	TSP	PM 10	TSP	PM 10
			(µg/m ³ /24 hr)							
01-Aug-22	80	50	8.81	8.80	17.11	16.99	12.00	12.00	14.68	14.63
02-Aug-22	80	50	7.55	7.54	16.82	16.71	9.55	9.54	19.81	19.75
03-Aug-22	80	50	9.22	9.20	22.30	22.16	13.47	13.46	20.78	20.70
04-Aug-22	80	50	8.13	8.11	18.45	18.30	9.85	9.84	21.30	21.25
05-Aug-22	80	50	6.35	6.33	19.65	19.46	8.21	8.19	10.28	10.20
06-Aug-22	80	50	3.70	3.68	11.30	11.17	4.14	4.12	4.31	4.24
07-Aug-22	80	50	3.06	3.00	5.23	5.16	2.99	2.98	3.39	3.32
08-Aug-22	80	50	2.47	2.45	10.58	10.37	7.32	7.31	4.37	4.27
09-Aug-22	80	50	4.76	4.74	14.35	14.13	5.55	5.54	7.80	7.73
10-Aug-22	80	50	5.08	5.06	9.67	9.58	5.96	5.95	8.66	8.62
11-Aug-22	80	50	4.54	4.53	11.19	11.09	9.07	9.07	10.85	10.78
12-Aug-22	80	50	6.60	6.59	17.83	17.73	10.65	10.65	11.21	11.17
13-Aug-22	80	50	8.69	8.68	14.57	14.50	6.63	6.62	6.98	6.95
14-Aug-22	80	50	6.14	6.12	10.18	10.13	4.29	4.28	21.87	21.84
15-Aug-22	80	50	3.50	3.46	12.43	12.22	9.75	9.75	3.43	3.36
16-Aug-22	80	50	5.66	5.63	17.66	17.45	7.38	7.37	8.95	8.82
17-Aug-22	80	50	5.26	5.23	12.96	12.79	6.53	6.52	7.14	7.05
18-Aug-22	80	50	8.89	8.82	20.59	20.45	12.95	12.93	15.54	15.44

Date	TSP Project Goal ^[1]	PM10 Project Goal	Woolloongabba		Albert		Boggo Road		Northern Portal	
			TSP	PM 10	TSP	PM 10	TSP	PM 10	TSP	PM 10
			(µg/m3/24 hr)							
19-Aug-22	80	50	15.86	15.68	33.98	33.74	20.86	20.83	22.44	22.27
20-Aug-22	80	50	3.62	3.59	15.16	15.02	7.03	7.01	8.52	8.40
21-Aug-22	80	50	3.05	3.04	11.52	11.47	7.62	7.59	11.44	11.37
22-Aug-22	80	50	4.29	4.27	15.72	15.59	7.44	7.43	13.82	13.76
23-Aug-22	80	50	5.28	5.25	13.28	13.10	4.69	4.69	13.39	13.27
24-Aug-22	80	50	1.38	1.35	8.96	8.70	1.33	1.33	1.93	1.84
25-Aug-22	80	50	- [2]	- [2]	10.76	10.64	4.18	4.17	7.58	7.45
26-Aug-22	80	50	- [2]	- [2]	18.14	18.04	13.23	13.22	16.49	16.37
27-Aug-22	80	50	- [2]	- [2]	13.74	13.64	9.72	9.71	14.95	14.91
28-Aug-22	80	50	- [2]	- [2]	11.69	11.62	9.29	9.28	10.09	10.03
29-Aug-22	80	50	- [2]	- [2]	16.82	16.68	10.82	10.81	13.45	13.40
30-Aug-22	80	50	- [2]	- [2]	18.44	18.27	11.47	11.46	15.27	15.22
31-Aug-22	80	50	- [2]	- [2]	17.75	17.68	11.45	11.44	15.57	15.52

- [1] Project works must aim to achieve construction air quality goals. The Coordinator-General Change Report – Whole of Project Refinements 2019 acknowledges instances exist that these goals may not be achieved.
- [2] The Woolloongabba air quality unit experienced technical difficulties from 25 to 31 August 2022. A nearby (South Brisbane) DES Air Quality Station demonstrated compliant air quality during this outage period, these results are provided below. Low levels were also consistently monitored throughout the month when the unit was operating. The monitoring unit has been sent away for repairs and a hire unit has been ordered.

