Clarence River Crossing

Construction / Pre-Operation Compliance Report

Report 7

18th October 2019 – 17th April 2020

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Appendices

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The most current version of this report will be available on the project database for all project personnel. The document will be publicly available at https://www.rms.nsw.gov.au/projects/northern-bridges/grafton-clarence-river-crossing/project-documents-current.html

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Copy Number	Issued to	Date	Name
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4	DP&E endorsed Environmental Representative (ER)		Simon Williams

Revision History

Each new revision to the report will be distributed to all registered copyholders with an instruction that the superseded copy be destroyed or marker as superseded.

The revision number is included at the end of the document number, which is noted on each page. When amendments occur, the document or relevant section will be reissued with the revision number updated accordingly.

The Project Manager or Environmental Manager will approve amendments by initial in the Approval column below.

The following provides a record of amendments made to this document:

Revision	Date	Description	Page	Prepared By	Approved
1	June 2019	Draft for internal review	All	Project team	S. Leigh
2	August 2019	Updated project details	All	Project team	S. Leigh
3	December 2019	Final draft for review	All	Project team	S. Leigh
4	February 2020	Updated to include TfNSW comments	All	Project team	S. Leigh
5	February 2020	Updated to include TfNSW comments	All	Project team	S. Leigh
6	February 2020	Updated to include TfNSW comments	Pg 28, Pg 35-42	Project team	S. Leigh
7	April 2020	Updated to include TfNSW comments	14,	Project team	S. Leigh
8	June 2020	Draft for Review	All	Project team	S. Leigh
9	July 2020	Sections updated by TfNSW - 2.4.1 - 5.1 FH updated to address other TfNSW and ER comments	All	TfNSW M. Bryson	S. Leigh

Abbreviations

CEMP	Construction Environmental Management Plan
CPESC	Certified professional in erosion and sediment control
DPIE	Department of Planning, Industry & Environment
DPIW	Department of Primary Industries - Water
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPA	Environmental Protection Authority
EP&A Act	Environmental Planning & Assessment Act 1979
EPL	Environmental Protection Licence
ER	Environmental Representative
MCoA	Minister's Conditions of Approval
NCR	Non-conformance report
NML	Noise Management Level (RBL+5)
NSW	New South Wales
OOHW	Out of Hours Work
POEO Act	Protection of the Environmental Operations Act 1997
PPR	Preferred Project Report
RBL	Rating Background Level
RMS	Roads and Maritime Services
ROL	Road Occupancy Licence
SEPP	State Environmental Planning policy
SSI	State Significant Infrastructure
TMP	Traffic Management Plan
VENM	Virgin Excavated Natural Material

1. Introduction

The Clarence River Crossing entails a new 525-metre long road bridge crossing of the Clarence River, Grafton. The Bridge will comprise two traffic lanes (one in each direction), road shoulders and a pedestrian/cycle path and be located approximately 70-metres downstream of the existing Grafton Bridge, which will be retained. The Project will also consist of a replacement of a rail viaduct section in Pound Street, approach works and upgrades to sections of the local road network in both Grafton and South Grafton.

The Project is required to alleviate existing traffic congestion and safety issues that arise from increasing traffic demand and inherent design issues with the existing bridge. The Project is consistent with key strategic and transport planning policies including the State Infrastructure Strategy and the Mid North Coast Regional Strategy.

Key features of the project include:

- Construction of a new road bridge over the Clarence River, located approximately 70 meters downstream of the existing Grafton Bridge
- Upgrades to parts of the local road network in both Grafton and South Grafton including:
  - Realigning the existing Pacific Highway to join Iolanthe Street near Through Street
  - Providing a new roundabout at the intersection of Through Street and Iolanthe Street
  - Widening pound street to four lanes and approach to the new bridge
  - Providing traffic signals at the intersection at Pound street and Clarence Street
- Works to the existing rail viaduct section across Pound Street to provide sufficient vertical clearance from the Pound Street upgrade
- Construction of a new shared pathway for cyclists and pedestrians for access to and across the new bridge crossing
- Flood mitigation works including the uplift of sections of the existing levee system upstream of the current Grafton Bridge.

