

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 over it.

Cross River Rail Project

Monthly Environmental Report

October 2022

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Executive Summary

This Monthly Environmental Report (MER) has been produced for Project Works undertaken on site for October 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 two non-compliance events (NCEs) confirmed in October 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 undertaken to validate predictive noise assessments for the relevant project works during the reporting period and in response to a noise complaint at Fairfield Station. Noise monitoring results confirmed project requirements were met. Refer to Appendix A (Table 4 and Section 3.1.6). 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 occurred at RNA and Rocklea Station. The results met the requirements of the endorsed CEMP. TSD – Vibration monitoring was not triggered during the reporting period.
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

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
			<p>surveys have been completed at heritage, commercial and residential buildings at RNA, Northern Corridor and Dutton Park to Salisbury stations.</p> <p>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.</p>
13.	Air quality – Works must aim to achieve air quality goals for human health and nuisance.	Yes	<p>Air quality monitoring met Project air quality project requirements.</p> <p>RIS – At Dutton Park an exceedence of the dust deposition goal was recorded. Contractor confirmed they continued to meet the requirements under Condition 14 and the OEMP. Refer to Appendix A (Tables 7, 8 and 9 and Section 3.2, plus Figures 1, 2 and 3).</p> <p>TSD – Refer to Appendix B (Tables 4.2 and 5 plus Section 3.3).</p>
14.	Traffic and transport – Works must minimise adverse impacts on road safety and traffic flow.	Yes	<p>Traffic Management Plans are covered in the CEMPs. Sub-plans for all active worksites have been reviewed by the EM.</p>
15.	<p>Water quality – Works must not discharge groundwater from the construction site above the relevant environmental values and water quality objectives.</p> <p>Monitor and report on water quality in accordance with CEMP and Sub-plans.</p>	Yes	<p>Monitoring and reporting on groundwater and surface water quality was undertaken in accordance with RIS and TSD Water Quality Management Plans.</p> <p>RIS – No groundwater discharges occurred during October.</p> <p>Surface water discharge occurred at Mayne Yard North during the reporting period. Monitoring results showed the parameters meet the discharge criteria. See Appendix A (Section 3.3.5) for further details.</p> <p>Post-rainfall monitoring occurred at Breakfast Creek, Moolabin Creek and Rocky Water Holes. See Appendix A (Section 3.3.2 and Tables 10) for further details.</p> <p>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.</p>

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
			<p>Surface water discharges occurred at the Northern Portal worksite on 29 occasions and at the Southern Portal on 3 occasions. The monitoring results demonstrated the surface water discharges met project water quality discharge criteria.</p> <p>Post-rainfall monitoring in receiving waters of the Northern Portal, Roma Street, Albert Street, Woolloongabba and Boggo Road sites occurred due to a localised rainfall event.</p> <p>Routine in stream monthly monitoring met project water quality requirements.</p> <p>Refer to Appendix B (Table 6) for ground water monitoring results.</p> <p>Refer to Appendix B (Tables 7 and 8) for surface water monitoring results.</p>
16.	Water resources – Evaluate potential impact, plan works, implement controls and monitor inflow of groundwater associated with drawdown.	Yes	<p>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.</p> <p>TSD – Inflow of groundwater into the worksites is being continuously monitored to validate the predictive modelling.</p>
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.

Imposed Condition	Requirement Summary	Compliance Met (Yes/No/NA)	Comment
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 two NCEs raised in October 2022. Neither of these NCE's caused harm to the surrounding environment and they relate to procedural errors of approved management plans not being fully implemented. Appropriate corrective actions have been taken to prevent recurrences in accordance with the Coordinator-General's conditions

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.

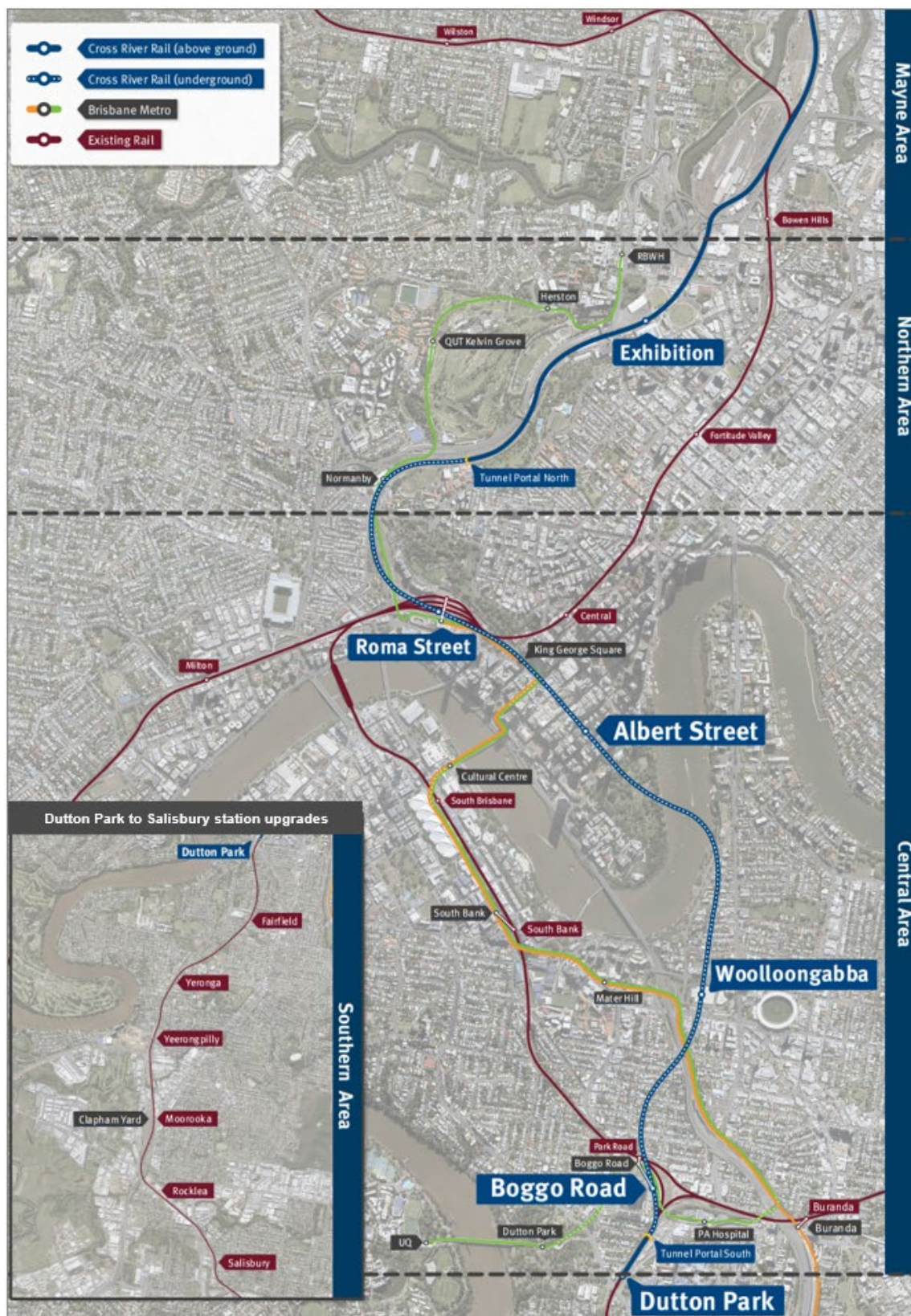
The two main delivery packages which require reporting under the Coordinator-General's imposed conditions are:

- 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 October 2022:

Area	Project Works
Mayne Area	<p>Mayne Yard North –</p> <ul style="list-style-type: none">• Mayne Yard North QR familiarization has commenced. Graffiti Removal Facility is undergoing further modifications and pending QR acceptance;• Tripod Bridge (BR11/13) incl RSS walls completed, with only barriers pending;• Breakfast Ck Bridge (BR08) – RW150 completed and temp works for Super-T installation ongoing;• Drainage works for Shunt Road has commenced and surcharge loading of CRR embankment has been released; and• RW130 – Retaining wall on Eastern side under ICB overpass nearing completion. <p>Mayne Yard East / West –</p> <ul style="list-style-type: none">• BR12 new QR ped bridge to MY-E commenced with piling pad construction and abutment works; and• Demolition of Diesel Locomotive Provisioning (DLP) area nearing completion.
Northern Area	<p>RNA/ Northern Corridor –</p> <ul style="list-style-type: none">• Demolition of RNA facilities and QR facilities completed (eastern side of Exhibition Station);• Line drilling and rock excavation (eastern side of Exhibition Station) commenced to partially mitigate the delayed Stage 2 Switch. Localised areas are being de-linked from the Switch so that some drainage and some FRP scope can commence;• CSR nearing completion for Stage 2 switch (95% completed);• Victoria Park Feeder Station civil scope nearing completion for handover to HV-team by 18-Nov; and• QR Carpark – fencing and drainage commenced. <p>Northern Portal –</p> <ul style="list-style-type: none">• Final section of drainage at the top of the dive structure ongoing;• Sump and adjacent base slabs complete;

Area	Project Works
	<ul style="list-style-type: none"> • Liner wall complete in the covered section, works ongoing to the TBM box walls and the cantilever section; • Six Base slab pours remaining to the southern side of the ramp; • Fire wall is complete under the covered section; and • Commencing waterproofing and slab works to the recently installed roof of the TBM box.
Central Area	Roma Street – <ul style="list-style-type: none"> • Station cavern – ongoing arch pours (24 of 25 complete), BoH slab and wall pours and mobilisation of the mezzanine loader assembly and precast setup works ongoing; • Station Building – B2 BoH and B3 FoH slaps in progress, and FRP walls for FoH and BoH; • Services building – B1 precast wall panels installed and L0-1 Mezzanine slab I progress; and • Platform 2 – temporary canopy demolished, column extensions for new platform steel 100% complete.
	Albert Street – <ul style="list-style-type: none"> • Lot 1 – perimeter walls for B9-B7 ongoing pours; • Lot 2 – excavation of shaft AS1 complete and ongoing permanent cavern arch pours; and • Lot 3 – steel fixing continued for B4-B1 perimeter walls and FRP works continued on B1 upper and lower levels.
	Woolloongabba – <ul style="list-style-type: none"> • SW5 and SW3 External wall pours in progress; • Blockwork ongoing on level B9, B7, B3; • ME/Building Services commenced on B9, B7; • Energex Room Ready for Incoming HV; • Blockwork to South Cavern now started; • Northern back of house construction complete; • Upline track slab works complete; and • Handover to tunnel fit out.
	Tunnels – <ul style="list-style-type: none"> • ongoing track installation between Roma Street and Northern portal; • Boggo Rd to Woolloongabba floating slab track install in MC01; • Southern mined downline tunnel – walkway construction ongoing; and • Albert Street to Roma Street track installation ongoing.
	Boggo Road – <ul style="list-style-type: none"> • Concrete to in-situ structure at 56% complete; • Reinforcement to in-situ structure 63% complete; • Precast Vierendeel installation ongoing 12/230 installed; and • Northern cavern BoH fit out and blockwork ongoing including door frames within blockwork.
	Southern Portal – <ul style="list-style-type: none"> • Detailed excavation and shotcrete within cut and cover trough ongoing 90%; • Sewer and stormwater manholes completed at shafts 3 and 4. Demolition works commenced ahead of final live connections and reinstatement. • Open trough base slab drainage works ongoing; • Continued fabrication of PAH Bridge main bridge girders and pylon on Batam Island, Indonesia. Fabrication 55% complete for first shipment; and

Area	Project Works
	<ul style="list-style-type: none"> Completion of Park Rd TSC foundation.
Southern Area	<p>Dutton Park –</p> <ul style="list-style-type: none"> CSR Scope including UTXs; Cope St Noise barrier removal; Cope St site access finalization; Fenton St RMAR works; and Ensign Ave batter excavation and stabilisation for RW455. <p>Fairfield Station –</p> <ul style="list-style-type: none"> Overpass modules installed (screening complete, roofing completed); Stair 2 installed (structural steel, landings, stair treads); Stair 3 installed (structural steel, landings, stair treads); Existing timber overpass bridge removed; Platform 1, 2, 3 canopy structural steel progressed; Platform 1, 2, 3 slab pours progressed; Platform 1, 2 tactiles progressed; Platform 1, 2, 3 roofing edge and fall protection progressed (in readiness for Nov roofing install); Perimeter blockwork walls progressed – Equity St; and Gravity Wall – Stage 1 structurally completed. <p>Yeronga Station –</p> <ul style="list-style-type: none"> Open new pedestrian overpass; Remove existing pedestrian scaffold overpass; Demolition of existing temporary platform slabs; FRP of infill permanent platform slabs – Platform 1 incl coping & tactiles; Stair 1,2,3 Finishing Works; FAT testing and delivery of the electrical boards; Fairfield Rd West civil completion work progression; Removal of temporary ticketing office at Lake Street; Commencement of Lake St civil completions and preparation for landscaping; Relocation of ticketing equipment & SACIDs; and Various trades and activities both on and off platform leading toward partial re-opening. <p>Clapham Yard –</p> <ul style="list-style-type: none"> BR93 (Moolabin Ck Track Bridge) deck units placed; RSS wall construction of BR94 (Chale Street Road over Rail Bridge) – northern side RW645 completed; Retaining Wall RW650 (in front of Aurizon facility) completed, minor extensions requested by Aurizon; and Oct SCAS successful completed incl Southern formation tie-in, precast relieving slabs at Muriel Ave Bridge, CSR UTXs, northern tie-in earthworks and drainage under track crossing. <p>Rocklea Station –</p> <ul style="list-style-type: none"> Relocation of waiting shelter structure; Demolition of remaining platform building; Demolition of platforms 1 & 2; Dual gauge lowering scope; Install Platform 3 precast units; Install PL1, 2, 3 temporary hoarding fence; Complete RCBC installation under the Dual Gauge; Complete sewer installation under the Dual Gauge;

Area	Project Works
	<ul style="list-style-type: none"> • Demolition of overpass stairs and replacement with scaffold stairs; • Site office mobilisation preparation; • Installation of Dual Gauge crossing (strail rubber crossing); and • Complete site access entry and setup.

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.

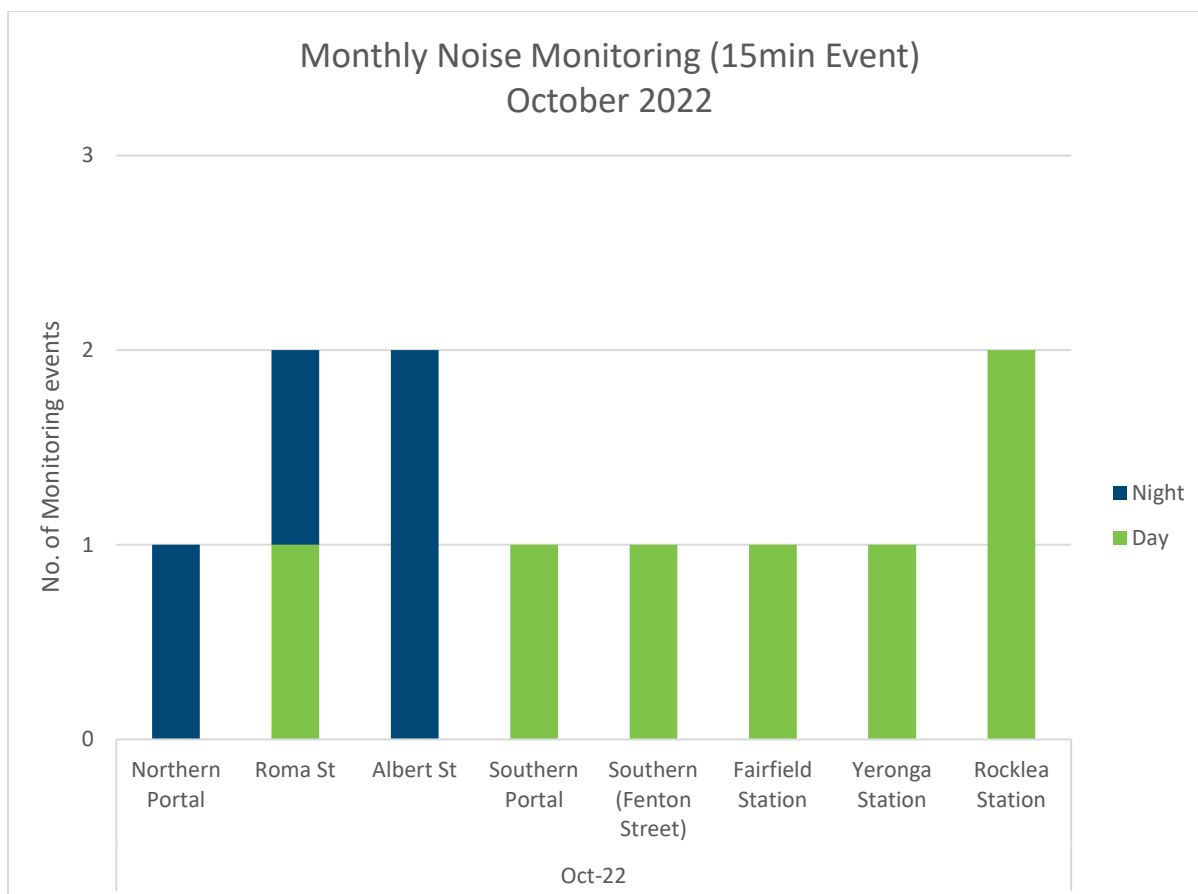
For Project Works where potential noise impacts are modelled to be above the noise goal but below the noise goal plus 20dBA, this work is authorised where the endorsed CEMP and associated Noise and Vibration Management Plan is being implemented, including communicating construction activities to potential 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).

In the Southern Area, noise monitoring was undertaken by the RIS contractors to validate predictive modelling at sensitive places. This occurred at sensitive receivers nearby to Rocklea station, Yeronga Station and Southern (Fenton Street) for noise intensive activities associated with the October SCAS Project Works. The monitoring was consistent with the predictive noise levels. One round of monitoring was undertaken in response to a noise complaint at Fairfield station related to October SCAS activities. The monitoring confirmed the extended hours noise goals + 20dBA were not exceeded. The RIS scope of works continued to achieve the project requirements.