CBGU also utilises three (3) Government air quality monitoring stations to monitor PM10 near the project sites. The results during this reporting period were as follows:

- Brisbane CBD: PM10 daily Maximum average: **24.2 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=cbd¶meter=18&date=1/08/2022&timeframe=month>)
- South Brisbane: PM10 daily Maximum average: **28.9 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=sbr¶meter=18&date=1/08/2022&timeframe=month>)
- Woolloongabba: PM10 daily Maximum average: **41.2 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=woo¶meter=18&date=1/08/2022&timeframe=month>)

The graphical representation of the Government air quality data is presented in the below charts (refer to Figures 1-3).

Particle PM₁₀ at Brisbane CBD, 1–31 August 2022 [about Particle PM₁₀](#)

[Brisbane CBD station overview](#)

The guideline for Particle PM₁₀ is 100µg/m³ (1hr avg) and 50µg/m³ (24hr avg).

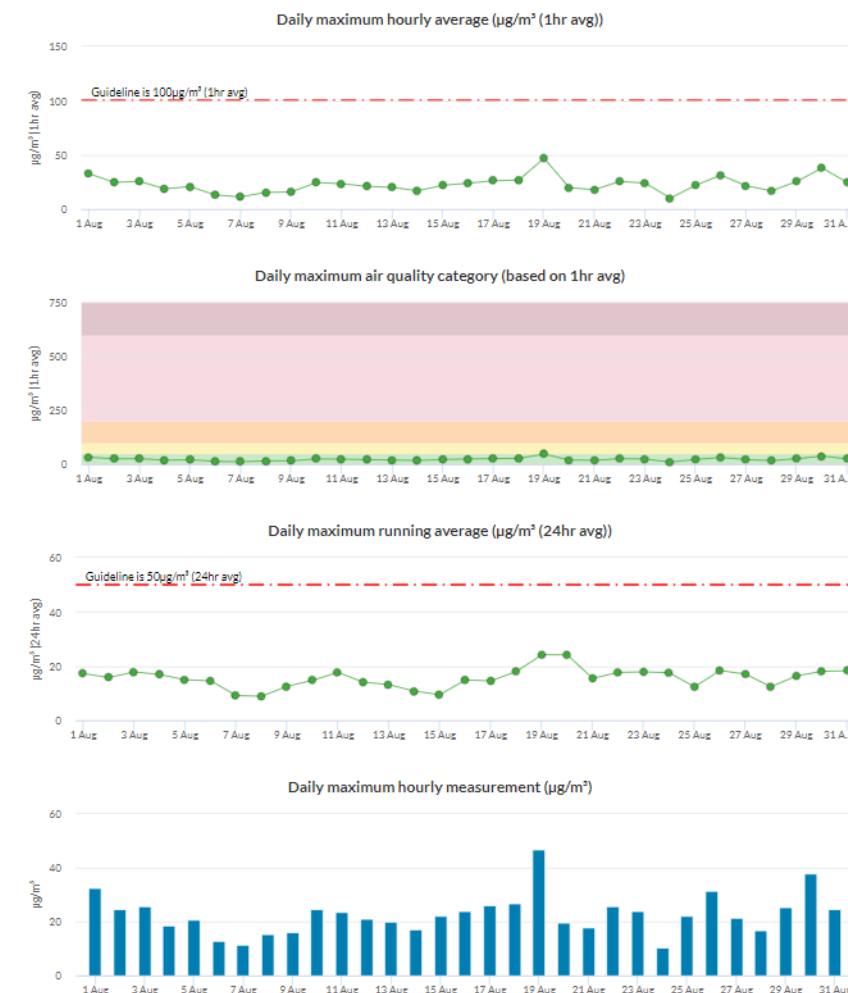


Figure 1: Brisbane CBD – DES Station - PM10 graph for August 2022 (reproduction from the DES website).