Benefits of the project include:

- Improve traffic efficiency between and within Grafton and South Grafton
- Reducing travel time and delays for local people and businesses in peak periods
- Support regional and local economic development
- New shared pathway to provide safe facilities for pedestrians and cyclists
- Flood mitigation works

The Clarence River Crossing is being delivered through a ‘design and construct’ process. Fulton Hogan was appointed by RMS on 13 September 2016 to deliver the project.

1.1 Background

Roads and Maritime Services (RMS) completed an environmental assessment of the Additional Crossing of the Clarence River at Grafton (the Project EIS) in August 2014. The Project EIS identified a range of environmental, social and planning issues associated with the construction and operation of the Additional Crossing of the Clarence River at Grafton and proposed measures to mitigate or manage those potential impacts.

The Project EIS was publicly exhibited in August 2014 for a period of 30 days. Following public exhibition, submissions from stakeholders were received and addressed by Roads and Maritime in the Submissions Report which was lodged with the Secretary of the Department of Planning and Environment in October 2014.

After consideration of the Project EIS and Submissions Report, the Minister for Planning approved the Additional Crossing of the Clarence River at Grafton Project under Section 115ZB of the Environmental Planning and Assessment Act 1979 (EP&A Act) on 19 December 2014 subject to the Minister's Conditions of Approval (CoA) being met (hereafter referred to as the Project Approval). The project is State Significant Infrastructure (SSI) approved under Part 5.1 of the EP&A Act.

For the purposes of this environmental assessment, the concept design described and assessed in the Project EIS and consequently approved by the Minister, is referred to as the Approved Project.

The CEMP and associated Management Plans were approved by DPE on 15 September, 2016.

1.2 Purpose of this report

The purpose of this compliance tracking report is to assess and provide a summary of the procedures and processes implemented to track compliance in regards to the conditions of approval on the Clarence River Crossing Project.

This is a requirement under the Minister's Condition of Approval (MCoA) A12 which specifies:

A12 – Compliance Tracking

"The proponent shall prepare and implement a Compliance Tracking Program to track compliance with the requirements of this approval. The program shall be submitted to the Secretary for approval prior to the commencement of construction and operate for a minimum of one year following commencement of operation, subject to the Secretary's review of the outcomes of the Independent Environmental Audit Report referred to in condition E5. The operation of the program may be extended if the Secretary determines that there has been unsatisfactory compliance. The program shall include but not necessarily be limited to:

- *(a) provisions for the notification of the Secretary prior to the commencement of works prior to the commencement of construction and prior to the commencement of operation of the SSI (including prior to each stage, where works are being staged);*
- *(b) provisions for periodic review of the compliance status of the SSI against the requirements of this approval;*
- *(c) provisions for periodic reporting of compliance status to the Secretary, including but not limited to:*
  - *i. a Pre-Construction Compliance Report, prior to the commencement of constructions;*
  - *ii. 6-monthly Construction Compliance reports, for the duration of construction; and*
  - *iii. a Pre-Operation Compliance Report prior to the commencement of operation;*
- *(d) a program for independent environmental auditing in accordance with AS/NZS ISO 19011:2014 – Guidelines for Auditing Management Systems;*
- *(e) mechanisms for recording environmental incidents during construction and actions taken in response to those incidents;*
- *(f) provisions for reporting environmental incidents to the Department and relevant public authorities during construction;*

(g) procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management;

(h) provisions for ensuring all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities; and

(i) Provisions for reporting complaints received in accordance with the Construction Complaints Management System required under condition C2 of this approval.

The compliance tracking program was issued to DPE by RMS and approved by DPE on 10 October 2016.

During this reporting period, the Clarence River Crossing is compliant with the conditions of approval (**Appendix A**). A review of compliance for the six-month period from 19 April 2019 to 14 October 2019 is provided in this report.