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



2.2.2. Vibration

In the Northern Area, vibration monitoring continued at RNA during the use of a 430kg hammer in close proximity to the State heritage listed John MacDonald Stand. Monitoring results did not exceed the vibration goal and are detailed in **Appendix A** (Table 5).

In the Southern Area, vibration monitoring was triggered at Rocklea Station during the use of a 12T vibratory roller. No exceedance of the vibration goal for cosmetic damage was recorded. The RIS contractors reported that the project vibration requirements have been met for the reporting period.

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.

At Dutton Park, the measured dust deposition level of 157 mg/m²/day exceeded the air quality goal of 120 mg/m²/day. Due to the constrained site boundaries and the close proximity of residents, the dust deposition gauge is located close to the project works (dust generation sources). Project works consisted primarily of cut and fill earthworks, with the October SCAS towards the end of the monitoring

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

period. SCAS works consisted of various works including OHLE works, signalling works, and civil works which included the demolition of the existing noise wall. The scale, duration and intensity of the activities was consistent with the activities reviewed as part of the predictive air quality assessment.

Further investigation was undertaken focusing on wind conditions, previous months results and soil characteristics. Unity concluded that the exceedance of the air quality goal was likely attributed to project works. The project team have been actively implementing a range of dust mitigation measures at the site. This includes erosion control, dust suppression using water carts, using stabilised access points and utilising the street sweeper as required.

Despite the recorded exceedance of the air quality goal, Unity continues to meet the requirements under Condition 14 and the OEMP.

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 East	- Monitoring was extended beyond Australian Standard exposure period
			- Results met air quality goal, however, are indicative only
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
	Boggo Road	Quarry Street (north of the site)	- Results met air quality goal
		Peter Doherty Street/Leukemia Foundation	- Gauge was stolen during the monitoring period. A replace has been installed
	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 exceeded air quality goal. However, Unity continues to meet the requirements under Condition 14 and the OEMP
	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 17 October 2022. The monitor was immediately inspected and the problem was resolved. The review of a nearby DES air quality monitoring station (South Brisbane) demonstrated PM₁₀ and TSP levels during the day when the monitor was down, was compliant with project air quality goals.

Across the RIS worksites the Mayne Yard, RNA and Clapham Yard air quality monitors temporarily experienced power failures associated with continuous overcast conditions ranging from 20 to 23 October 2022 during a wet weather period.

The Clapham Yard air quality monitor has since been relocated to an area where there are no structures that might limit sun exposure to the solar panel as this was of concern in previous months. The new location has been approved by the Certified Air Quality professional (CAQP). Unity has also procured a larger battery pack and solar panel to minimise power failure in the future.

No particulate results exceeded their relevant goals for TSP and PM₁₀, however, one air quality complaint was received from a resident located next to the Yeronga station worksite. Consistent with the predictive air quality assessment and the activities being carried out during the reporting period there was no requirement for Unity to carry out the particulate monitoring at Yeronga.

Two separate odours complaints as a result of franna crane operations at Fairfield Station were received however the Unity team confirmed they met project requirements relating to odour management.

The RIS scope of works has met the project outcomes set out by the CG Imposed Conditions and OEMP.

Particulates results are detailed in **Appendix A** (Section 3.2.2 and Figures 2 and 3) 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	- Results met air quality goals - Monitoring unit experienced power failures and failed to record at least 75% of data on 21 October 2022. With indicative results only available on this day.
Northern Area	RNA / Exhibition	RNA showgrounds	- Results met air quality goals - Monitoring unit experienced power failures and failed to record at least 75% of data on 23 October 2022. With indicative results only available on this day.
	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

Air Quality – PM ₁₀ / TSP Monitoring			
Area	Worksite	Monitoring Location	Comments
	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 17October2022
Southern Area	Clapham Yard	Clapham Yard	- Results met air quality goals - Monitoring unit experienced power failures and failed to record at least 75% of data on 3 and between 20 and 24 October 2022. Indicative results only on these days.

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 across the Mayne Yard, Northern Portal, and Southern Portal worksites through dewatering activities. Post-rainfall water quality monitoring occurred in the receiving waters of the following sites: Mayne Yard, Northern Portal, Roma Street, Albert Street, Woolloongabba Boggo Road and Clapham Yard during the month.

In the Northern Area, water quality monitoring was triggered on 29 occasions from the Northern Portal worksite as water used for construction activities and stormwater was treated and actively discharged to the stormwater network. One monitoring session occurred at Mayne Yard North prior to a discharge to the stormwater network. The contractors confirmed the discharge criteria was met on all occasions. See **Appendix B** (Table 7) and **Appendix A** (Section 3.3.5) for further details.

In the Central Area, water quality monitoring was triggered on 3 occasions from the Southern Portal worksite as stormwater 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.

Post-rainfall monitoring was triggered in receiving waters of the Mayne Yard, Northern Portal, Roma Street, Albert Street, Woolloongabba, Boggo Road and Clapham Yard worksites due rainfall event that exceeded the trigger to monitor. Downstream locations that exhibited an increase of more than 5mg/L or 10% Total Suspended Solids (TSS) (whichever is greatest) were still below the off-site discharge limit for the relevant receiving waters. Therefore, compliance with Imposed Conditions 15 and 18 were met. See **Appendix A** (Section 3.3.2.1 and Table 10) and **Appendix B** (Table 8) 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	Yes	Yes	No	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - ESC was implemented in accordance with site specific ESC Plan.
Northern Area	Northern Portal	Yes	Yes	Yes	<ul style="list-style-type: none"> - Active surface water discharge met water quality investigation criteria. - Post-rainfall monitoring undertaken. - 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	Yes	Yes	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - Routine in-stream monitoring undertaken in accordance with WQMP.
	Boggo Road	No	Yes	Yes	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - Routine in-stream monitoring undertaken in accordance with WQMP.
	Roma Street	No	Yes	Yes	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - Routine in-stream monitoring undertaken in accordance with WQMP.
	Woolloongabba	No	Yes	Yes	<ul style="list-style-type: none"> - Post-rainfall monitoring undertaken. - Routine in-stream monitoring undertaken in accordance with WQMP.
	Southern Portal	Yes	Yes	Yes	<ul style="list-style-type: none"> - Active surface water discharge met water quality investigation criteria. - Post-rainfall monitoring undertaken.

Surface Water Quality Monitoring					
Area	Worksite	Discharge	Post-Rain Monitoring	Routine Monitoring	Comments
					- Routine in-stream monitoring undertaken in accordance with WQMP.
Southern Area	Fairfield Station	No	No	No	- ESC was implemented in accordance with site specific ESC Plan.
	Clapham Yard	No	Yes	No	- Post-rainfall monitoring undertaken. - 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, organic nitrogen and dissolved oxygen. However, these results are consistent with the receiving environment baseline monitoring pre-construction data. 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.
	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.

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

Groundwater Quality Monitoring			
Area	Worksite	Discharge	Comments
	Woolloongabba	Yes	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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, Clapham Yard and Rocklea worksites.

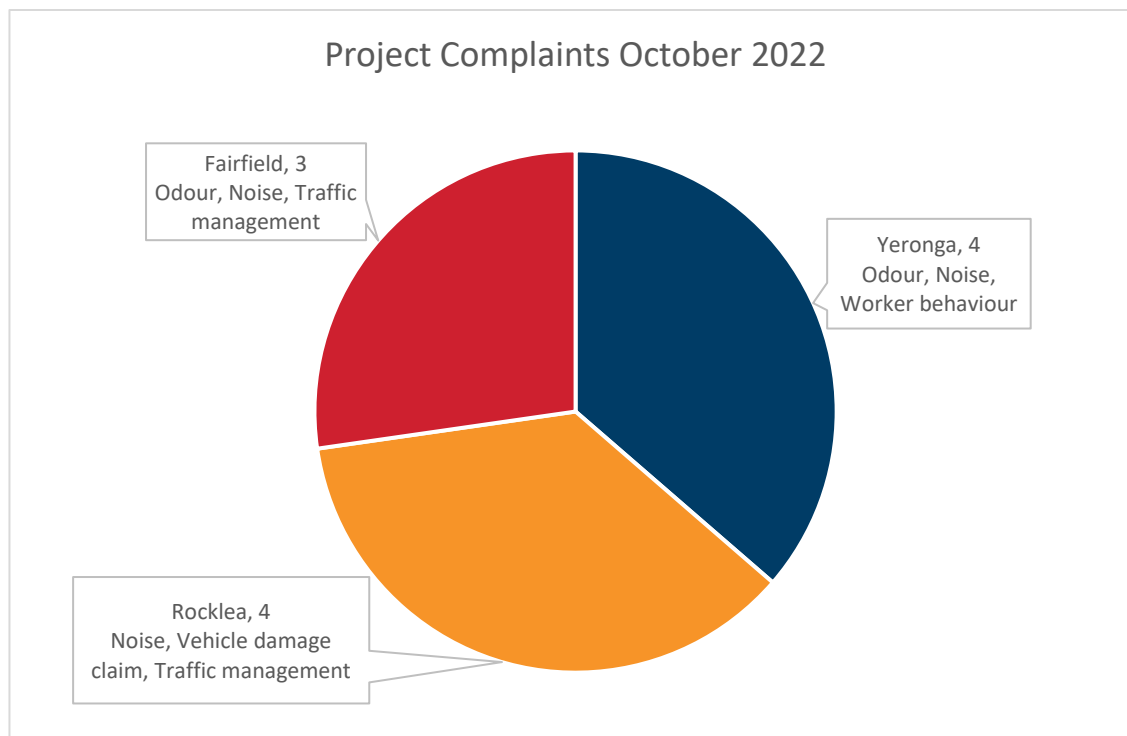
2.3. Complaints Management

A total of 11 complaints were received during the month all of which were project related.

RIS works received 11 complaints this month related to odour, noise and traffic management at Fairfield, noise, traffic management and vehicle damage claim at Rocklea and noise, odour and worker behaviour at Yeronga. For further details refer to **Appendix A** (Table 3).

No complaints were received for TSD activities during the reporting period.

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

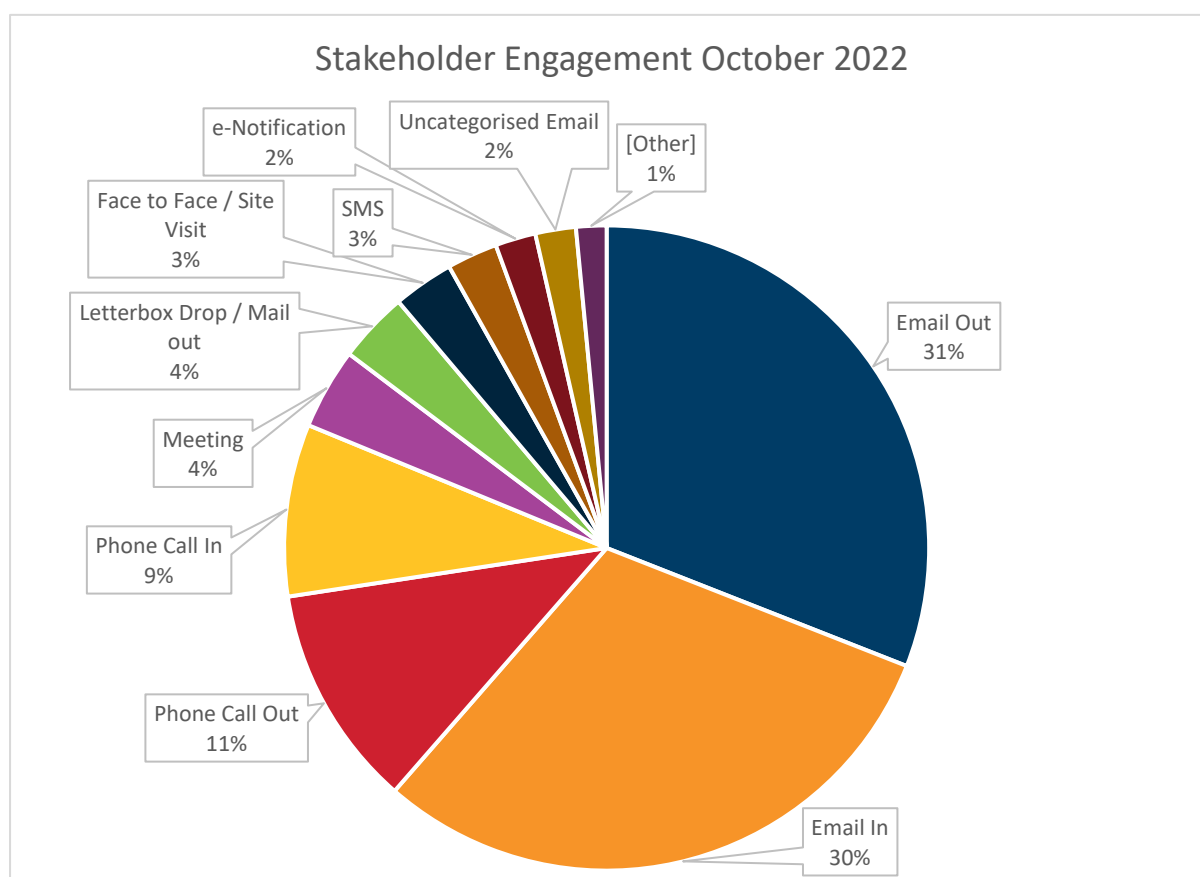


Where attended noise monitoring was undertaken in response to a complaint, the contractor confirmed on all occasions that works undertaken at the time of the complaint adhered to project requirements. In

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.



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	<p>Mayne Yard North –</p> <ul style="list-style-type: none"> Access road construction, CSR, pavement, road furniture (North of Ferny Grove Flyover); Surcharge Load release and commence cross drainage modifications of pre-load impacted drainage; Commence soil nailed wall RW115; BR08 (Breakfast Creek Bridge) completing all temp works prior to Christmas 2023; and Christmas SCAS 2022 lowering of Mayne Yard West Entry roads.

Area	New planned works in the coming months
Northern Area	<p>RNA/ Northern Corridor –</p> <ul style="list-style-type: none"> • Service relocations East (between Bowen Bridge Road and Ekka Station); • Rock excavation south-eastern area of Ekka Station (not impacted by EXH Stage 2 switch); • Christmas SCAS 2022 lowering of Wash Road; • Commence OHLE foundations through the corridor; and • Victoria Park Feeder Station handover to HV team by the civil team. <p>Northern Portal –</p> <ul style="list-style-type: none"> • Permanent watermain relocation for QR carwash planned for November; and • Firewall connection to headwall.
Central Area	<p>Roma Street –</p> <ul style="list-style-type: none"> • Mezzanine beam installation; • Station building ongoing wall and slab and column pours; • Services building pre-cast panel installation and concrete pours; and • Infill around INB underpinning columns. <p>Albert Street –</p> <ul style="list-style-type: none"> • Lot 1 – Complete slip form pours (B9 – B7); • Lot 2 – commence BoH (north) FRP works and arrival of mezzanine beam loader; and • Lot 3 – commence jump form of perimeter walls (B1 – upwards). <p>Woolloongabba –</p> <ul style="list-style-type: none"> • Commence cable trays in Levels B7; • Commence installation of platform culverts in Southern cavern; and • Handover of RIS BoH rooms from tunnels to station team. <p>Boggo Road –</p> <ul style="list-style-type: none"> • Concrete wall steel fixing and concrete pours ongoing; and • Delivery and installation of precast mezzanine beams ongoing. <p>Southern Portal –</p> <ul style="list-style-type: none"> • Delivery of main girders to Brisbane planned for December; • MC01 and MC02 Internal roof installation in November; • Boggo South base slab FRP works to commence; and • Sewer works to commence a Dutton Street.
Southern Area	<p>Dutton Park –</p> <ul style="list-style-type: none"> • CSR Scope in upcoming SCAS closures through November; • Up platform closure planned for 28 Nov; • Commence piling scope in late Nov – Cope St retaining walls; and • Embankment widening in preparation for Up Sub realignment in Q2 2023. <p>Fairfield Station –</p> <ul style="list-style-type: none"> • Planned works on October 1 – 10 SCAS (RIS_TSD_34A); • All works associated with accelerating the opening permanent overpass as thoroughfare on 28 Nov 2022 and the station opening by 19 December 2022 • Continue FRP various platform slabs; • Continue tactile, coping installation for PL1 / PL2; • Commence rubber gap ‘fingers’ installation for PL1 / PL2; • PL1 / 2 / 3 – Canopy Roofing; • Lift 2 installation (steelwork, precast); and • Lift 3 installations (steelwork, precast).

Area	New planned works in the coming months
	Yeronga Station – <ul style="list-style-type: none"> Aiming for completion of all remaining scope by the end of November 2022 (excluding Lift 3 and other miscellaneous items due to supply chain challenges). Clapham Yard – <ul style="list-style-type: none"> Complete BR93 (Moolabin Ck track bridge – Stage 1); Complete BR94 FRP works to install super T girders by December 2022; and Complete Drainage and RW650 in front of Aurizon prior to Christmas 2022.