Particle PM₁₀ at South Brisbane, 1–31 August 2022 [about Particle PM₁₀](#)

[South Brisbane station overview](#)

The guideline for Particle PM₁₀ is 100µg/m³ (1hr avg) and 50µg/m³ (24hr avg).

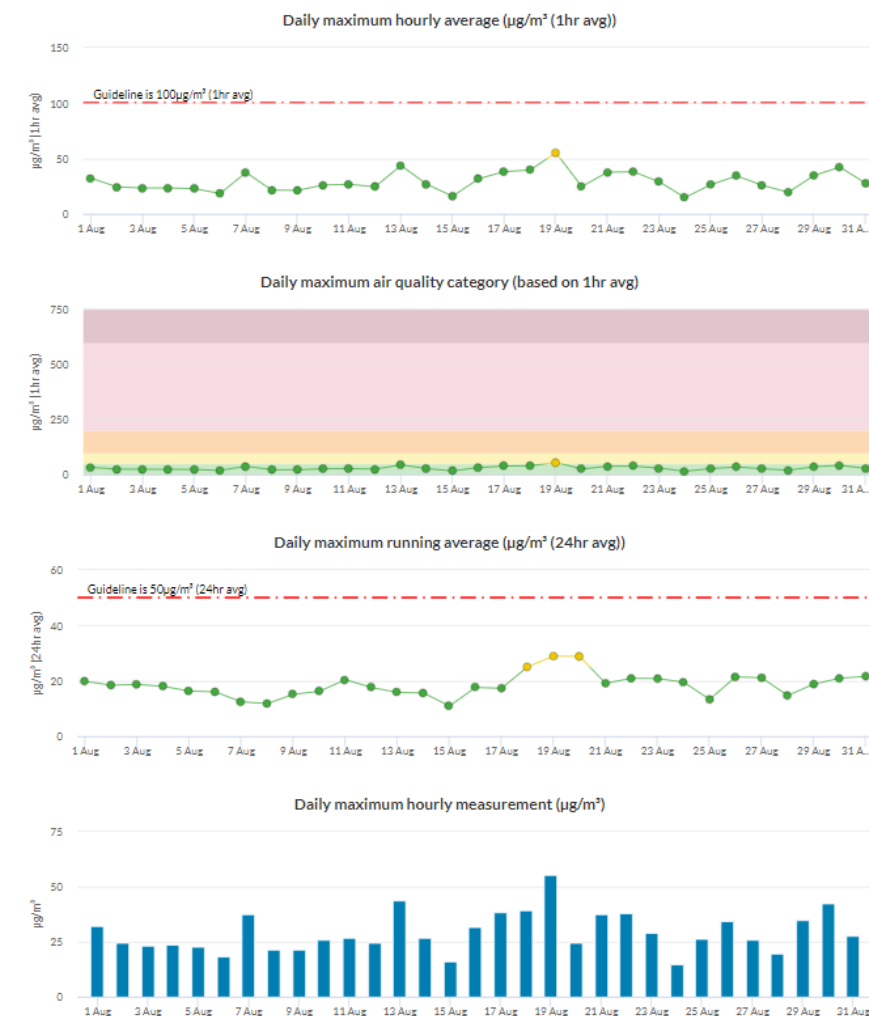


Figure 2: South Brisbane – DES Station - PM10 graph for August 2022 (reproduction from the DES website).

Particle PM₁₀ at Woolloongabba, 1-31 August 2022 [about Particle PM₁₀](#)

[Woolloongabba station overview](#)

The guideline for Particle PM₁₀ is 100µg/m³ (1hr avg) and 50µg/m³ (24hr avg).