1.3 Relevant Documentation

Documentation relevant to this report includes:

- Additional crossing of the Clarence River at Grafton Instrument of Approval
- Environmental Impact Statement
- Submissions Report
- Hydrological Mitigation Report
- Construction Environmental Management Plan and sub plans

2. Project Update

Project works are proceeding generally in accordance with the construction program. During the reporting period there was a total of 46 rain days. There were 5 rain days that exceeded the 5 day 85th percentile rainfall depth value of 37.2mm. Total rainfall was 938.2mm for the reporting period. Project works were interrupted at times due to the rainfall events.

The project opened the main bridge structure at design speed in December 2019.

2.1 Levees

The levee works for the project are over 98% complete, with one small levee still required near the South Grafton bowling club.

All areas on the flood side of the levee were managed with environmental controls in place to ensure site materials were contained onsite.

2.2 Demolition

Minor demolition work was carried out during the construction of the new Gwydir Highway roundabout.

2.3 Utilities, drainage and service relocation

Utilities works have continued to progress in both Grafton and South Grafton, the general update to the status of work are as follows:

- 100% of water relocation completed
- 100% of sewer relocation completed
- 100% copper telecommunications cable relocation completed
- 100% of fibre optic cables have been installed
- 100% of the electrical service packages completed
- 100% of stormwater relocation completed

2.4 Earthworks

Earthworks progressed well in the reporting period, completed works include:

- Minor earthworks at Gwydir Highway roundabout.

2.4.1 Contaminated Land

During the reporting period there was one contaminated land issue encountered adjacent to the former United Service Station. The find was likely to be diesel and determined by a contaminated land expert that leaving the material in-situ and completing the road formation was appropriate.

The project has two unexpected contaminated land finds which have required the remediation of the contaminated areas. These unexpected finds are being managed in accordance with CoA B11 and B12 and the CCLMP, an update each find is provided below.

Unexpected Find Asbestos Containing Material in Site Won Topsoil.

Approximately 8,000 m^3 of site won topsoil from the site was stockpiled for proposed re-use. During the early stages of routine mechanical screening (following screening of approximately 50 m3), it was observed that the topsoil stockpiles contained fibrous cement fragments which were suspected to contain asbestos, and the screening was subsequently halted.

Further sampling of the stockpiles was undertaken and it was determined that due to the presence of asbestos containing material throughout the stockpiles it was determined that the re-use of the surface material as surface topsoil was inappropriate. An alternate proposal to contain the topsoil material within the road embankment was developed and implemented under a Remediation Action Plan.

An accredited NSW Site Auditor has been engaged to prepare a Site Audit Report and Site Audit Statement to determine the land use suitability.

The following reports and document have been developed by the projects contaminated land consultants as part of the process:

- Topsoil Stockpile Assessment, Clarence River Crossing Project, South Grafton, NSW, April 2019
- Remedial Action Plan, Asbestos Impacted Soil Containment, Proposed Summerland Way, South Grafton, NSW, November 2019
- Validation Report, Asbestos Impacted Soil Containment, Proposed Summerland Way, South Grafton, NSW, November 2019
- Operational Environmental Management Plan (Draft), Asbestos Impacted Soil Containment, Clarence River Crossing, South Grafton NSW 2460, November 2019

The finalisation of the Operational Environmental Management Plan, Site Audit Report and Site Audit Statement is expected to be completed in the next Construction Compliance Monitoring Reporting Period, a further summary will be provided.

Unexpected Find South Grafton Hydrocarbon, Fill 1

During excavation of a longitudinal stormwater drain on the site in the vicinity of Fill 1, a galvanised steel pipe of approximately 50 mm diameter was impacted and observed to traverse the excavation and wad embedded in a sand backfilled trench. The trench sand appeared to be saturated with diesel which was seeping into the resultant excavation and pooling.

Upon further investigations, two pipe trenches were visible as shallow trenches backfilled with coarse sand, contrasting the surrounding natural dark brown/black clay. The pipe trench was observed to contain phase separated hydrocarbons (PSH), otherwise known as “free-product”. The PSH has the characteristics of diesel.