2.5 Non-Compliance Events

Two 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	Relevant Condition	Gate 1	Gate 2	Gate 3	Gate 4
Open								
Closed								
CRRDA-001-RIS-001	9/11/19	Noise	Yeronga Station	4, 10, 11	10/11/19	14/11/19	26/11/19	18/12/19
CRRDA-002-TSD-001	27/03/20	ESC	Woolloongabba	4, 15, 18	30/03/20	31/03/20	22/04/20	11/06/20
CRRDA-003-TSD-002	27/03/20	ESC	Boggo Rd	4, 15, 18	30/03/20	31/03/20	22/04/20	11/06/20
CRRDA-004-TSD-003	28/03/20	Traffic	Boggo Rd	4, 10, 14	30/03/20	31/03/20	22/04/20	11/06/20
CRRDA-005-TSD-004	27/03/20	Reporting	Multiple sites	4, 6, 11, 13	30/03/20	31/03/20	22/04/20	11/06/20
CRRDA-006-TSD-005	27/03/20	Air Quality	Multiple sites	13	30/03/20	31/03/20	22/04/20	11/06/20
CRRDA-009-RIS-003	6/05/22	ESC	Clapham Yard	4, 15, 18	28/10/22	28/10/22	12/12/22	12/12/22
CRRDA-010-RIS-004	10/05/22	Potential Acid Sulphate Soils Management	Clapham Yard	4, 19	28/10/22	28/10/22	12/12/22	12/12/22
Withdrawn								
CRRDA-007-RIS-002	1/04/20	Air Quality	Multiple sites	13	28/04/20	30/04/20	Withdrawn	
CRRDA-008-TSD-006	8/04/20	Working Hours	Roma Street	4,10	28/04/20	30/04/20	Withdrawn	

These two new NCE's relate to an Erosion and Sediment Control (ESC) scour event and potential acid sulphate soil management event at Clapham Yard. The required notification and reporting have been completed in accordance with the Coordinator-General's conditions for these two events. Neither of these NCE's caused harm to the surrounding environment and they relate to procedural errors of approved management plans not being fully implemented. Appropriate corrective actions have been taken to prevent recurrences in accordance with the Coordinator-General's conditions.

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 October 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 QR familiarisation has commenced. Graffiti Removal Facility is undergoing further modifications and pending QR acceptance Tripod Bridge (BR11/13) incl RSS walls completed, with only barriers pending Breakfast Ck Bridge (BR08) – RW150 completed and temp works for Super-T installation ongoing Drainage works for Shunt Road has commenced and surcharge loading of CRR embankment has been released RW130 – Retaining wall on Eastern side under ICB overpass nearing completion. Mayne Yard East / West <ul style="list-style-type: none"> BR12 new QR ped bridge to MY-E commenced with piling pad construction and abutment works Demolition of Diesel Locomotive Provisioning (DLP) area nearing completion.
Northern Area	RNA <ul style="list-style-type: none"> Demolition of RNA facilities and QR facilities completed (eastern side of Exhibition Station) Line drilling and rock excavation (eastern side of Exhibition Station) commenced to partially mitigate the delayed Stage 2 Switch. Localised areas are being de-linked from the Switch so that some drainage and some FRP scope can commence. Northern Corridor <ul style="list-style-type: none"> CSR nearing completion for Stage 2 switch (95% completed) Victoria Park Feeder Station civil scope nearing completion for handover to HV-team by 18-Nov QR Carpark – fencing and drainage commenced.
Southern Area	Southern Portal / Dutton Park <ul style="list-style-type: none"> CSR Scope including UTXs Cope St Noise barrier removal Cope St site access finalisation Fenton St RMAR works Ensign Ave batter excavation and stabilisation for RW455 Completion of Park Rd TSC foundation.
Southern Area	Fairfield Station <ul style="list-style-type: none"> Overpass modules installed (screening complete, roofing completed) Stair 2 installed (structural steel, landings, stair treads) Stair 3 installed (structural steel, landings, stair treads) Existing timber overpass bridge removed Platform 1, 2, 3 canopy structural steel progressed Platform 1, 2, 3 slab pours progressed Platform 1, 2 tactiles progressed Platform 1, 2, 3 roofing edge and fall protection progressed (in readiness for Nov roofing install) Perimeter blockwork walls progressed – Equity St Gravity Wall – Stage 1 structurally completed.

Area	Project Works
Southern Area	Yeronga Station <ul style="list-style-type: none"> Open new pedestrian overpass Remove existing pedestrian scaffold overpass Demolition of existing temporary platform slabs FRP of infill permanent platform slabs – Platform 1 incl coping & tactiles Stair 1,2,3 Finishing Works FAT testing and delivery of the electrical boards Fairfield Rd West civil completion work progression Removal of temporary ticketing office at Lake Street Commencement of Lake St civil completions and preparation for landscaping Relocation of ticketing equipment & SACIDs Various trades and activities both on and off platform leading toward partial re-opening.
Southern Area	Clapham Yard <ul style="list-style-type: none"> BR93 (Moolabin Ck Track Bridge) deck units placed RSS wall construction of BR94 (Chale Street Road over Rail Bridge) – northern side RW645 completed Retaining Wall RW650 (in front of Aurizon facility) completed, minor extensions requested by Aurizon Oct SCAS successful completed incl Southern formation tie-in, precast relieving slabs at Muriel Ave Bridge, CSR UTXs, northern tie-in earthworks and drainage under track crossing.
Southern Area	Rocklea Station <ul style="list-style-type: none"> Relocation of waiting shelter structure Demolition of remaining platform building Demolition of platforms 1 & 2 Dual gauge lowering scope Install Platform 3 precast units Install Platforms 1, 2, 3 temporary hoarding fence Complete RCBC installation under the Dual Gauge Complete sewer installation under the Dual Gauge Demolition of overpass stairs and replacement with scaffold stairs Site office mobilisation preparation Installation of Dual Gauge crossing (strail rubber crossing) Complete site access entry and setup.

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	<p>Mayne Yard North</p> <ul style="list-style-type: none"> Access Road construction, CSR, pavement, road furniture (North of Ferny Grove Flyover) Surcharge Load removal and commence cross drainage modifications of pre-load impacted drainage BR08 (Breakfast Creek Bridge) completing all temp works prior to Christmas '23. <p>Mayne Yard East / West</p> <ul style="list-style-type: none"> Commence soil nailed wall RW115 Christmas SCAS '22 lowering of MY-West entry roads.
Northern Area	<p>RNA</p> <ul style="list-style-type: none"> Rock excavation south-eastern area of Exhibition Station (not impacted by EXH Stage 2 switch) Service relocations East (between Bowen Bridge Road and Exhibition Station). <p>Northern Corridor</p> <ul style="list-style-type: none"> Christmas SCAS '22 lowering of Wash Road Victoria Park Feeder Station handover to HV team by the civil team Commence OHLE foundations through the corridor.
Southern Area	<p>Southern Portal / Dutton Park</p> <ul style="list-style-type: none"> CSR scope in upcoming SCAS closures through November UP Platform closure planned for 28 Nov Commence piling scope in late Nov – Cope St retaining walls Embankment widening in preparation for UP Sub realignment in Q2 2023.
Southern Area	<p>Fairfield Station</p> <ul style="list-style-type: none"> All works associated with opening permanent overpass as thoroughfare on 28 Nov 2022 Continue FRP various platform slabs Continue tactile, coping installation for platforms 1 and 2 Commence rubber gap 'fingers' installation for platforms 1 and 2 PL1 / 2 / 3 – Canopy Roofing Lift 2 installation (steelwork, precast) Lift 3 installation (steelwork, precast).
Southern Area	<p>Yeronga Station</p> <ul style="list-style-type: none"> Aiming for completion of all remaining scope by end of Nov-22 (excluding Lift 3 and other miscellaneous items due to supply chain challenges).
Southern Area	<p>Clapham Yard</p> <ul style="list-style-type: none"> Complete BR93 (Moolabin Ck track Bride – Stage 1) Complete BR94 FRP works to install super T girders by Dec '22 Complete Drainage and RW650 in front of Aurizon prior to Christmas '22.
Southern Area	<p>Rocklea Station</p> <ul style="list-style-type: none"> Commencement of foundation piles for overpass, stairs Commencement of inground services (stormwater, sewer, etc) to Platforms 1 / 2 / 3.

2 Complaints

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

Table 3: Summary of Complaints

Date Received	Location	Issue	Project Works / Activity source of the concern	Reporting Period	Complaint Detail	Unity Response	Status
Sunday 2 October 2022	Yeronga	Construction noise, lighting, and workforce behaviour	Out of hours works in northern commuter car park	October 2022	Stakeholder complained about the use of the Yeronga commuter car park northern laydown area. Source of the complaint was noise, lighting shining towards properties and workforce behaviour during night works.	Team spoke with the site supervision to address concerns raised by the stakeholder. Team addressed stakeholder's concerns via email.	Closed
Sunday 2 October 2022	Rocklea	Construction haulage	October SCAS track lowering works	October 2022	Stakeholder complained about haulage routes on Heaton Street Rocklea. Stakeholder advised that vehicle movements during the evening had disturbed their sleep.	Team spoke with the site supervision to address concerns raised by the stakeholder. Information on planned works was emailed to the stakeholder.	Closed
Sunday 2 October 2022	Yeronga	Construction noise	Out of hours hydraulic hammering	October 2022	Stakeholder complained about the use of a hydraulic hammer at night-time at Yeronga.	Team spoke with the site supervision on Monday morning and was advised that the activity was almost complete. Information on planned works was emailed to the stakeholder. Noise monitoring of the hammer noise emission was carried out the following day. The data collected confirmed that the predictive noise model is reliable. The stakeholder is located 145m away from the project works and is shielded by a block of buildings. Using the validated model, the environment team was able to assess that the predicted noise level at the stakeholder's residence, even without shielding, would be 48dBA, and therefore it is highly unlikely this resident experienced noise levels above the Extended Hours noise goals + 20dBA. Refer to Table 4: Summary of Noise Monitoring Data for further details.	Closed
Tuesday 4 October 2022	Rocklea	Construction noise	October SCAS track lowering works	October 2022	Stakeholder rang to complain that the noise from Rocklea work site was disrupting their sleep and was constant during day shift also.	The team investigated the most suitable mitigation options for this stakeholder. An offer of relocation has been made and was accepted.	Closed

Date Received	Location	Issue	Project Works / Activity source of the concern	Reporting Period	Complaint Detail	Unity Response	Status
Wednesday 5 October 2022	Fairfield	Construction odour and noise	October SCAS works	October 2022	Stakeholder rang to complain about the noise from a crane at the end of Dudley/ Equity Street. The stakeholder advised the crane had been running continuously for a few days and wanted to know when it would be removed. They advised that they had to shut the windows to stop exhaust fumes odour from entering the home.	The team explained the requirement for the crane in this location and why it had to run continuously. The stakeholder was advised that the crane would be removed on Thursday 6 October. Complaint response noise monitoring was undertaken confirmed there were exceedance of the relevant goals however consultation processes and valid OOH permits were in place at the time of the complaint. Refer to Table 4: Summary of Noise Monitoring Data for further details.	Closed
Wednesday 5 October 2022	Fairfield	Construction noise, dust, and odour	October SCAS works	October 2022	Stakeholder emailed to complain about disturbed sleep from Fairfield Station night works noise, and exhaust fumes from idling plant.	The team emailed stakeholder for a contact number to discuss mitigation to assist.	Closed
Wednesday 5 October 2022	Rocklea	Pedestrian/ cycle access	October SCAS track lowering works	October 2022	Stakeholder emailed to advise of plant parked on footpath (corner) on Station Street/ De Hayr Street Rocklea.	The team provided information to the Delivery Authority to assist with response to stakeholder advising plant has been moved and issue raised with team.	Closed
Wednesday 5 October 2022	Rocklea	Vehicle damage	October SCAS track lowering works	October 2022	The stakeholder contacted the project team to report vehicle damage from Rocklea Station construction haulage (rock) on Railway Parade. Stakeholder asked for assistance in identifying the contractor for their insurer.	The Team asked for footage/ images to assist identification of contractor to support the stakeholder insurance claim. Subcontractor was identified and stakeholder provided information to assist with the insurance claim.	Closed
Sunday 9 October 2022	Yeronga	Construction odour, noise, dust, air quality and water quality	Station upgrade works	October 2022	The Stakeholder complained about impacts on Dublin Street residents including out of hours works, noise, dust, air and water quality over the course of the Yeronga Station upgrade works.	The team advised feedback had been passed onto the team. The Team also provided additional information about the works (including project lookahead to assist). The environmental team reviewed the complaint in detail and confirmed that matters raised in relation to work hours, air quality, water management and noise emissions where in accordance with the Imposed Conditions.	Closed

Date Received	Location	Issue	Project Works / Activity source of the concern	Reporting Period	Complaint Detail	Unity Response	Status
Monday 10 October 2022	Fairfield	Signage/ wayfinding	October SCAS temporary traffic changes	October 2022	Stakeholder complained about signage for temporary traffic changes at Fairfield (Mildmay Street closure).	Team provided an overview of recent/ current works and reason for traffic changes. The stakeholder was also included in the Fairfield community email distribution list for future construction updates.	Closed
Monday 17 October 2022	Yeronga	Waste management and workforce behaviour	Station upgrade works	October 2022	Stakeholder complained about workforce behaviour regarding waste management.	Team reminded the workforce (through daily pre-starts) about proper waste disposal.	Closed

3 Environmental Monitoring Results

The below section summarises the monitoring results to be reported in accordance with Imposed Condition 6(b)(i).

3.1 Acoustics

Imposed Condition 11(b) 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 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 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 section 3.1.6
Rocklea	Residential	Attended – Outdoors	Standard Hours And Extended Work Hours	1 October 2022 09:57am	Intermittent	Buffer distance Test – Model Verification	68	Standard Hours Work 65 (Outdoors) (55dBA + 10dBA façade reduction) Extended Hours Work 52 (Outdoors) (42dBA + 10dBA façade reduction) ²	Standard Hours Work 85 (Outdoors) (65dBA + 20dBA) Extended Hours Work 72 (Outdoors) (52dBA + 20dBA)	65	63	Yes Case by Case	Yes Goal 1 – (Extended hours)	Construction vehicles and plant movements recorded in commuter car park and on Brooke Street. Monitor was set up directly across from works approximately 27m away directly in front of nearest sensitive receiver. Extraneous noise was predominantly people talking at a nearby café.
Rocklea	Residential	Attended – Outdoors	Standard Hours And Extended Work Hours	1 October 2022 11:32am	Intermittent	Buffer distance Test – Model Verification	71	Standard Hours Work 65 (Outdoors) (55dBA + 10dBA façade reduction) Extended Hours Work 52 (Outdoors) (42dBA + 10dBA façade reduction) ²	Standard Hours Work 85 (Outdoors) (65dBA + 20dBA) Extended Hours Work 72 (Outdoors) (52dBA + 20dBA)	70	66	Yes Case by Case	Yes Goal 1 – (Extended Hours and standard hours)	14T excavator with hydraulic hammer attachment (~430kg) was used on concrete and asphalt at commuter car park. Monitor was set up diagonally in front of closest sensitive receiver with direct line of sight to hammering approximately 38m away. Monitoring confirmed no exceedance of predicted noise level. Extraneous noise sources included people talking nearby and non-construction vehicles passing by.
Yeronga	Residential	Attended – Outdoors	Extended Work Hours	3 October 2022 09:01am	Intermittent	Buffer distance Test – Model Verification	81	Extended Hours Work 52 (Outdoors) (42dBA + 10dBA façade reduction) ²	Extended Hours Work 72 (Outdoors) (52dBA + 20dBA)	82	67	Yes Case by Case	Yes Goal 1 & 2	5T excavator with 225kg hydraulic hammer used on concrete footing on Platform 2. Monitor was set up 14m from noise source and closest DAP was 57m from noise source. 1dBA difference between model prediction and actual LA ₁₀ measurement. This confirms the predictive model is accurate enough to predict the noise level at façade of the nearest sensitive receiver. Model predicts internal noise level of 59dBA at the closest DAP. The relevant out of hours permit included the use of the small hydraulic hammer and the works notice for these works stated the use of hydraulic hammers during non-standard hours.
Southern	Residential	Attended – Outdoors	Non-standard Hours	3 October 2022 09:40am	Intermittent	Buffer distance Test – Model Verification	68	Extended Hours Work 52 (Outdoors) (42dBA + 10dBA façade reduction) ²	Extended Hours Work 72 (Outdoors) (52dBA + 20dBA)	69	67	Yes Case by Case	Yes Goal 1	6T roller was dominant noise source at the time of monitoring. Rolling activities were occurring within the rail corridor, partially behind the temporary noise wall. To get an unimpeded measurement of the rolling, the monitor was set up at the entrance to the work area, as opposed to the closest sensitive receiver. Roller was ~17m from the façade of the nearest receiver and the monitor was ~12m away.

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 section 3.1.6
Fairfield	Residential	Attended – Outdoors	Standard Hours And Extended Work Hours	5 October 2022 10:33am	Intermittent	Complaint Response	71	Standard Hours Work 65 (Outdoors) (55dBA + 10dBA façade reduction) Extended Hours Work 52 (Outdoors) (42dBA + 10dBA façade reduction) ²	Standard Hours Work 85 (Outdoors) (65dBA + 20dBA) Extended Hours Work 72 (Outdoors) (52dBA + 20dBA)	68	68	Yes Case by Case	Yes Goal 1 (Standard and Extended)	Complaint's response monitoring was undertaken for the lifting and installation of the pedestrian overpass. The monitor was located 14m from the noise source which is representative of the location of the complainant There is a 3dBA difference between model prediction and actual LA ₁₀ measurement. This confirms the predictive model is accurate enough to predict the noise level at the complainants' location. Therefore, the complainant was likely experiencing noise levels indoors of 58 dBA.

- 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.

3.1.3 Vibration Monitoring

Vibration monitoring to validate the predictive model was triggered for:

- The use of a 12T vibratory roller in the rail corridor at Rocklea Station in proximity to a commercial building
- The use of a 430kg hammer at the RNA Showgrounds in proximity to State heritage listed buildings (John MacDonald Stand and Royal International Convention Centre).

The results are presented in the below Table.