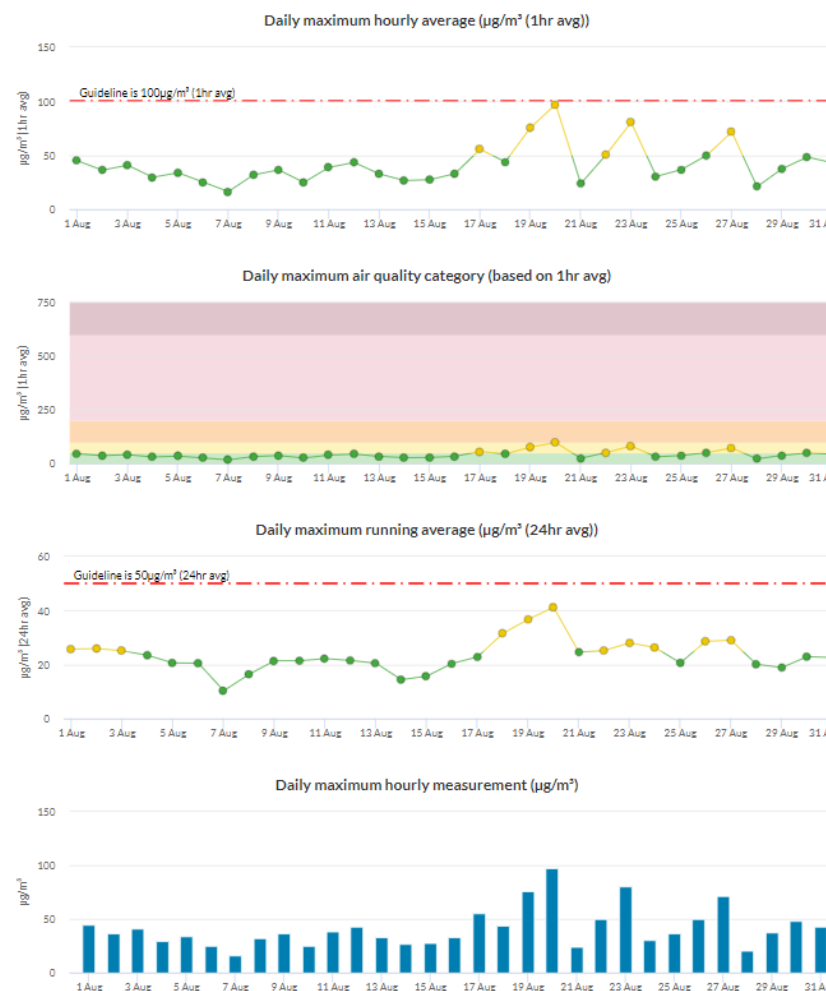


Figure 3: Woolloongabba – DES Station - PM₁₀ graph for August 2022 (reproduction from the DES website).

3.4 Water Quality – Discharge

CBGU undertook four (4) water quality monitoring events prior to the release (groundwater and surface water) from the site.

3.4.1 Groundwater Discharge

Water quality monitoring data is provided in the table below.

Table 6: Groundwater Discharge – Water Quality Monitoring Data

Location	Date	Testing of Water Quality Objectives ^[1]											Adhered to Project Requirements (Yes / No)
		pH	Suspended solids (mg/L)	Turbidity (NTU)	Ammonia N (µg/L) ^[3]	Oxidised N (µg/L) ^[3]	Organic N (µg/L) ^[3]	Total nitrogen (µg/L) ^[4]	Total phosphorus (µg/L)	Filterable Reactive phosphorus (FRP) (µg/L)	Chlorophyll a (µg/L)	Dissolved oxygen (%) ^[2]	
Albert Street	11/08/2022	7.32	19.00	1.33	3570.00	3850.00	100.00	7600.00	10.00	<10	<1	68.99	Yes
Woolloongabba	11/08/2022	7.67	<5	1.17	200.00	770.00	500.00	1500.00	<10	<10	<1	86.08	Yes
Roma Street	12/08/2022	7.86	<5	1.76	180.00	710.00	1100.00	2000.00	50.00	<10	<1	88.70	Yes
Boggo Road	16/08/2022	7.42	<5	4.10	90.00	570.00	- ^[5]	1300.00	<10	<10	4.00	113.77	Yes