Based on the supplementary information and further investigations, the site is a former fuel depot which contained one 60,000 L above ground diesel tank. It was estimated that the facility operated from approximately 1989 – 2005. The plans obtained shows the location of the AST close to the Iolanthe Street entrance and two dispensing islands with a central control panel.

These features correlated with the observations on-site. The pipe trenches appeared to run below the surface from the above-ground storage tank to the dispensers, in an east to west orientation. No above ground infrastructure has been observed on-site or remained prior to the land being acquired by TfNSW and construction commencing.

Following further sampling of the site to allow the extent of the contamination to be determined and assessed it was recommended in consultation with the project contaminated land consultant that a portion of the contaminated material that was highly impacted would be removed and stockpiled on-site and the remaining less impacted material would remain in-situ.

The stockpiled material was bio-remediated and validated as Excavated Public Road Material and re-used on-site. The material that was left in-situ has been managed and monitored in accordance with Contamination Management Strategy, Construction Purposes.

An accredited NSW Site Auditor has been engaged to prepare a Site Audit Report and Site Audit Statement to determine the land use suitability.

The following reports and document have been developed by the projects contaminated land consultants as part of the process:

- Unexpected Find Investigation, Lot 18 DP 1210999 Iolanthe Street, South Grafton, NSW, September 2017
- Contamination Management Strategy – Construction Purposes, Unexpected Find Part of Lot 18 DP 1210999 South Grafton, NSW, September 2017
- Data Quality Objectives and Sampling, Analysis and Quality Plan – Groundwater investigation, Part of Lot 18 and Lot 13 DP 1210999 Iolanthe Street, South Grafton NSW, February 2018
- Detailed Site Investigation, Part of Lot 13 and Lot 18 DP 1210999 Iolanthe Street, South Grafton, NSW 2460, April 2020
- Groundwater Monitoring Well Installation and Monitoring Event (July 2018), Part of Lot 18 and Lot 13 DP 1210999 Iolanthe Street South Grafton, NSW, October 2018. This report covers the first two monitoring events undertaken in October 2017.
- Groundwater Monitoring Event (February 2019), Part of Lot 18 and Lot 13 DP 1210999 Iolanthe Street South Grafton, NSW, February 2019. This report covers the third monitoring event undertaken in July 2018.
- Groundwater Monitoring Event (May 2019), Part of Lot 18 and Lot 13 DP 1210999 Iolanthe Street South Grafton, NSW, June 2019. This report covers the fourth monitoring event undertaken in February 2019.
- Groundwater Monitoring Event (August 2019), Part of Lot 18 and Lot 13 DP 1210999 Iolanthe Street South Grafton, NSW, February 2020. This report covers the fifth and sixth monitoring events undertaken in May and August 2019 respectively.

The final monitoring event report (August 2019) provides the conclusions that based on the current data set, there is minimal benefit of maintaining the current quarterly groundwater monitoring frequency at the site. The site is considered to be low risk and suitable for the proposed land use as a road corridor (Lot 18 DP 1210999) and commercial/industrial land use within Lot 13 DP1210999.

An Operational Environmental Plan has not been developed for the site and will be developed and reported on in the next Construction Compliance Report.

The finalisation of the Operational Environmental Management Plan, Site Audit Report and Site Audit Statement is expected to be completed in the next Construction Compliance Monitoring Reporting Period, a further summary will be provided.

2.4.2 Traffic management

Traffic management is required throughout works to ensure that public road users and workers are kept separated and safe.

A summary of traffic management activities during the reporting period is detailed below:

- A number of contraflows at Iolanthe St, Pacific Highway, Gwydir Highway and Pound Street for pavement and finishing works
- A number of traffic switches on the Pacific Highway to construct the Gwydir highway roundabout

2.5 Temporary Works

The project has put in place a number of temporary facilities and sites to support construction, these include:

- Crane pads
- Site access roads
- Temporary boundary fencing and signage
- Construction jetty
- Construction pads at the bridge works areas
- Temporary access through the Grafton levee which includes a designed flood management strategy
- Temporary pavements in preparation for needed traffic switches

All temporary work areas and facilities were remediated at the completion of construction or as they become redundant.