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
Rail Corridor – Rocklea Rear of 36 Annie Street	01/10/2022 to 04/10/2022	24 hours/ 7 days	36 Annie Street, Rocklea	Commercial (reinforced structure)	Construction Monitoring at Sensitive Places – Model Verification	12T Vibratory Roller	19.5 mm/s	5 metres	17.9 mm/s	N/A Building confirmed unoccupied and since this is a reinforce structure - cosmetic damage goals were 50mm/s	No	Monitoring was required for track lowering works. Vibration monitor was placed in the rail corridor next to the closest industrial building. Monitor was approximately 5 metres from the works and geophone was <1 metre from the building. Monitored 12T vibratory roller. Closest building was not occupied during monitoring. Predicted vibration level was 19.5 mm/s. Predictive model was based on 5 metre distance from works. The monitoring validated the modelling for 12T roller, and the modelling is presenting a worst-case scenario.
John MacDonald Stand & Royal International Convention Centre	20/10/2022 to 31/10/2022	24 hours/ 7 days	John MacDonald Stand & Royal International Convention Centre	Heritage – DIN4150 Group 3	Construction Monitoring at Sensitive Places – Model Verification	14t excavator with 430kg hammer	2.8 mm/s	28m	0.43 mm/s	3 mm/s	No	Monitoring was required for platform demolition that required a hydraulic hammer when rock was encountered. The vibration monitor was placed inside the closest State Heritage listed building during rock breaking. The closest the monitor was to the works was approximately 28 metres at existing surface level. Predicted vibration level was 2.8 mm/s.

3.1.5 Interpretation

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

3.1.6 Noise Monitoring

3.1.6.1 Model Verification

Four (4) rounds of noise monitoring of noise intensive activities associated with the October SCAS Project Works were carried out externally during Standard and Extended Hours (public holiday) to validate the noise modelling outputs.

These activities were undertaken at residential place/s closest to the Works.

The noise monitoring confirmed that the actual noise emissions are consistent with the predicted noise emissions. Providing assurance to the Project Team that the predictive noise modelling can be used as a reliable tool to guide community engagement prior to and during the Project Works.

Since:

- The Works were authorised to proceed under Imposed Condition 10 as they were carried out during Surface Works Standard Hours and Extended Hours Work (approved road possession and/or rail possession), and
- DAP engagement had also occurred with the level of consultation as per the requirements of Imposed Condition 11 (c).

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

3.1.6.2 Complaints Response

One round of noise monitoring was undertaken in response to complaints received about Project Works associated with the October SCAS Project Works.

3.1.6.2.3 Fairfield

One round of noise monitoring of a crane lift (100T crane) during an approved rail possession and road closure was undertaken externally at Fairfield.

Monitoring was undertaken during Standard Work Hours; however, the complaint was for works during Extended Work Hours. The measured LA₁₀ readings confirmed the Extended Hours Noise Goals + 20 dBA were not exceeded.

The Works were authorised to proceed under Imposed Condition 10 as they were carried out during Extended Work Hours (under approved road and rail possession). DAP engagement had also occurred with the level of consultation as per the requirements of Imposed Condition 11 (c).

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

3.1.7 Vibration Monitoring

3.1.7.1 Model Verification

3.1.7.1.1 Rocklea Track Lowering Works Results

The vibration monitor was placed in the rail corridor next to the closest industrial building.

Review of video footage confirmed that the peak reading of 17.9 mm/s occurred 1 October 2022 and was associated with the use of one 12T vibratory roller as per the predictive model.

No exceedance of the vibration goal for Cosmetic Damage was recorded.

Whilst the Human Comfort Goal and the case-by-case consultation goals were exceeded by the monitoring results, through case-by-case consultation prior to the Project Works, it was confirmed the building would be unoccupied during the period of the roller usage.

Therefore, the monitoring effort was for the sole purpose of validating the predictive model.

The RIS scope of works achieved the outcomes set out by the CGCR and OEMP.

3.1.7.1.2 John MacDonald Stand and Royal International Convention Centre Results

Vibration monitoring during rock breaking works at the RNA Showgrounds was undertaken at the foundation of the State heritage listed John MacDonald Stand within the Bar Room and the Royal International Convention Centre inside a storeroom. These locations were selected based on the outcomes of predictive assessments.

The peak reading of 0.43 mm/s occurred on 24 October 2022 and was associated with the use of a 430kg hydraulic hammer on a 14T excavator as per the predictive model.

The maximum recorded vibration level was an order of magnitude lower than the predicted levels.

This reduction in vibration levels compared to predicted levels is likely linked to the rock breaking preparation works which consisted of line drilling.

The line drilling was carried out to create fractures through the rock to facilitate the rock breaking. By creating these lines of fractures, it allowed for the energy from the hammering to be quickly dissipated, resulting in a reduction of actual vibration emission.

Furthermore, as the rock breaking consisted of lowering a rock shelf, as the rock breaking progressed, the distance between the activities and the sensitive buildings increased, further reducing the vibration emission at those buildings.

No exceedances of the vibration goal were recorded.

The RIS scope of works achieved the outcomes set out by the CGCR and OEMP.

3.2 Air Quality

Imposed Condition 13(b) 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 28 inspections were undertaken by the Environment Team across Mayne Yard, RNA Showgrounds, Northern Corridor, Southern Area, Fairfield Station, Yeronga Station, Clapham Yard and Rocklea Station.

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	Active
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

Monitoring Device Installed by UNITY	Area	Name	Date Installed	Status for the Reporting Period
Dust Deposition Gauge	Dutton Park	AQ-08	8 July 2022	Active
TSP / PM ₁₀ Monitor	Mayne Yard North (Eastern Air Shed)	AQ-04	26 August 2022	Inactive as of 11 May 2022 CAQP confirmed that the Mayne Yard DMP can be temporarily decommissioned following the completion of Mayne Yard North earthworks. DMP was reinstated for Mayne Yard East Works on 26 August 2022 – see below
TSP / PM ₁₀ Monitor	Mayne Yard East (Eastern Air Shed)	Mayne Yard East	26 August 2022	Active
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 Dutton Park and Clapham Yard:
 - 9 September 2022 to 11 October 2022; and
 - 11 October 2022 to 11 November 2022
- Clapham Yard
 - 9 September 2022 to 11 October 2022; and
 - 11 October 2022 to 07 November 2022
- Mayne Yard
 - 15 September 2022 to 11 November 2022

The Mayne Yard DDG is located within the active rail corridor and requires a Protection Officer for collection and replacement.

Due to a staffing issue with Protection Officers the gauge was inaccessible until 11 November 2022. The DDG was therefore left for an extended period of 57 days. As per AS/NZS 3580.10.1, section 7.3, for routine monitoring programs, the period of exposure is 30±2 days.

The results are detailed below and compared against Imposed Condition 13(b).

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)
120 (09/09/22 to 11/10/22)	70	-	30	157
Total Rainfall during Period (mm)	46.2	115	98.4	53.6
120 (11/10/22 to 11/11/22)	110	-	23	120

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)
120 (15/09/22 to 11/11/22)	-	27*	-	-
Total Rainfall during Period (mm)	107.8	107.2	228.6	113

* Results are indicative only – DDG was in place for 57 days

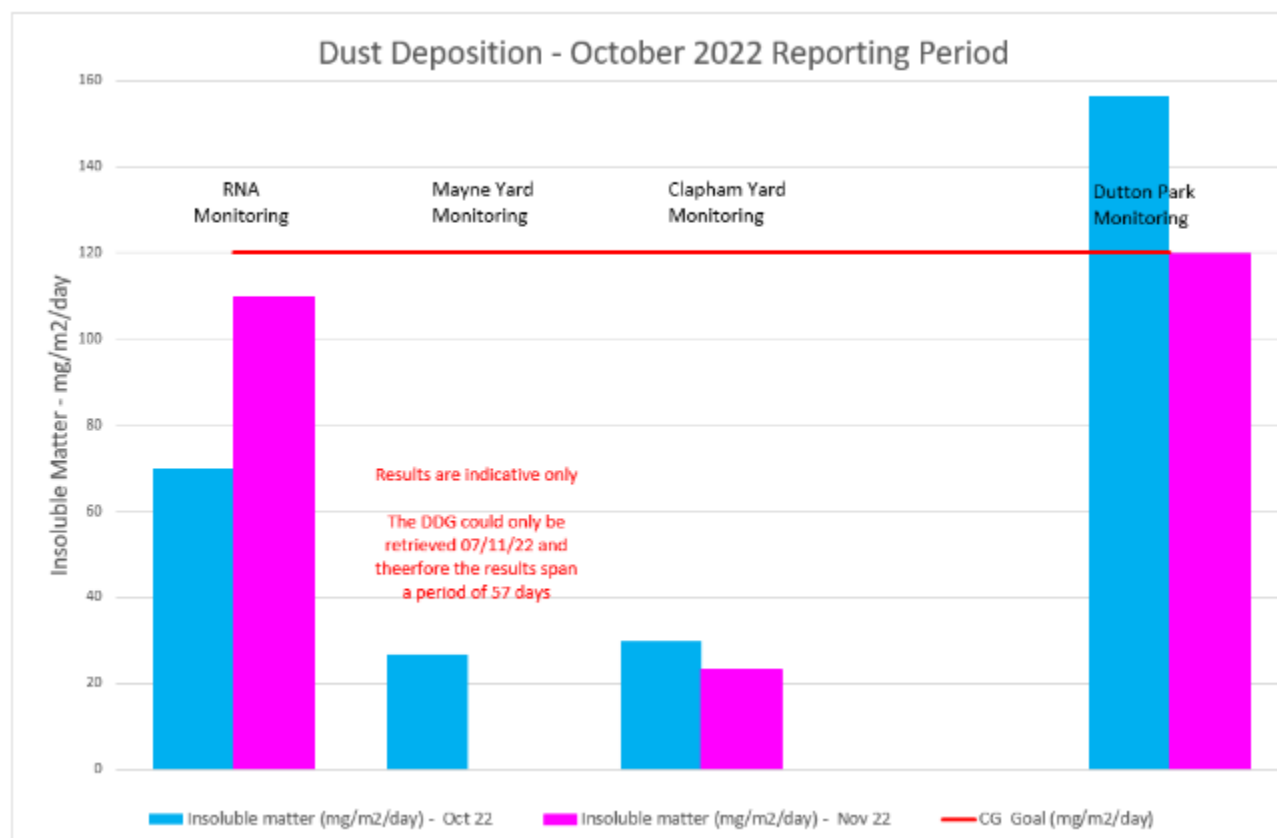


Figure 1 Air Quality Monitoring (Deposited Dust) Results

3.2.2 Particulates results

3.2.2.1 Air Quality Monitoring Stations

UNITY had three (3) active air quality monitoring stations in place for the reporting period as detailed in Table 6.

3.2.2.2 Monitoring Results – Reporting Period

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

TSP is one of the indicators for which the Coordinator-General has imposed a goal of 80 µg/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 50 µg/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 air quality professionals. The results are represented in the below figures.

It is noted that the results for TSP and PM10 are indicative only for the following periods:

- Mayne Yard:
 - 21 October 2022
- RNA:
 - 23 October 2022
- Clapham Yard:
 - 03 October 2022
 - 20 to 24 October 2022

The three DMPs experienced power failure. The power failures were associated with continuous overcast conditions ranging from 20 October to 23 October 2022 during a wet weather period.

This resulted in a lack of sufficient sun exposure and therefore less than 75% of data were collected over a 24-hour period during these days.

The Clapham Yard DMP was again the most affected by these weather conditions due to the shadowing effect of the 6m high noise wall located along Ipswich Road.

Whilst the number of days of data loss at the Clapham Yard DMP reduces each month as daylight duration increases as we approach summer, the ongoing data loss is still a concern.

Since the most recent power failure, UNITY has relocated the DMP to within an area within the Yard where there are no structures that might limit sun exposure of the solar panel.

- It is noted that whilst this new location has been vetted by the Project CAQP, it is within the Construction boundary (as opposed to the being on the edge of the works previously) and therefore closer to potential particulate sources and further away from residents.
- This is however the best available location considering the ongoing issues with power failure.

Unity has also procured a larger power pack (larger panel and battery) which should be delivered by the supplier before Christmas.

It is also noted that during the reporting period there were no complaints pertaining to air quality from the three-air shed where the DMPs are located.

It is worth noting for Clapham Yard in particular, the power failure coincided with regular rainfall over the air shed area. Such conditions are less conducive to having negative air emissions generated from the Project Works due to the saturation of the soils.

The deposited dust result also met the Air Quality Goal, and significant erosion control (soil binder) and active dust suppression (water carts) were implemented at Clapham Yard during non-rainy days.

It is therefore unlikely that the particulate results for PM₁₀ and TSP were exceeded on the days of the data loss.

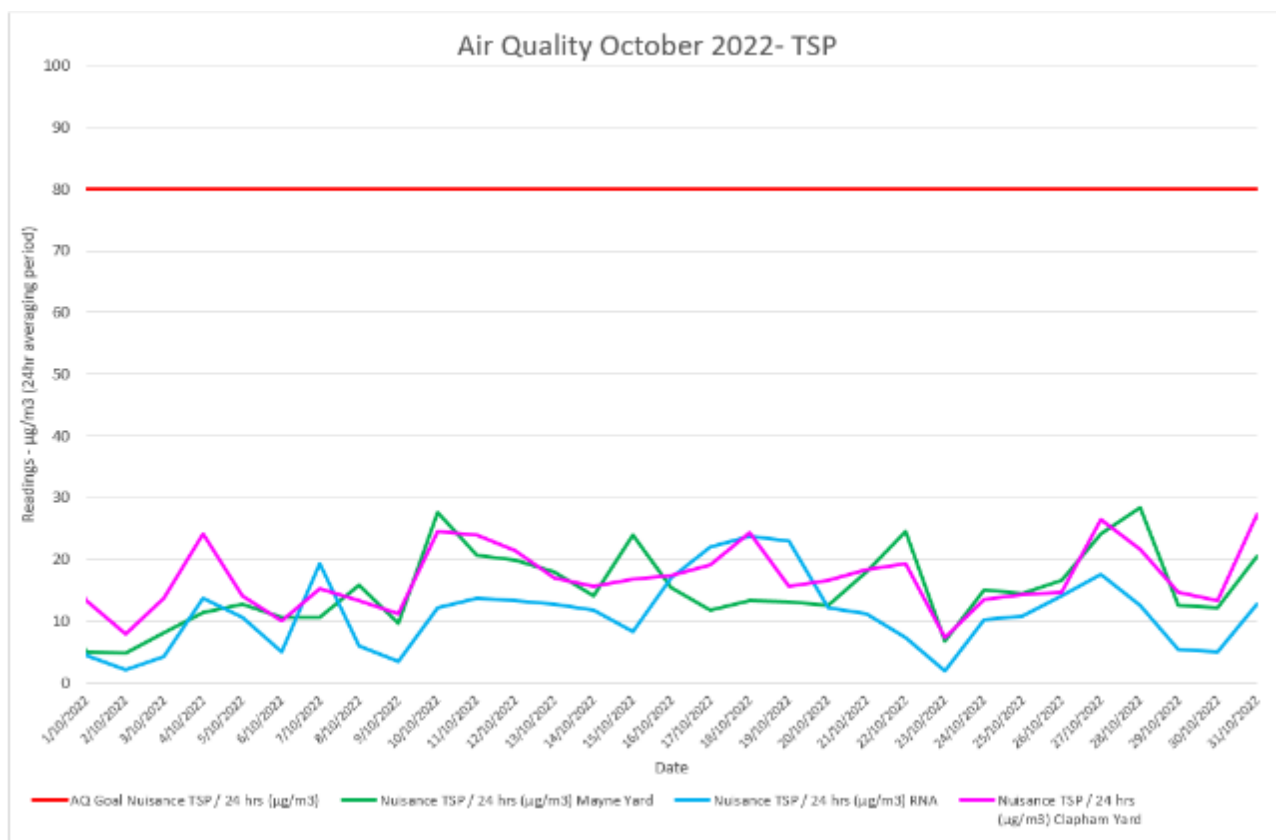


Figure 2 Air Quality Monitoring (TSP) Results

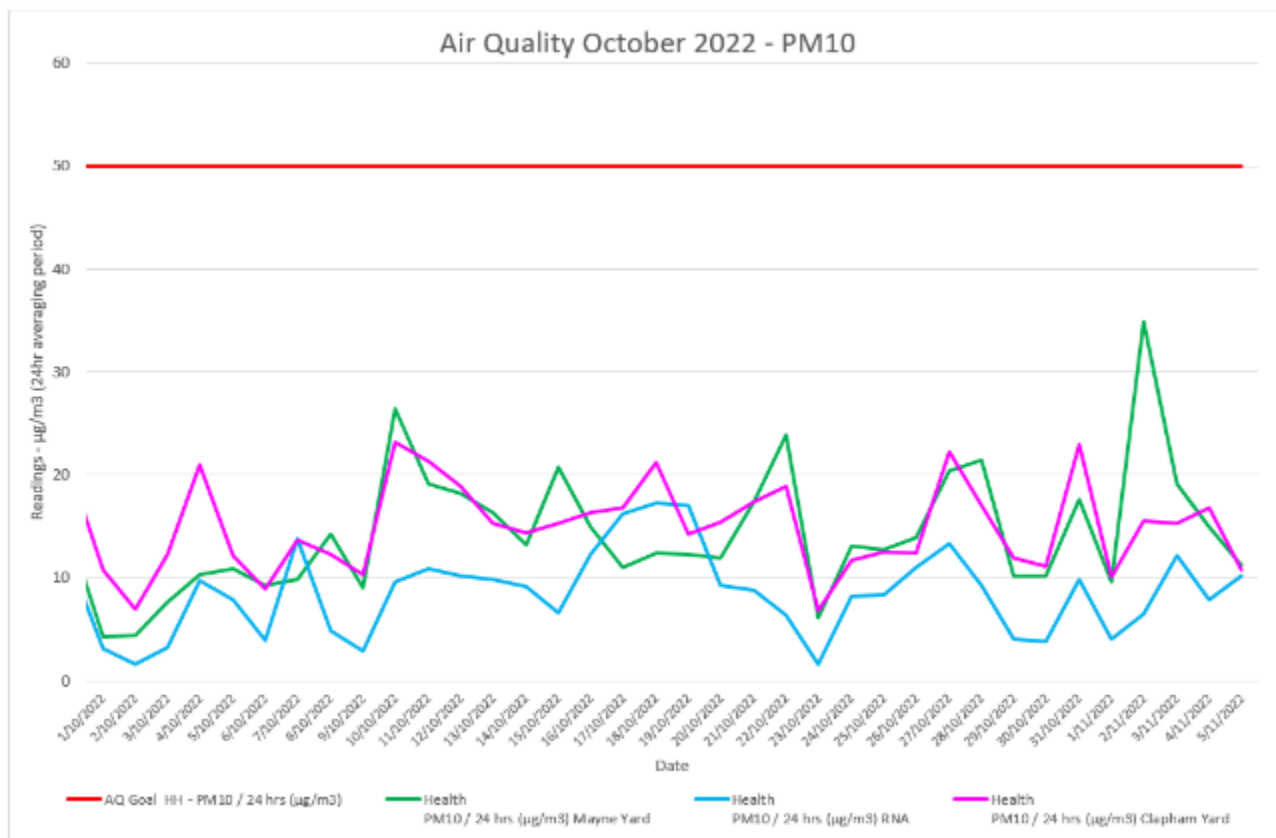


Figure 3 Air Quality Monitoring (PM10) Results

3.2.3 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	11 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 11 May 2022) 3 days over 16 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

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	Mayne Yard East (Eastern Air Shed)	26 August 2022	Not yet decommissioned	Period 1 (Started 26 August 2022) 66 over 67 days	Period 1 99% Over 67 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) 93 over 141 days	Period 1 86% over 365 days Period 2 79% Over 365 days Period 3 66% Over 141 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
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) 159 over 272 days	Period 1 90% over 364 days Period 2 58% Over 272 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	8 µg/m ³	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	-	Not yet applicable	-
PM ₁₀ 25 µg/m ³		Period 1	5 µg/m ³	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	-	Not yet applicable	-	Not yet applicable	-

3.2.4 Interpretation

3.2.4.1 Particulates Results

External ambient air quality 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).