- [1] The Project's discharge procedure is designed to minimise environmental impact and aim to achieve the water quality objectives. Water quality objectives are defined as goals within the Brisbane River estuary environmental values and water quality objectives document.
- [2] All results adhere to project requirements in that site practices are designed to aim to achieve the water quality objectives. The dissolved oxygen samples were acquired prior to discharge from the site. Pumping of the water will have inadvertently aerated the water, thus influencing the dissolved oxygen level.
- [3] All results adhere to project requirements in that site practices aim to achieve the water quality objectives. These samples identified results generally consistent with pre-construction conditions, and no external influences were introduced by construction activity.
- [4] Total nitrogen levels adhered to project requirements in that site practices are designed to aim to achieve the water quality objectives. The results are mostly below that of the receiving environment. They are also considered abnormal compared to results from previous months, and are influenced by external factors (e.g., high rainfall events, overloaded sewage systems, fertilising natural areas, etc) rather than related to construction activities.
- [5] Administrative error resulted in this single parameter being unable to be analysed in this one location on this occasion. The results are not expected to have been abnormal considering past months (June & July) were <500 µg/L.
- Note: Testing of EPP (Water) Quality Objectives are analysed at a NATA accredited laboratory each month (results provided above). Field testing (turbidity, pH) is done regularly during ongoing discharge.

3.4.2 Poned/Surface Water Discharge

Discharged ponded/Surface water quality monitoring data is provided in the table below.

Table 7: Surface Water Discharge - Water Quality Monitoring Data

No.	Location	Date	Testing of Water Quality Objectives ^[1]		Adhered to Project Requirements (Yes / No)
			pH	Turbidity (NTU)	
1.	Northern Portal	30/07/2022	7.90	6.30	Yes
2.	Northern Portal	1/08/2022	8.20	3.09	Yes
3.	Northern Portal	2/08/2022	8.16	3.07	Yes
4.	Northern Portal	3/08/2022	8.11	3.28	Yes
5.	Northern Portal	4/08/2022	8.04	2.91	Yes
6.	Northern Portal	5/08/2022	8.05	4.01	Yes
7.	Northern Portal	6/08/2022	8.11	20.60	Yes
8.	Northern Portal	8/08/2022	8.33	15.42	Yes
9.	Northern Portal	9/08/2022	8.40	8.27	Yes
10.	Northern Portal	11/08/2022	8.20	3.74	Yes
11.	Northern Portal	12/08/2022	8.28	4.38	Yes
12.	Northern Portal	13/08/2022	8.37	1.87	Yes
13.	Northern Portal	15/08/2022	8.35	1.21	Yes
14.	Northern Portal	16/08/2022	8.35	1.43	Yes
15.	Northern Portal	17/08/2022	8.28	3.25	Yes

16.	Northern Portal	18/08/2022	8.31	3.42	Yes
17.	Northern Portal	19/08/2022	8.33	1.40	Yes
18.	Northern Portal	20/08/2022	8.28	2.06	Yes
19.	Northern Portal	22/08/2022	8.31	3.62	Yes
20.	Northern Portal	23/08/2022	8.21	2.19	Yes
21.	Northern Portal	24/08/2022	8.35	15.25	Yes
22.	Northern Portal	25/08/2022	8.25	1.83	Yes
23.	Northern Portal	26/08/2022	8.28	1.73	Yes
24.	Northern Portal	27/08/2022	8.30	2.38	Yes
25.	Northern Portal	29/08/2022	7.98	0.89	Yes
26.	Northern Portal	30/08/2022	8.32	3.40	Yes
27.	Northern Portal	31/08/2022	8.32	5.40	Yes

- [1] The Project's discharge procedure is designed to minimise environmental impact and aim to achieve the water quality objectives. All discharges were compliant with *Guidelines for Best Practice Erosion and Sediment Control (IECA, 2008)* and the *Department of Transport and Main Roads' Technical Standard MRTS 52 – Erosion and Sediment Control*.

3.5 Water Quality – Surface Water

During August 2022, CBGU JV undertook one (1) round of surface water sampling at five (5) site locations (upstream and downstream).

Results from the below-monitoring locations reflect the condition of the broader catchment (not just the influence of the Project). Water quality generally appears good, and water discharge from the Project would not have had an impact on the catchment considering the results also provided within section 3.4 above.