2.6 Casting Yard

Operations completed at the casting yard during the reporting period included:

- Removal of limited excess and no longer needed construction materials and waste as classified waste or through an appropriate Resource Recovery Order / Exemption. The materials were legally disposed of to either a licensed or an appropriate waste facility.

The pre-cast yard is being used to stockpile surplus materials that will be reused before completion pending the issuing of an applicable DA from CVC.

2.7 Bridge Works

The project opened the main bridge structure at design speed in December 2019.

Only minor defect rectification works were completed on the bridge during the reporting period.

2.8 Sustainability

The Clarence River Crossing project continues to implement and encourage a number of initiatives to promote sustainable outcomes across site. Current approaches include:

- Return and earn program for plastic bottles promoted on the project with separate bins, signage and education programs
- Battery recycling facilities installed at the project offices
- The beneficial reuse of surplus material within the casting yard area under an applicable DA

The project has continued to recycle steel from all construction works. Water from onsite sediment basins has been recycled for onsite dust suppression.

3. Environmental Control and Performance

During the reporting period, the project implemented and maintained a high standard of environmental controls and management measures.

The project's environmental performance is reviewed and measured by TfNSW Northern Project Office, the project ER, EPA, Clarence Valley Council, DPI&E, SEEC (Project Soil Conservationist), and the NSW Department of Primary Industries – Fisheries.

3.1 Effectiveness of Environmental Controls

Environmental controls were effective during the reporting period. The project is implementing processes to ensure continuous improvement of the work site.

3.1.1 Soil and water management

The project continues to focus and invest resources into best practice erosion and sediment controls. The result of that investment is rainfall events have been observed to be well managed and not cause a measurable effect on receiving water ways.

Prior to heavy rainfall, site controls are reviewed and reinforced. Additional maintenance and controls are installed prior to shut down periods and long weekends ensuring maximum efficiency of the site during rainfall events.

Final design features including pavements, kerb and gutter, footpaths and landscaping have now been completed in most areas of both Grafton and South Grafton. This stage of construction ensures the soil is locked away and the runoff from the project is clean.

Weekly environmental inspections capture the need for maintenance of controls and ensure all controls are functioning properly and are fit for purpose. Weekly environmental inspections are completed as a minimum and include prior to, during and after rainfall events and prior to new works commencing.

3.1.2 Flora and Fauna

The *'Three-Toed Snake Tooth Skink Management Plan'* does not require monitoring of the TTSTS protection areas during construction. FH continues to go above and beyond the requirements of the management plan by applying extra mitigations such as during construction protection area monitoring. The result of the extra monitoring has confirmed that the TTSTS are surviving well in the protection areas. Both adults and juveniles have observed in the protection areas. FH is now working with the clients to understand how the skink protection areas are to be left following completion. Final landscaping and skink habitat is being established as per the landscape design in areas adjacent to the skink protection areas.

Monitoring requirements of the nest boxes has been completed.

Further detail will be discussed in section 7.4.

3.1.3 Heritage

The project has stopped works 27 times for potential heritage finds. Of those stoppages, none occurred within the reporting period.

4. Environmental Management System Overview

4.1 Environmental Management System Certification

The overall Environmental Management System (EMS) for the Project is described within the Construction Environmental Management Plan (CEMP) and relevant sub plans. The EMS for the Project has been prepared to comply with the requirements of AS/NZS ISO 14001 Environmental Management Systems.

Fulton Hogan was audited by *'Telarc'* the first quarter of 2020 to review compliance with the ISO 14001 requirements, this audit found the FH business to have a compliant ISO management system that fosters continuous improvement.

4.2 Environmental Management Framework

The framework of the environmental management documents has been designed to comply with the requirements of ISO 14001 and to be consistent with the Guidelines for the preparation of an EMP (DP&I 2004).

The CEMP comprises relevant sections from Fulton Hogan's Corporate Management System as well as a number of supporting documents (i.e. issue specific environmental sub plans) providing more detailed environmental management specifications.