During the reporting period:

- None of the particulate results exceeded their relevant goals for TSP and PM₁₀
- There were no complaints received associated with air quality concerns during the reporting period for the sites of Mayne Yard, RNA and Clapham Yard.

One complaint was received during the reported period which included concerns about air quality at Yeronga. Consistent with the predictive air quality assessment and the activities being carried out during the reporting period there was no requirement for Unity to carry out the particulate monitoring at Yeronga.

The Fairfield crane operations resulted in two separate odours complaints.

3.2.4.2 Dutton Park DDG Elevated Results

A predictive air quality assessment was carried out by the Project's certified air quality professional prior to the Relevant Project Works commencing.

The assessment did not trigger the need for particulate monitoring. However, due to the proximity of residents to the Project Works, Unity Alliance thought it prudent to install a DDG.

The Dutton Park DDG was placed on the construction area boundary between 15 Cope Street (project works) and 211 Annerley Road (residential receiver) to monitor dust generation from construction activities.

The siting of the Dutton Park DDG is limited due to the constrained site boundaries. It is noted that the DDG is located within the construction area boundary and is therefore closer to dust emission sources than the nearest receptor, acknowledging that the separation distance between the gauge and the nearest receptor is only approximately 5m.

During the monitoring period (9 September 2022 to 11 October 2022), construction works at Dutton Park consisted primarily of cut and fill earthworks, with the October SCAS towards the end of the monitoring period. SCAS works consisted of various works including, but not limited to:

- OHLE works – foundations and overheads
- Signalling works – excavation
- Civil works – CSR, excavation, and demolition of the existing noise wall

Many of these activities were undertaken near the DDG.

Civil works and signalling were occurring 7 days a week (standard hours) for the duration of the SCAS.

OHLE works were occurring 24/7 for the duration of the SCAS.

The scale duration and intensity of the aforementioned activities was consistent with the activities reviewed as part of the predictive air quality assessment.

The measured dust deposition level of 157 mg/m²/day is 130% of the air quality goal of 120 mg/m²/day, and therefore has been recorded as an exceedance.

A wind rose was completed (Figure 4 Southern Wind Rose)Figure 4) to ascertain the predominant winds during the exposure period and weather abnormal wind conditions occurred during the period.

The wind rose confirmed that:

- The DDG was downwind of the Project Works 54% of the time, and
- That wind conditions were light to gentle (under the Beaufort Scale) during the entire DDG exposure period.

Southern Area - Wind Rose



Figure 4 Southern Wind Rose)

Finally, a review of the DDG results over the last 3 months has confirmed a progressive increase of the deposited dust results as the scale and intensity of the Project Works increased.

The increase of the Ash content is also suggesting that a large portion of the Total Insoluble Matter (TIM) is mineral / soil dust (65-75%) as opposed to organic in nature (which would have been burnt down in the analysis process).

It is therefore concluded that the exceedances of the Air Quality Goal for the reporting period is likely attributable to project works.

It is however noted that the Project Team is actively implementing the following to manage dust emission from the Cope Street Work site:

- erosion control (e.g., exposed batters covered with geofabric),
- dust suppression (water carts),
- stabilised access points (to minimise tracking of muds on roads) and
- street sweepers as required.

Finally, in the light of the increasing deposited dust results since monitoring commenced, there is active targeted engagement with the potentially affected stakeholders to develop suitable case by case mitigations based on their individual needs.

Therefore, despite the recorded exceedance of the goals, the project continues to meet their requirements under Imposed Condition 14 and the OEMP.

3.3 Water Quality

Imposed Condition 15(b) 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.

Imposed 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*.

Imposed 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 Imposed 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 triggered during the reporting period. Post rainfall response monitoring and dewatering monitoring were undertaken.

3.3.1 Rainfall Records

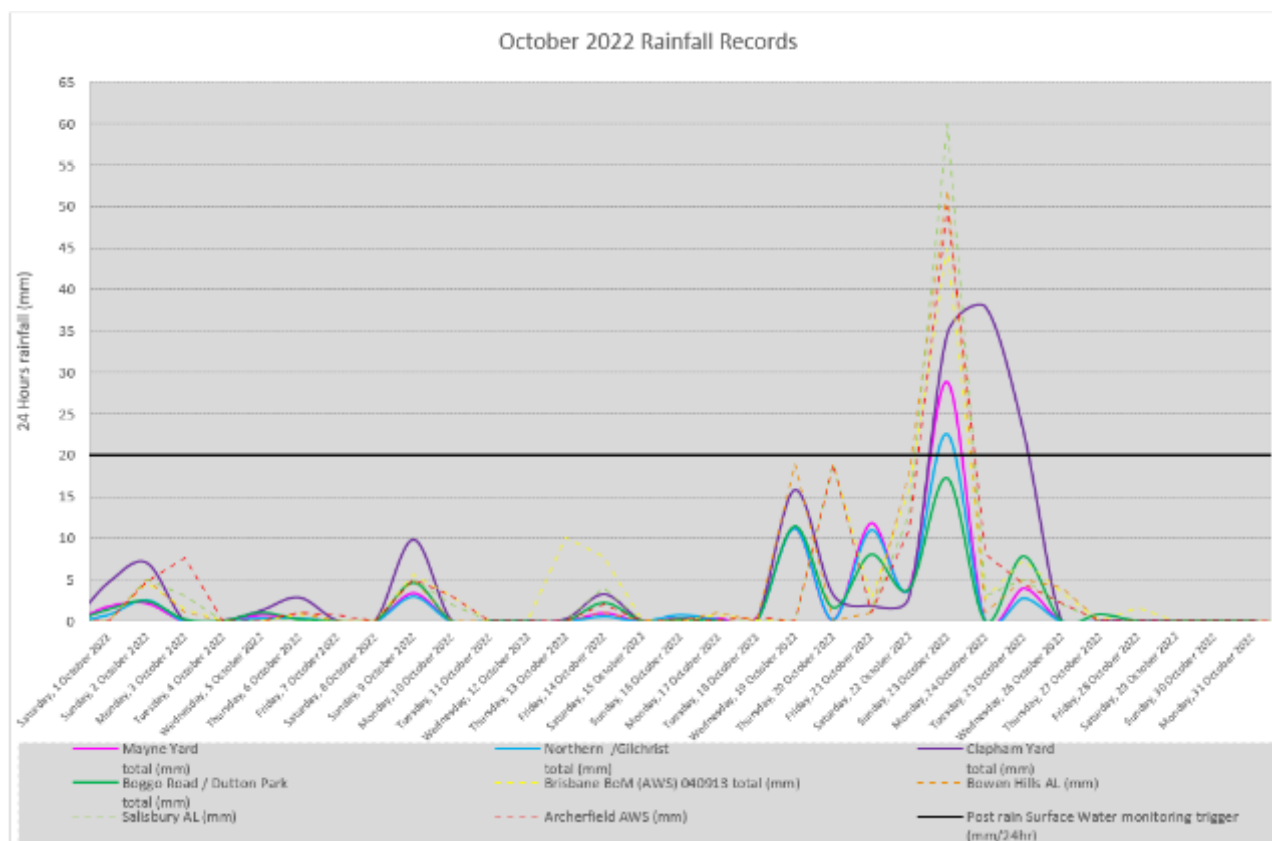


Figure 6: October 2022 Rainfall Records

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 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 change of 5mg/L or 10% increase (whichever is the greatest)
				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	
24 October 2022	Breakfast Creek	SW-1 (Upstream)	Ebb tide	Field: 30.3 Lab: 13.5	14	100	7.9	8mg/L TSS increase Further analysis presented in section 3.3.2.1
24 October 2022	Breakfast Creek	SW-2 (Midstream)	Ebb tide	Field: 22.1 Lab: 33.2	21	101	8.0	
24 October 2022	Breakfast Creek	SW-3 (Downstream)	Ebb tide	Field: 30.1 Lab: 35.4	22	93	7.5	
24 October 2022	Moolabin Creek	SW-5 (Upstream)	N/A	Field: 26.1 Lab: 20.7	5	93	7.4	15mg/L TSS increase Further analysis presented in section 3.3.2.1
24 October 2022	Moolabin Creek	SW-6* (downstream)	N/A	Field: N/A Lab: N/A	N/A	N/A	N/A	
24 October 2022	Moolabin Creek	SW-6a (Downstream)	N/A	Field: 29.8 Lab: 25.9	20	56	6.8	
24 October 2022	Rocky Water Holes	SW-7 (Midstream)	N/A	Field: 35.6 Lab: 31.9	10	87	7.1	N/A
24 October 2022	Rocky Water Holes	SW-7a (Upstream)	N/A	Field: 32.04 Lab: 32.3	12	94	7.4	
24 October 2022	Rocky Water Holes	SW-8a (Downstream)	N/A	Field: 29.9 Lab: 30.7	12	80	7.05	

Water column depth in-stream at SW06 was ca. 100mm. therefore a grab sample that would have complied with the AS/NZS 5667.6:1998 requirements (minimum 300mm depth) could not be collected.

An alternative downstream location, SW-6a, (at the end of Moolabin Crescent) could however safely be accessed and where a compliant grab could be and was collected.

3.3.2.1 Post Rainfall Monitoring Results Interpretation

The post rainfall monitoring event identified that water quality was visually more turbid throughout the systems at all monitoring locations.

Where in situ monitoring was carried out, in two (2) instances, downstream water quality data exhibited changes of >5mg/L or 10% increase for TSS or 10% for turbidity.

However, both increases in TSS were below the off-site discharge limit for the relevant receiving waters. Therefore, compliance with Imposed Conditions 15 and 18 were met.

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.

Wet season (September to March) monitoring will be required to occur prior to March 2023.

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 triggered during the reporting period.

Date	Location	Waterway	Discharge Criteria ⁴			
			Turbidity (NTU) Nil until Turbidity / TSS correlation achieved ⁵	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
28/10/2022	Mayne Yard North	Discharging to stormwater drain ultimately discharging to Breakfast Creek	6.4 NTU	<5	84.8 pre discharge	7.6

⁴ Refer to the waterways and water quality management plan, a C-EMP sub-plan for details of derivation of the discharge criteria

⁵ 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.

4 Compliance Review

4.1 Non-Compliance Events

The below section summarises the events to be reported in accordance with Imposed Condition 5 and Imposed Condition 6(b)(ii). 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
CRRDA-007-RIS-002	Clapham Yard Friday 06 May 2022 10:30am	28 October 2022	Condition 4 (whole) Condition 15(a) Condition 18(a)	28 October 2022	Closed
CRRDA-008-RIS-002	Clapham Yard Tuesday 10 May 2022 10:30am	28 October 2022	Condition 4 (whole) Condition 19(a)	28 October 2022	Closed

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 three active Worksites	Compliant Compliant Compliant	Not Applicable
Air Quality	Complaint's response	Moderate to High	No – not triggered	N/A	Not Applicable
Noise	Buffer distance tests based on the outcomes of the predictive assessment based / risk profile of activities	Moderate to High	Yes – monitoring completed for October SCAS Works	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	Yes – monitoring completed for October SCAS Works	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	Yes – monitoring triggered for October SCAS Works and RNA Stage 2 demolition	Compliant	Not Applicable

Aspect	Monitoring requirement	Activities risk profile	Monitoring undertaken	Compliance status with C-EMP / Subplan	Effect of the non-compliance
Vibration	Complaint's response	Moderate to High	Not triggered No complaints	N/A	Not Applicable
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	Yes – one monitoring event (9 locations) undertaken 24 October 2022	Compliant	Not Applicable
Water Quality	Dewatering	Moderate to High	Yes – one discharge event during reporting period	Compliant	Not Applicable

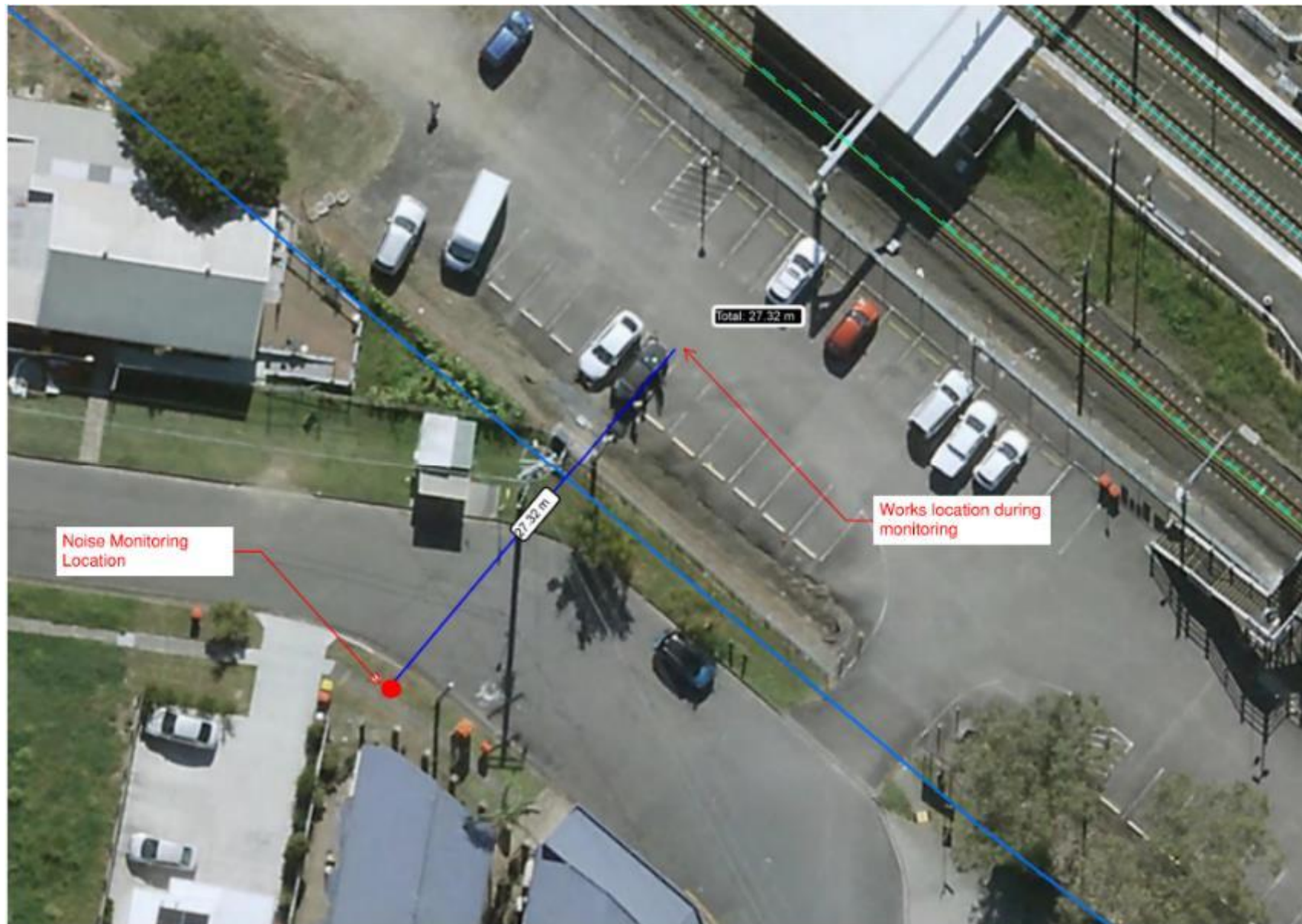
Attachment 1 Imposed Conditions Non-Compliance Event Report (if required)

Refer Non compliance Event Report No.7 and No.8 at the following link:

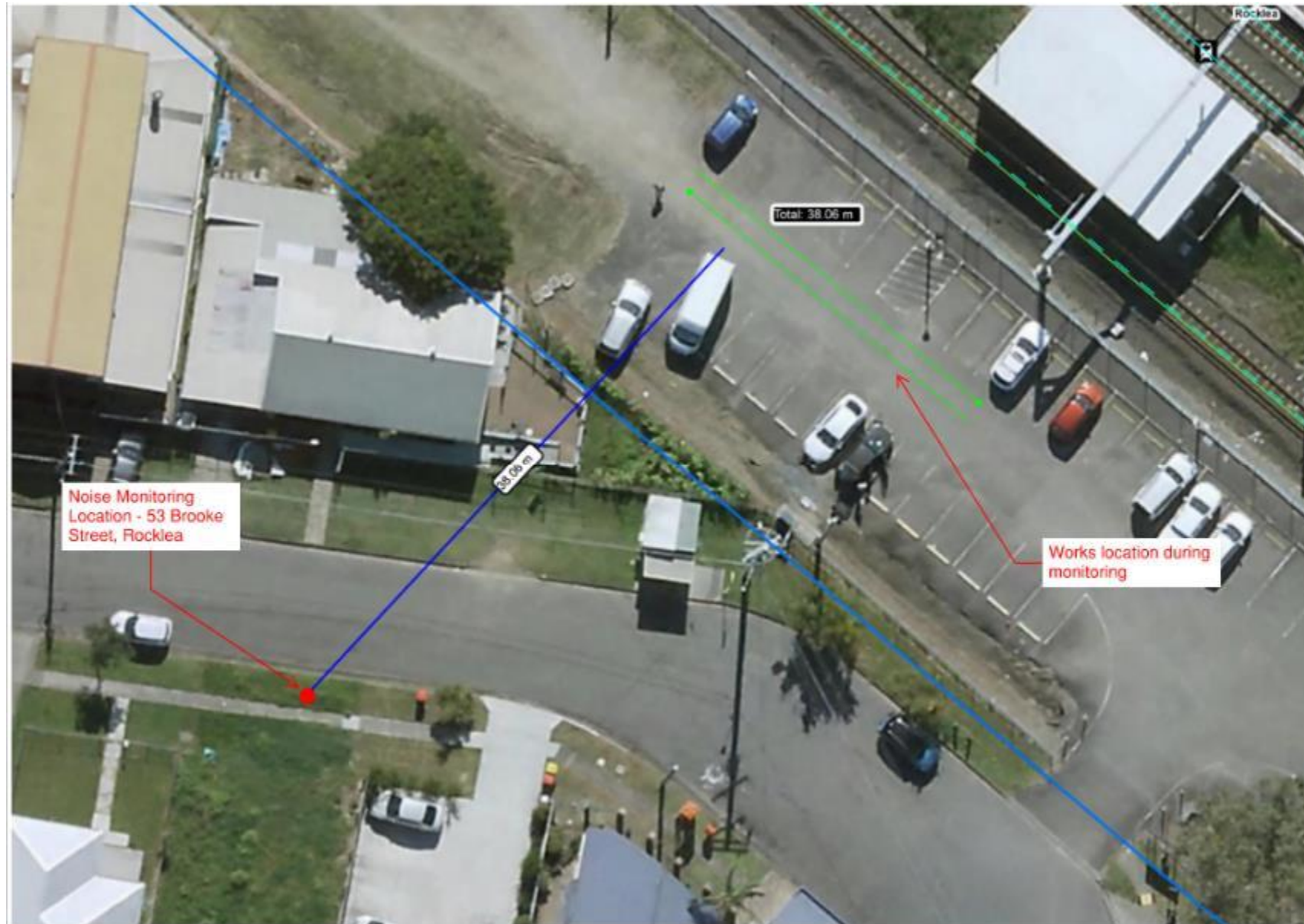
<https://crossriversrail.qld.gov.au/planning-environment/environment-approvals/environmental-compliance/>

Attachment 2 Monitoring Locations – Noise and Vibration

59 Brooke Street, Rocklea – 1 October (Noise)



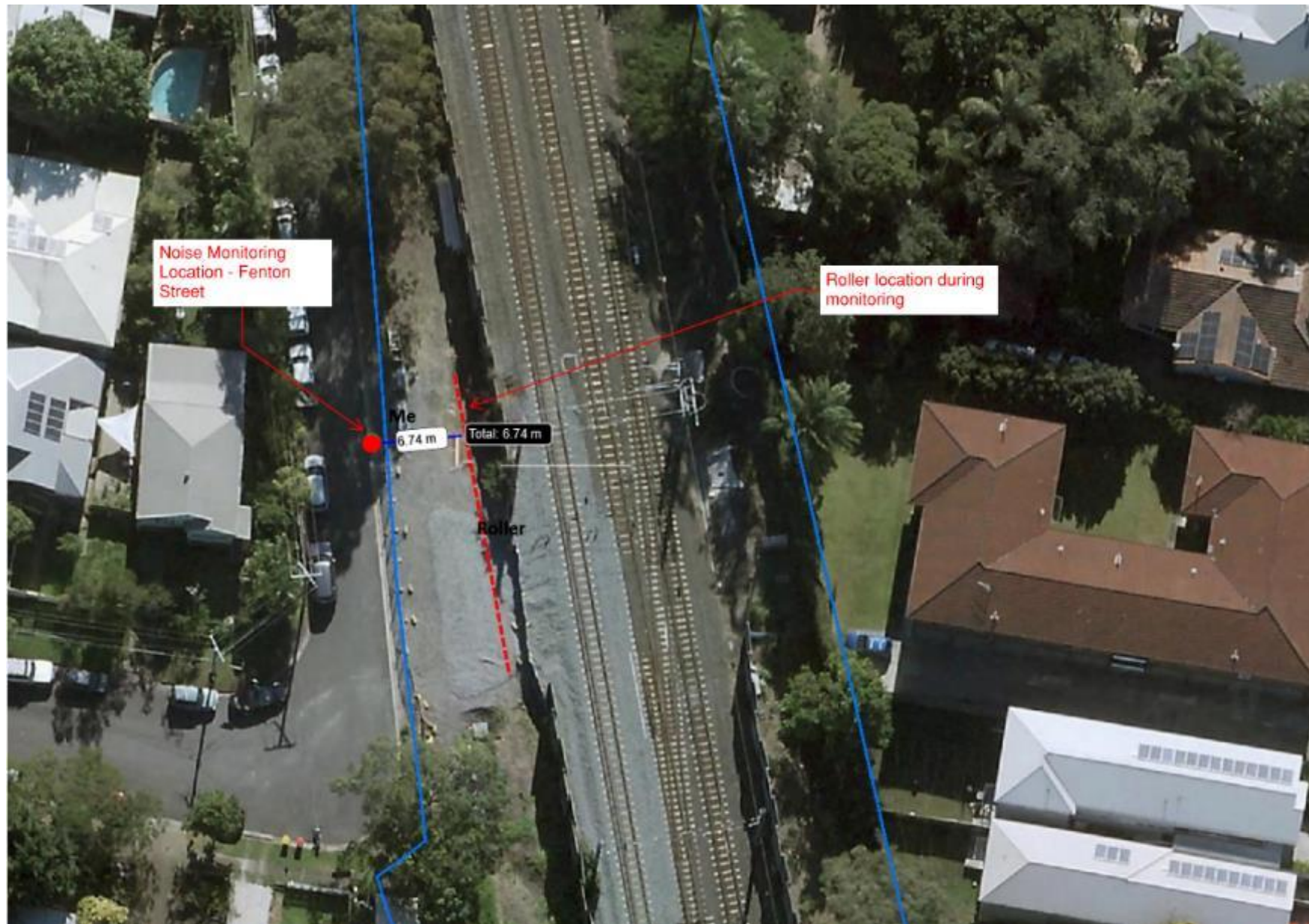
53 Brooke Street, Rocklea – 1 October 2022 (Noise)



Yeronga Station – 3 October 2022 (Noise)



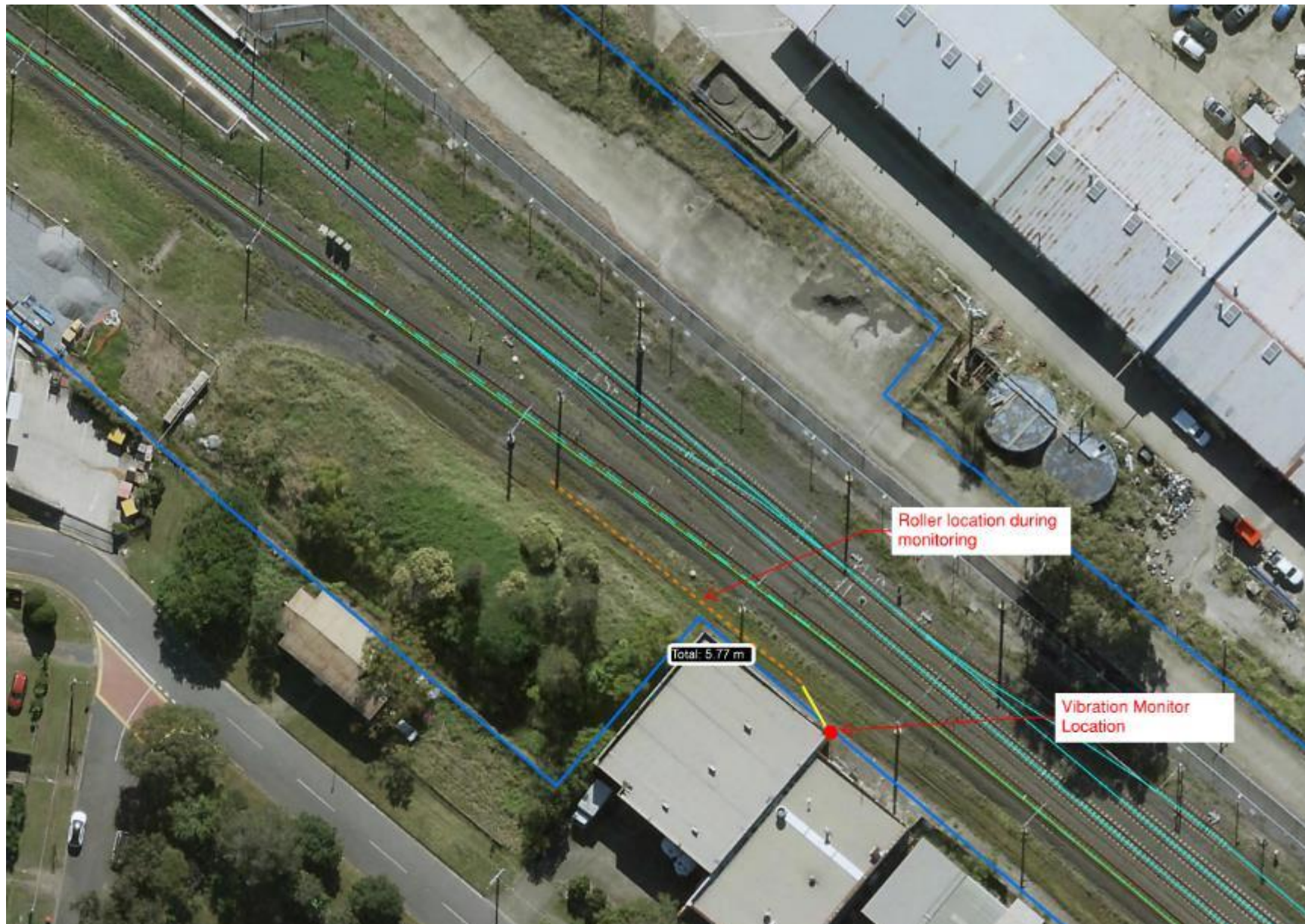
Fenton Street, Fairfield – 3 October 2022 (Noise)



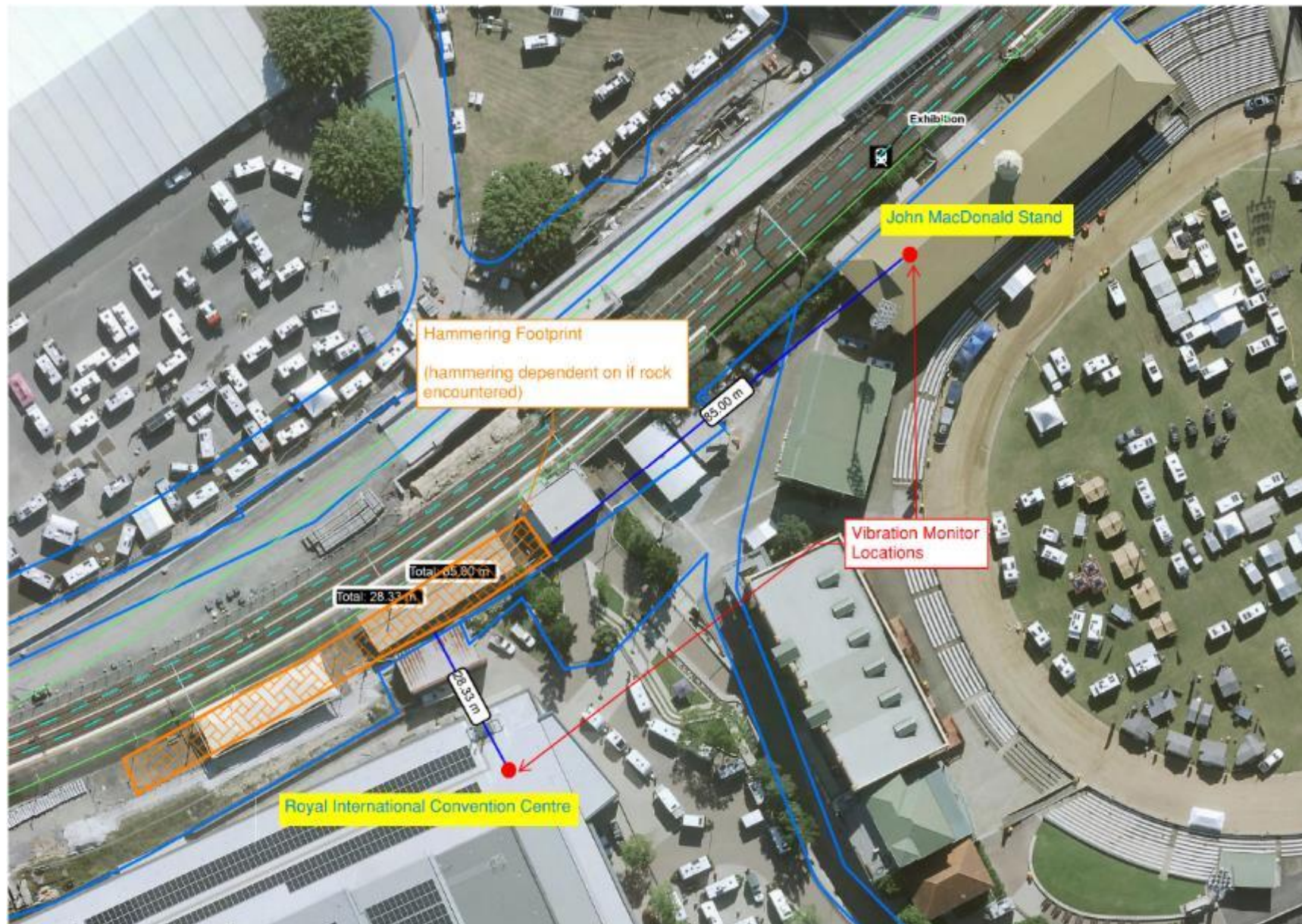
2 Dudley Street, Annerley – 5 October 2022 (Noise)



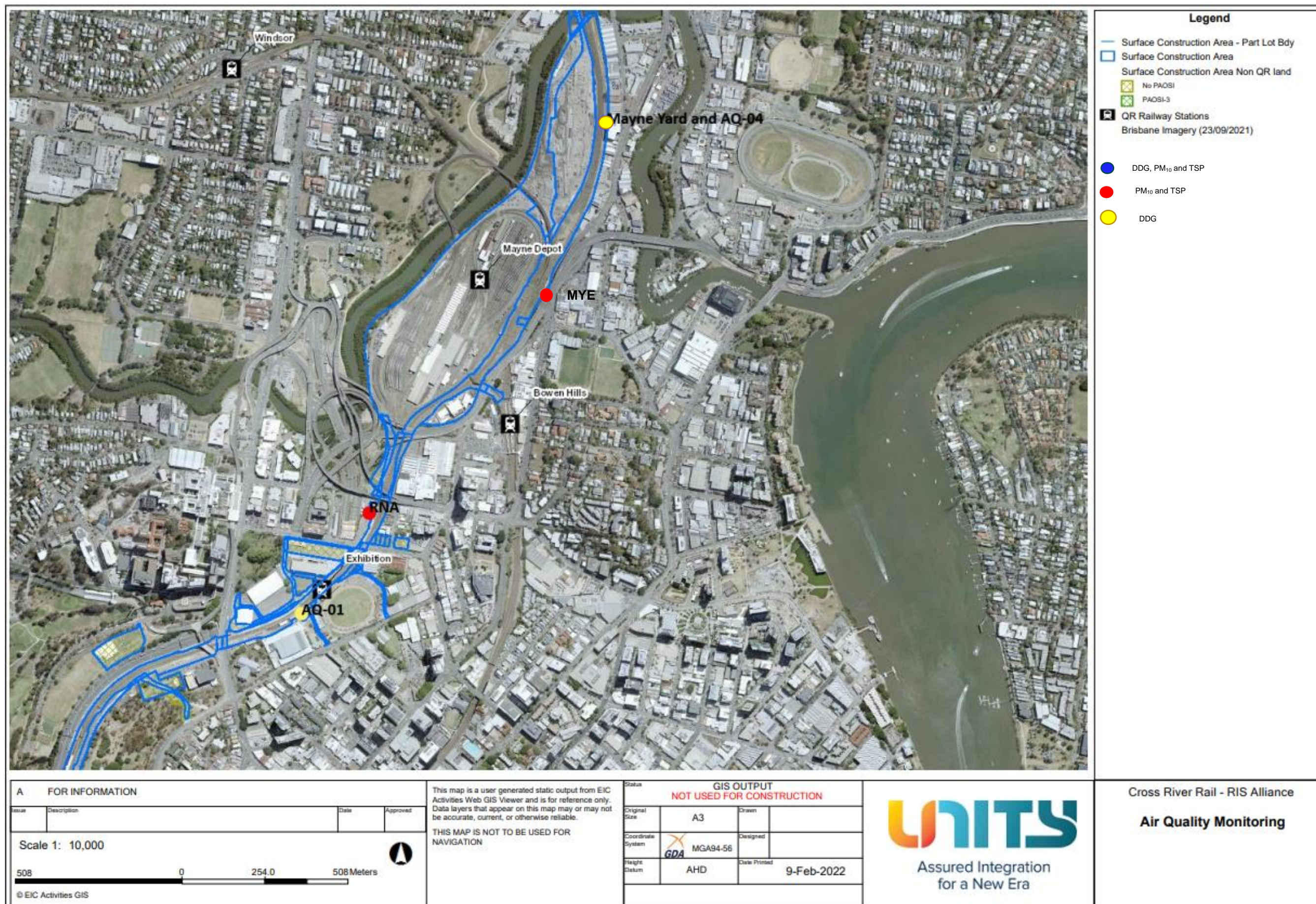
Rocklea Station Track Lowering – 1 – 3 October (Vibration)