Table 8: Offsite Upstream & Downstream Water Quality Data

Location	Upstream / Downstream	Date	Purpose of Monitoring	Turbidity (NTU)	EC (µS/cm)	Dissolved oxygen (%)	pH
Albert Street	Upstream	11/08/2022	Monthly	20.9	27200	90.77	7.89
Albert Street	Downstream	11/08/2022	Monthly	10.58	26800	93.19	7.98
Woolloongabba	Upstream	12/08/2022	Monthly	17.36	27000	83.04	7.76
Woolloongabba	Downstream	12/08/2022	Monthly	14.22	25600	83.04	7.81
Boggo Road[1]	Downstream	12/08/2022	Monthly	3.49	13600	47.59	7.15
Roma Street	Upstream	12/08/2022	Monthly	6.85	22400	81.32	7.65
Roma Street	Downstream	12/08/2022	Monthly	5.07	21000	82.53	7.60
Northern Portal	Upstream	15/08/2022	Monthly	1.98	1110	78.20	7.47

- [1] Monitoring at the Boggo Rd site occurs at a pipe outlet at the beginning of the surface catchment. There is no upstream/downstream monitoring point as such. The pipe outlet receives water released from the site, as well as a broader stormwater catchment.

4 Non-Compliances

Details of non-compliances are provided in accordance with Imposed Condition 6(b)(ii).

A Non-Compliance Event is defined as project works that do not comply with the Imposed Conditions. Nil non-compliances occurred during the monitoring period.

Table 9: Non-Compliance Events this Month

Event Title	Location, Date, and time of the event	Date the Event was Formally Notified to CG/IEM	Conditions Affected	Date the Event Report Formally Sent to CG/IEM	Status of Event
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Nil

5 Complaints

Reporting of complaints is provided below in accordance with Imposed Condition 6(b)(iii).

During August 2022, six (6) complaints relating to the Project were received, as detailed in Table 10 below.

Table 10: Summary of Complaints

No.	Date	Location	Description of Issue	Responses	Status of Event
1.	2 Aug 22	Roma Street (Roma Street Precinct)	Visual Amenity	A stakeholder contacted the Project regarding the placement of visual screening around works. CBGU reviewed the work setup and altered the configuration of screening.	Closed
2.	4 Aug 22	Peter Doherty Street (Southern Area Works)	Traffic Management	A stakeholder contacted the Project regarding the removal of street parking on Peter Doherty Street. CBGU informed the stakeholder that the removal of the parking spaces is required for the construction of the new pedestrian and cycle bridge. CBGU also informed the stakeholder that changes have been approved by the local authority prior to implementation.	Closed
3.	11 Aug 22	Boggo Road (Boggo Road Precinct)	Worker Behaviour and Traffic Management	A stakeholder contacted the Project regarding worker behaviour and parking. CBGU investigated the event and reminded the workforce of employee expectations.	Closed
4.	16 August 22	Peter Doherty Street (Southern Area Works)	Traffic Management	A stakeholder contacted the Project regarding the removal of street parking on Peter Doherty Street. CBGU informed the stakeholder that the removal of the parking spaces is required for the construction of the new pedestrian and cycle bridge. CBGU also informed the stakeholder that changes have been approved by the local authority prior to implementation.	Closed
5.	19 Aug 22	Albert Street (Albert Street Precinct)	Noise	A stakeholder contacted the Project regarding noise generated from the Albert Street Worksite. CBGU provided the stakeholder with an overview of the works occurring and their duration. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance. CBGU reviewed the circumstances and monitoring confirmed works adhered to the Project's noise requirements, and the works undertaken were consistent with the community notification.	Closed
6.	24 Aug 22	Elizabeth Street (Albert Street Precinct)	Noise	A stakeholder contacted the Project regarding noise generated from the Albert Street Worksite. CBGU provided the stakeholder with an overview of the works occurring and their duration. CBGU also outlined the mitigation measures used to alleviate potential impacts and ensure compliance.	Closed

No.	Date	Location	Description of Issue	Responses	Status of Event
				CBGU reviewed the circumstances and monitoring confirmed works adhered to the Project's noise requirements, and the works undertaken were consistent with the community notification.	