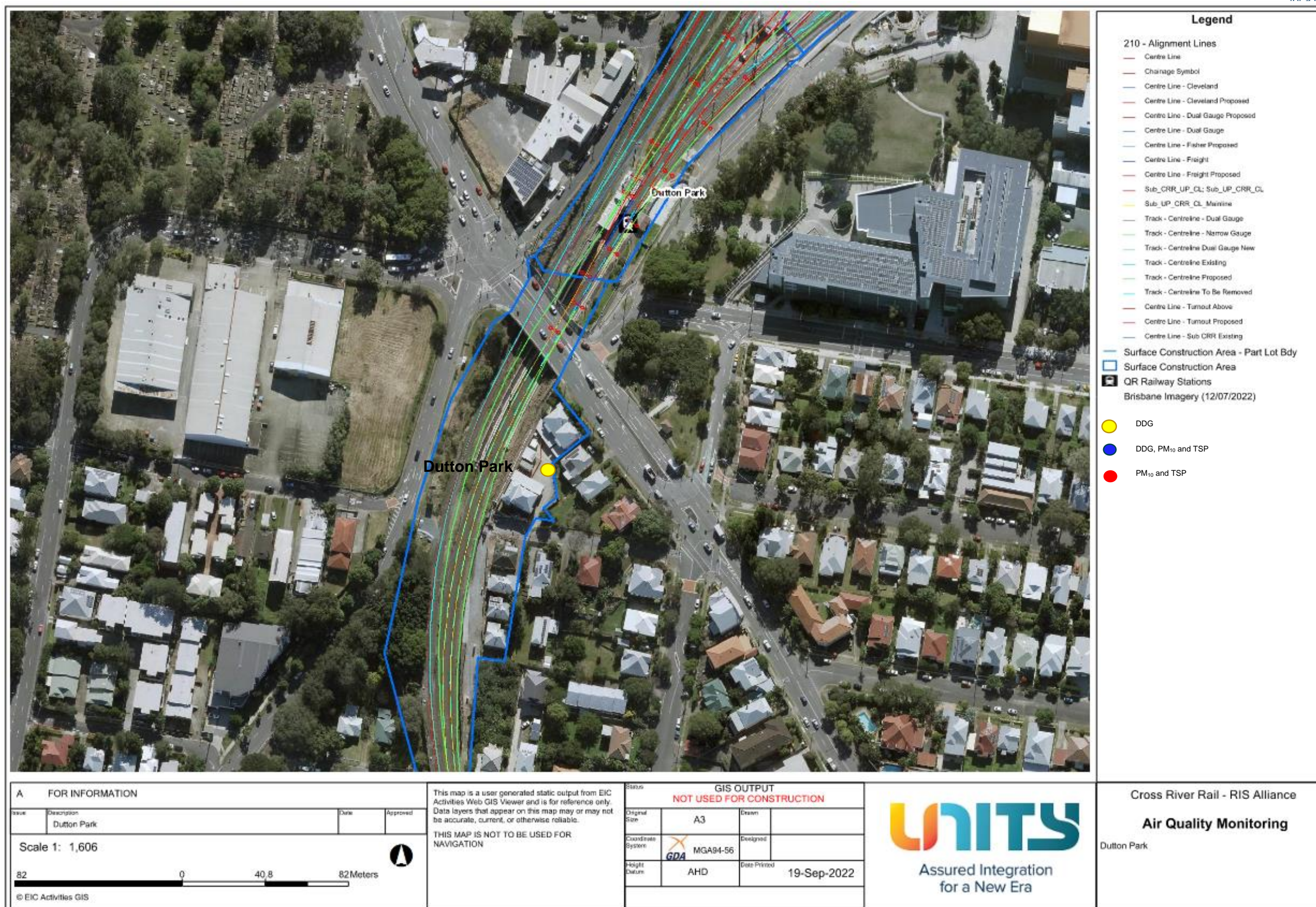


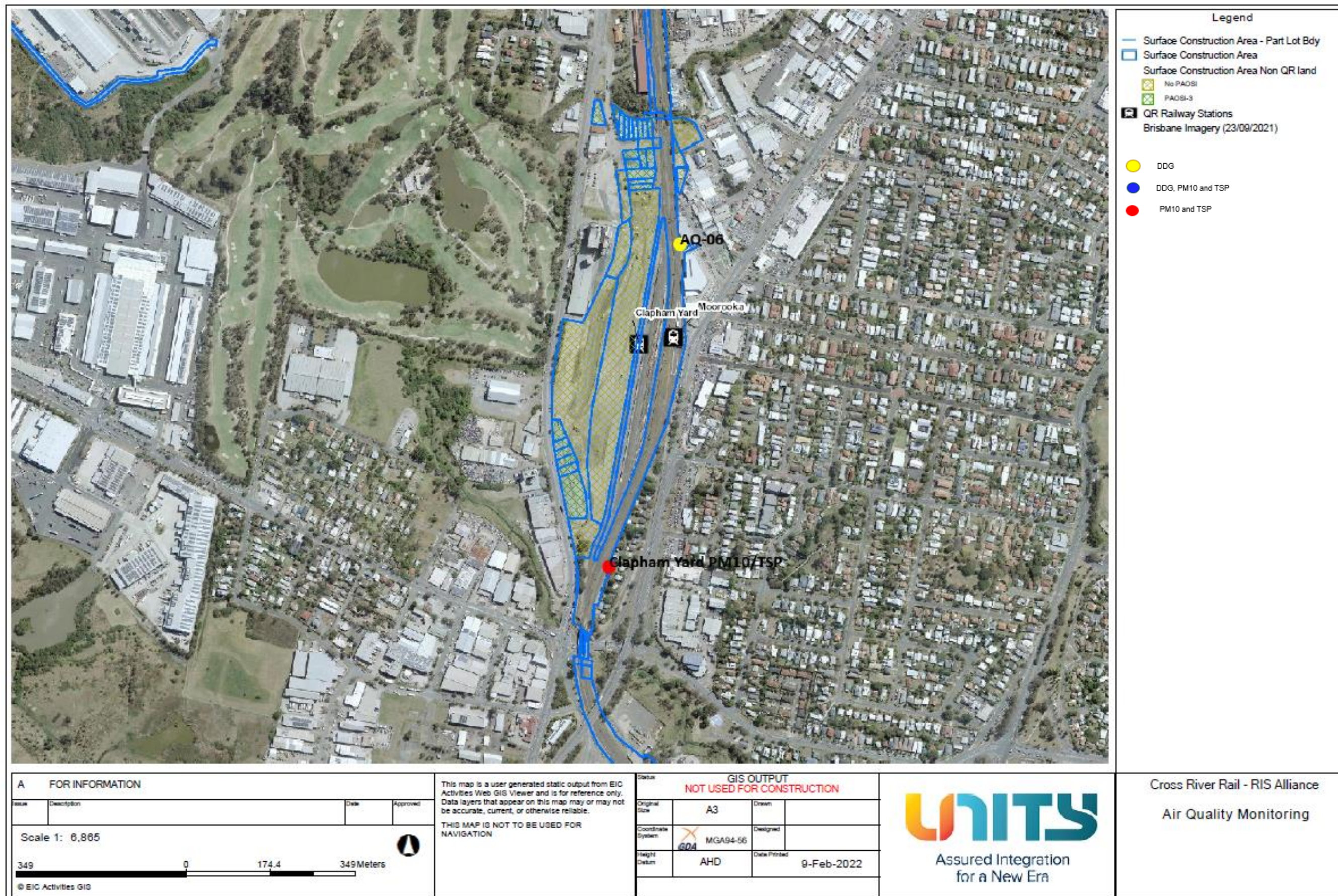
RNA – October 2022 – John MacDonald Stand and Royal International Convention Centre (Vibration)



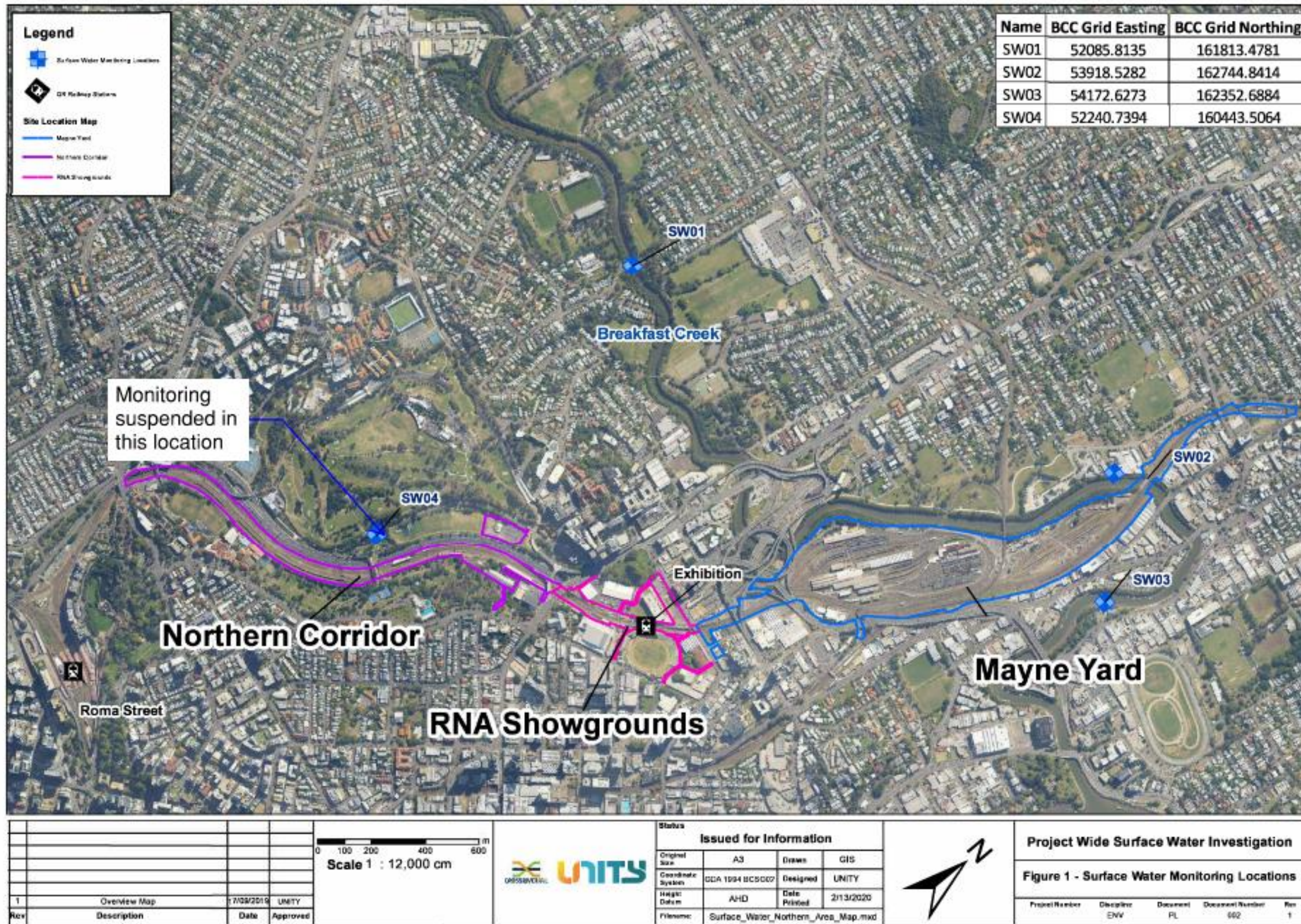
Attachment 3 Monitoring Locations – Air Quality

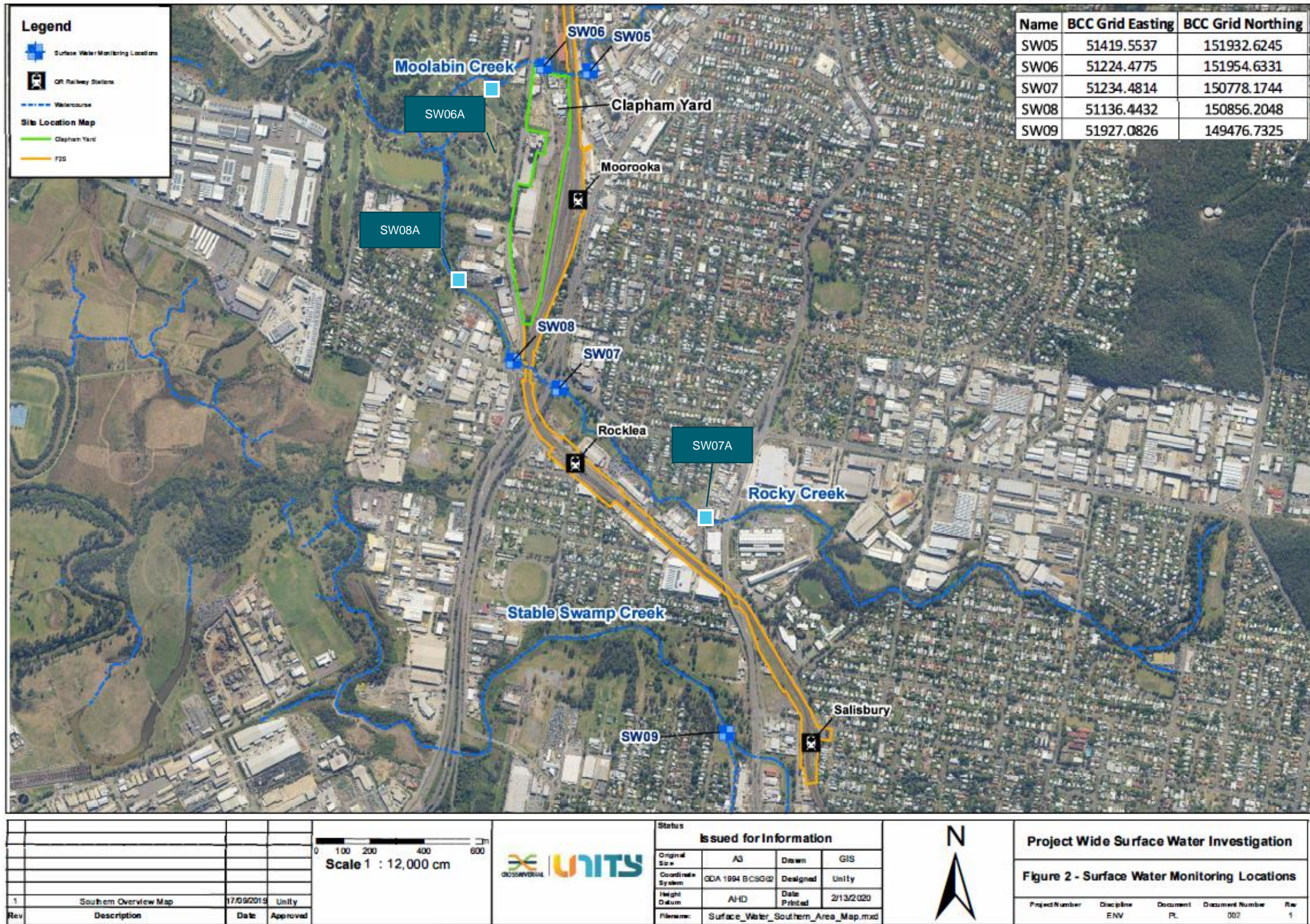






Attachment 4 Monitoring Locations – Surface Water





Appendix B TSD Monthly Report

COORDINATOR-GENERAL'S MONTHLY REPORT: October 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.

Noise monitoring was conducted on six (6) occasions during October 2022. Nil vibration monitoring was required during the month of October 2022. Each noise 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 October 2022. Air quality monitoring confirmed works adhered to project requirements.

Water quality monitoring was conducted before the release of water from the site on thirty-two (32) occasions. Each monitoring event confirmed project requirements were adhered to. Two (2) rounds of surface water quality monitoring were 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, CBGU 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	CBGU 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 CBGU 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 CBGU 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 4).
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 CBGU 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 CBGU 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	CBGU 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.

During October there were no new (vibration-generating) construction activities or changes in construction methodologies. As such, no vibration monitoring was performed.

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)
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Nil

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 six (6) occasions during October 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.	6/10/2022	9:25:00 PM	Gregory Terrace (Northern Portal)	Model Verification	External	Concrete works	Road Traffic	52	68.4	42	63.4	Yes
2.	6/10/2022	12:56:00 PM	Peter Doherty Street (Southern Portal)	Construction Monitoring at Sensitive Places	External	Sewer works	Construction	72	67.5	62	64.8	Yes
3.	11/10/2022	10:03:00 PM	George Street (Roma Street Precinct)	Model Verification	External	Rail works	Road Traffic	59	69.2	52	66.8	Yes
4.	15/10/2022	11:48:00 AM	Roma Street (Roma Street Precinct)	Model Verification	External	Concrete works	Construction	62	76.9	52	73.8	Yes
5.	24/10/2022	10:39:00 PM	Albert Street (Albert Street Precinct)	Model Verification	External	Concrete works	Construction and General Public	59	65.2	52	63.2	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.	24/10/2022	11:00:00 PM	Albert Street (Albert Street Precinct)	Model Verification	External	Concrete works	Construction and General Public	59	65.9	52	62.7	Yes

- [1] Intermittent noise goal (LA10)

- [2] Continuous noise goal (LAeq)

- 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 October 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	50.00	Air quality monitoring was performed during the reporting period. All results adhered to project requirements.
Roma Street Precinct				26.67	
Albert Street Precinct (North)				51.72	
Albert Street Precinct (South)				44.83	
Woolloongabba Precinct (North)				35.71	
Woolloongabba Precinct (South)				64.29	
Boggo Road Precinct (North)				10.71	
Boggo Road Precinct (South)				- ^[1]	
Southern Portal (South)				14.29	
Southern Portal (East)				17.86	

- ^[1] The Boggo Road Precinct (South) Dust Deposition Gauge was stolen during this monitoring period. The Dust Deposition Gauge has since been replaced.

3.3.2 Particulates and Ambient Air Quality Results

Total Suspended Particles (TSP) and particulate matter less than 10µm (PM10) monitoring were conducted during October 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 October 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-Oct-22	80	50	4.61	4.54	7.17	7.09	2.84	2.82	6.01	5.97
02-Oct-22	80	50	4.77	4.76	6.21	6.15	2.50	2.49	6.08	6.06
03-Oct-22	80	50	6.37	6.32	8.06	8.03	4.33	4.32	8.00	7.98
04-Oct-22	80	50	5.82	5.78	8.30	8.19	3.78	3.77	7.87	7.80
05-Oct-22	80	50	8.18	8.14	10.65	10.51	5.96	5.94	7.39	7.34
06-Oct-22	80	50	4.82	4.79	8.59	8.50	3.33	3.21	4.51	4.47
07-Oct-22	80	50	7.01	6.90	10.25	10.19	4.03	4.01	6.79	6.74
08-Oct-22	80	50	6.68	6.61	8.09	7.92	3.29	3.27	6.27	6.24
09-Oct-22	80	50	6.86	6.79	8.06	7.99	3.29	3.27	6.01	5.98
10-Oct-22	80	50	10.06	10.01	12.49	12.39	4.95	4.93	8.99	8.97
11-Oct-22	80	50	7.01	6.98	11.28	11.14	4.30	4.28	7.32	7.25
12-Oct-22	80	50	5.91	5.87	9.76	9.66	3.37	3.35	6.10	6.04
13-Oct-22	80	50	7.05	7.00	12.45	12.35	3.96	3.94	7.01	6.94
14-Oct-22	80	50	8.84	8.78	11.17	11.12	4.52	4.51	8.00	7.96
15-Oct-22	80	50	7.00	6.90	8.91	8.84	3.84	3.82	6.16	6.12
16-Oct-22	80	50	8.20	8.18	7.94	7.89	4.84	4.82	7.14	7.12
17-Oct-22	80	50	- [2]	- [2]	9.68	9.56	5.03	5.01	7.09	7.03
18-Oct-22	80	50	5.10	5.06	8.58	8.50	3.91	3.90	6.48	6.42

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-Oct-22	80	50	7.03	7.01	9.21	9.12	3.69	3.68	6.70	6.66
20-Oct-22	80	50	8.19	8.17	10.22	10.20	4.57	4.52	8.40	8.37
21-Oct-22	80	50	13.37	13.36	15.38	15.34	6.46	6.44	12.77	12.74
22-Oct-22	80	50	14.07	14.07	15.66	15.63	5.58	5.58	13.70	13.67
23-Oct-22	80	50	4.08	4.06	4.61	4.57	1.84	1.84	5.87	5.84
24-Oct-22	80	50	6.63	6.57	10.07	9.95	3.95	3.92	6.09	6.02
25-Oct-22	80	50	11.32	11.24	14.44	14.27	7.23	7.23	13.35	10.49
26-Oct-22	80	50	12.30	12.18	16.24	16.03	8.53	8.51	12.00	11.87
27-Oct-22	80	50	12.28	11.82	13.13	12.97	7.98	7.92	9.88	9.67
28-Oct-22	80	50	8.86	8.28	10.74	10.48	4.32	4.20	5.41	5.12
29-Oct-22	80	50	5.44	5.14	10.23	10.08	3.46	3.42	4.81	4.65
30-Oct-22	80	50	5.84	5.52	6.18	6.08	3.78	3.75	4.45	4.32
31-Oct-22	80	50	11.25	10.91	11.18	11.09	7.23	7.22	9.53	9.40

- [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 on the 17th of October 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. As soon as practicable, the unit was inspected, and the problem was resolved.

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: **23.4 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=cbd¶meter=18&date=1/10/2022&timeframe=month>)
- South Brisbane: PM10 daily Maximum average: **25.6 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=sbr¶meter=18&date=1/10/2022&timeframe=month>)
- Woolloongabba: PM10 daily Maximum average: **54.7 µg/m3/24 hr** (<https://apps.des.qld.gov.au/air-quality/chart/?station=woo¶meter=18&date=1/10/2022&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 October 2022 [about Particle PM₁₀](#)

[Brisbane CBD station overview](#)

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

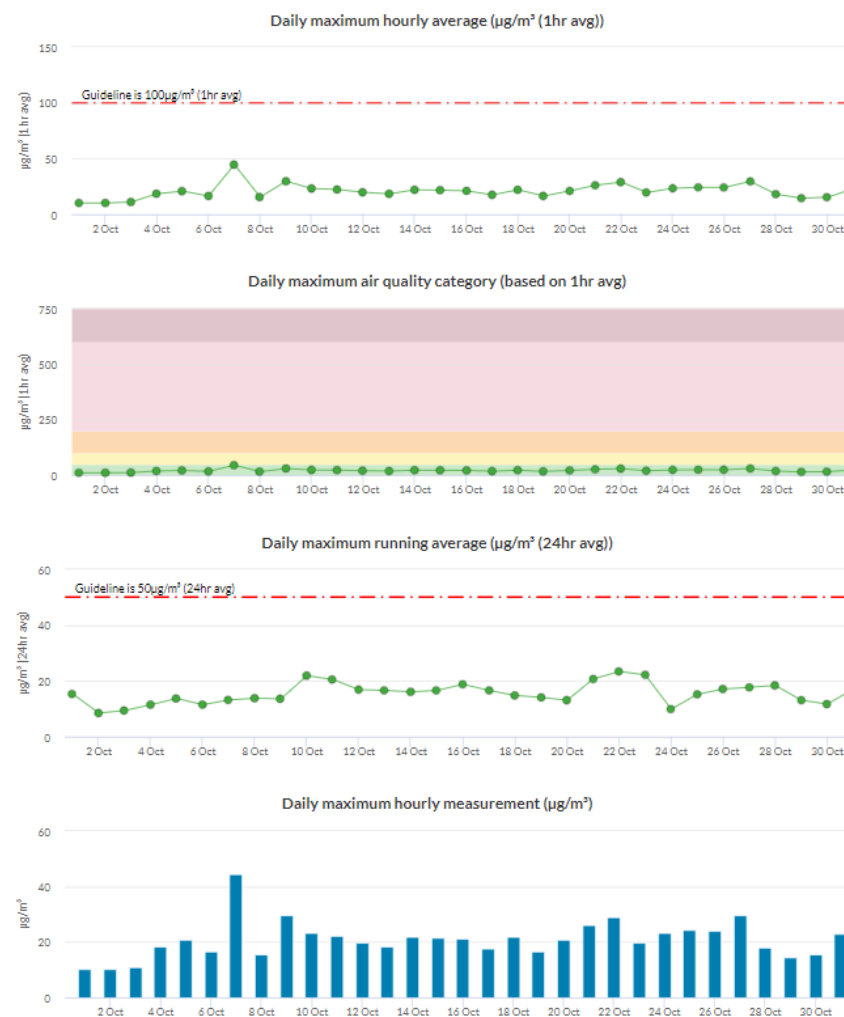


Figure 1: Brisbane CBD – DES Station - PM10 graph for October 2022 (reproduction from the DES website).

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

[South Brisbane station overview](#)

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

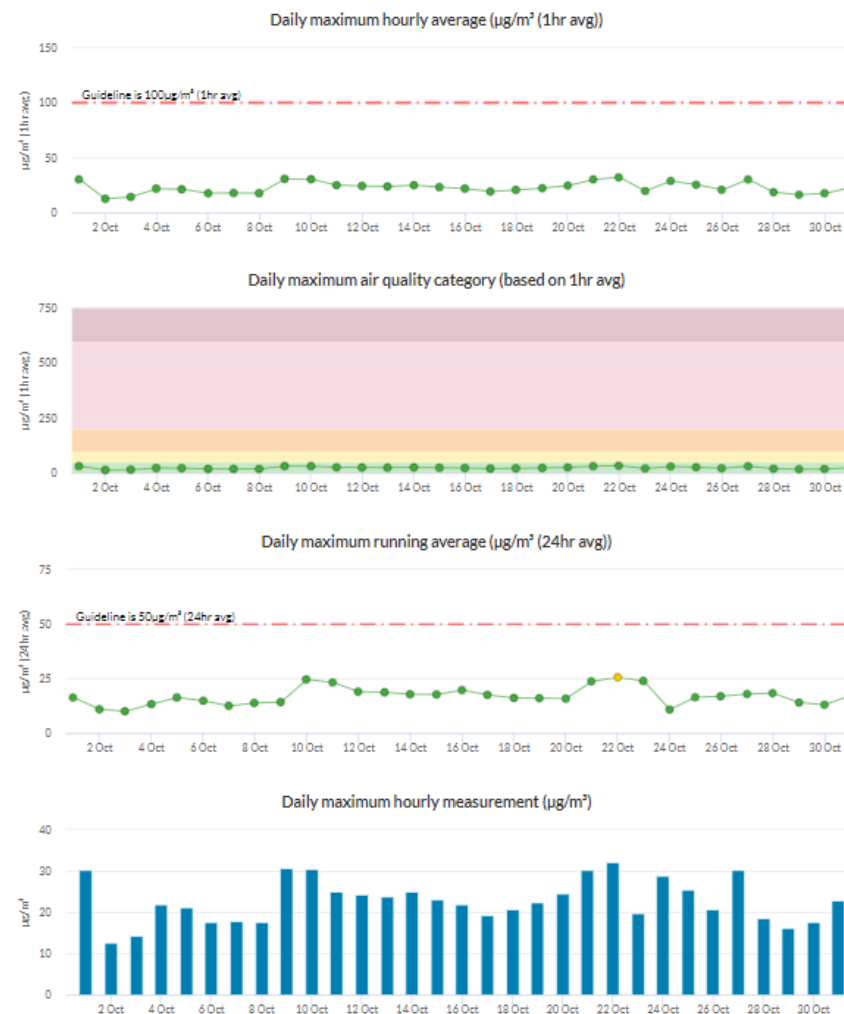


Figure 2: South Brisbane – DES Station - PM10 graph for October 2022 (reproduction from the DES website).

Particle PM₁₀ at Woolloongabba, 1–31 October 2022 [about Particle PM₁₀](#)

[Woolloongabba station overview](#)

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

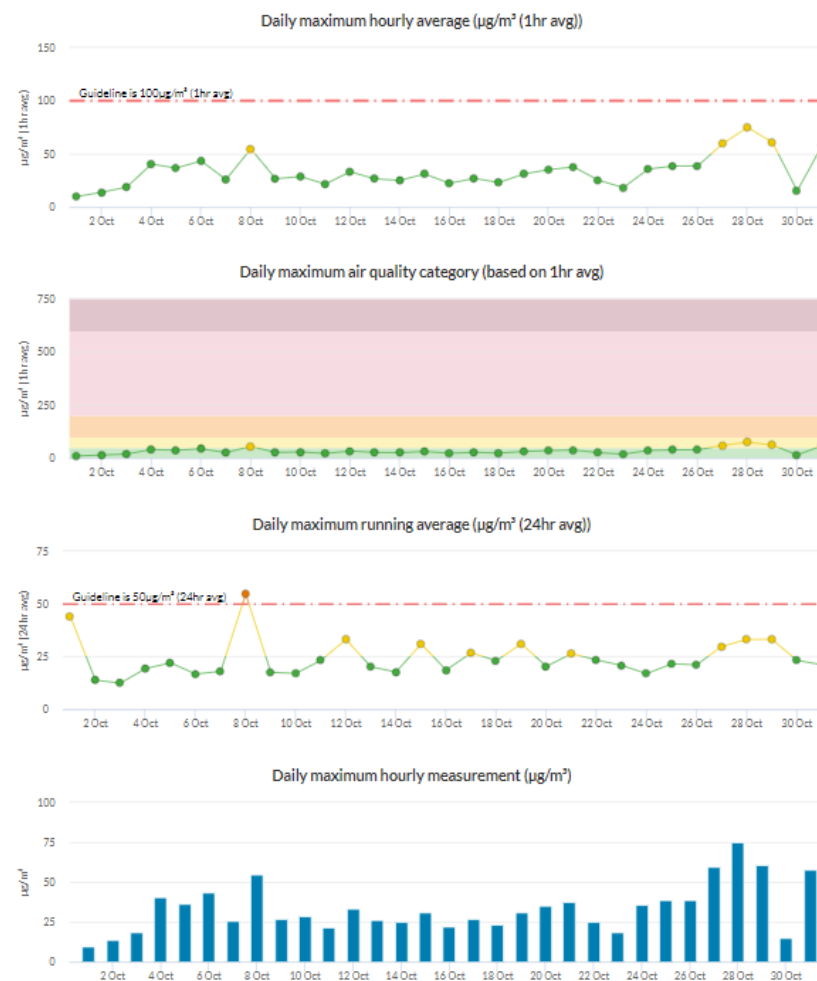


Figure 3: Woolloongabba – DES Station - PM₁₀ graph for October 2022 (reproduction from the DES website).

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]	
Roma Street	12/10/2022	8.05	<5	0.65	110	490	500	1100	60	<10	<1	90.77	Yes
Albert Street	11/10/2022	7.40	6.00	1.18	580	600	1100	2300	80	<10	<1	75.04	Yes
Boggo Road	13/10/2022	7.70	<5	5.00	50	<10	700	1500	20	<10	<1	99.25	Yes
Woolloongabba	10/10/2022	7.75	<5	1.71	20	620	600	1200	10	<10	<1	82.67	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.
- 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 Ponded/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	27/09/2022	8.31	6.10	Yes
2.	Southern Portal	28/09/2022	7.60	32.30	Yes
3.	Northern Portal	28/09/2022	8.29	6.83	Yes
4.	Northern Portal	29/09/2022	8.33	22.60	Yes
5.	Northern Portal	30/09/2022	8.27	1.20	Yes
6.	Northern Portal	1/10/2022	8.25	3.03	Yes
7.	Northern Portal	2/10/2022	8.26	3.20	Yes
8.	Northern Portal	4/10/2022	8.23	12.17	Yes
9.	Northern Portal	5/10/2022	8.19	11.69	Yes
10.	Northern Portal	6/10/2022	8.09	1.56	Yes
11.	Northern Portal	7/10/2022	8.27	14.83	Yes
12.	Northern Portal	8/10/2022	8.20	3.40	Yes
13.	Northern Portal	10/10/2022	8.25	10.23	Yes
14.	Northern Portal	11/10/2022	8.20	1.68	Yes
15.	Northern Portal	12/10/2022	8.19	1.10	Yes

16.	Northern Portal	13/10/2022	8.13	1.63	Yes
17.	Northern Portal	14/10/2022	8.23	4.50	Yes
18.	Northern Portal	15/10/2022	8.25	1.20	Yes
19.	Northern Portal	17/10/2022	8.30	1.63	Yes
20.	Northern Portal	18/10/2022	8.25	5.60	Yes
21.	Northern Portal	19/10/2022	8.29	0.69	Yes
22.	Northern Portal	20/10/2022	8.26	1.80	Yes
23.	Northern Portal	21/10/2022	8.26	2.70	Yes
24.	Northern Portal	22/10/2022	8.35	10.33	Yes
25.	Southern Portal	24/10/2022	7.32	39.80	Yes
26.	Northern Portal	24/10/2022	8.25	10.40	Yes
27.	Southern Portal	25/10/2022	7.51	33.10	Yes
28.	Northern Portal	25/10/2022	8.28	5.20	Yes
29.	Northern Portal	26/10/2022	8.25	7.60	Yes
30.	Northern Portal	27/10/2022	8.28	7.19	Yes
31.	Northern Portal	28/10/2022	8.19	6.88	Yes
32.	Northern Portal	29/10/2022	8.21	2.40	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 October 2022, CBGU JV undertook two (2) rounds of surface water sampling at five (5) site locations (upstream and downstream). A rain event that occurred on 23rd October 2022 triggered post-rainfall sampling at all precincts.

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	11/10/2022	Monthly	18.70	31200	85.93	7.90
Albert Street	Downstream	11/10/2022	Monthly	18.90	31700	87.14	7.94
Roma Street	Upstream	12/10/2022	Monthly	15.24	29700	83.96	7.74
Roma Street	Downstream	12/10/2022	Monthly	14.17	31700	82.83	7.80
Woolloongabba	Upstream	13/10/2022	Monthly	12.10	29700	87.54	7.74
Woolloongabba	Downstream	13/10/2022	Monthly	6.43	23600	99.07	7.77
Boggo Road ^[1]	Downstream	13/10/2022	Monthly	18.46	11500	66.76	7.01
Northern Portal	Upstream	14/10/2022	Monthly	1.40	1010	81.30	8.22
Northern Portal	Downstream	14/10/2022	Monthly	8.94	528	131.19	8.74
Woolloongabba	Upstream	24/10/2022	Post Rainfall	92.30	375	92.54	7.49
Woolloongabba	Downstream	24/10/2022	Post Rainfall	43.00	580	86.09	7.84
Boggo Road ^[1]	Downstream	24/10/2022	Post Rainfall	20.70	646	67.73	6.99

Location	Upstream / Downstream	Date	Purpose of Monitoring	Turbidity (NTU)	EC (μS/cm)	Dissolved oxygen (%)	pH
Northern Portal	Upstream	24/10/2022	Post Rainfall	12.89	522	100.25	7.89
Northern Portal	Downstream	24/10/2022	Post Rainfall	16.98	454	82.91	5.77
Roma Street	Upstream	24/10/2022	Post Rainfall	66.30	337	82.33	7.86
Roma Street	Downstream	24/10/2022	Post Rainfall	64.40	324	86.59	7.74
Albert Street	Upstream	24/10/2022	Post Rainfall	98.70	332	79.89	6.70
Albert Street	Downstream	24/10/2022	Post Rainfall	106.00	333	78.75	6.77

- [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 October 2022, nil 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
Nil					