4.3 Construction Environmental Management Plan

The CEMP is the key management tool in relation to environmental performance during the design and construction phases. The CEMP outlines Fulton Hogan's approach to minimising and managing environmental risks associated with the construction phase of the project. The CEMP is a dynamic document that is reviewed and amended to incorporate additional requirements as required, including changes to the project team, organisational structure and responsibilities or as improvements to procedures and methodologies develop.

The CEMP has been prepared in accordance with a number of guidelines including:

- Guideline for the Preparation of Environmental Management Plans (DP&I 2004);
- RMS Specification G36 – Environmental Protection (Management Systems);
- ISO 14001:2004 – Environmental Management Systems; and
- ISO 19011:2003 – Guidelines for Quality and/or Environmental Management Systems Auditing;
- NSW Minister for Planning Conditions of Approval (MCoA); and
- EA and Submissions Report

The CEMP was approved by the Department of Planning and Environment in accordance with MCoA B35 on 5 October 2016.

Detailed environmental management sub plans have been prepared on key environmental elements and identified for the Project through the environmental assessment and approval process. They document aspects, impacts, safe-guards and monitoring requirements for each key environmental element, nominate who is responsible for implementing controls and note the frequency/timing of implementation.

Reviews of the project CEMP occur periodically to ensure the CEMP management system is up to date and applicable to the works which are occurring.

Table 4-1 CEMP and Sub-plans consistency with MCoA and ER review dates

Plan Name	Approved for use on the Project	Latest Revision Date	Summary of update
Construction Environmental Management Plan	15/09/16	Feb 2019	No change
Construction Contaminated Land Management Plan	15/09/16	October 2017	No change
Construction Air Quality Management Plan	15/09/16	Feb 2019	No change
Construction Flora and Fauna Management Plan	15/09/16	Feb 2019	No change
Construction Flood Management Plan	15/09/16	Feb 2019	No change
Construction Heritage Management Plan	15/09/16	August 2016	No change
Construction Noise and Vibration Management Plan	15/09/16	October 2017	No Change
Construction Soil and Water Quality Management Plan	15/09/16	November 2017	No Change
Construction Waste and Energy Management Plan	15/09/16	August 2016	No Change
Construction Traffic and Access Management Plan	15/09/16	October 2017	No Change

5. Non-Compliances and environmental incidents

5.1 Compliance Management

A non-compliance is a failure to comply with the requirements of the Infrastructure Approval or any applicable licence, permit or legal requirement. These are identified through routine inspections, formal reviews such as auditing and compliance reporting, and incident management.

The six monthly and periodic certification – November 2019 – April 2020 was completed during the reporting period. There were 0 non-compliances observed on the project.

The project did receive one non-compliance during the reporting period. This was for not submitting a Staging Report in accordance with CoA A7 prior to the opening of the main bridge structure to traffic in December 2019. A staging report has since been submitted to the Department of Planning, Investment and Environment in accordance with the requirements of CoA A7.

Table 5-1 Non-compliance summary

Date	Description	Non-Compliant against	Status
December 2019	*Failure to submit a Staging Report prior to the opening of the main bridge structure to traffic in December 2019*	*CoA A7*	*Closed*

Table 5-2 Non-conformance summary

Date	Description	Resolution	Status
Nil	*Nil*	*Nil*	*Nil*

5.2 Incident Management

During the reporting period there were no events recorded as incidents - see tables 5-3 and 5-4 below.

Table 5-3 Recorded Incidents

RMS Incident Category	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Category 1	0	0	0	0	0	0	0	0
Category 2	2	0	0	0	0	0	0	2
Reportable Event	0	0	0	2	3	0	0	5
Total	2	0	0	2	3	0	0	**7**

**Reportable events may include rainfall events that exceed the storage capacity of the onsite sediment basin or unexpected finds. These events are expected and anticipated during construction*

Table 5-4 Incident Summary

Date	Description	Agency reporting	Classification	Status
30 October 2019	Forklift hose blew and caused oil spill onto deck of new bridge	N/A	Cat 2	Closed
30 October 2019	Hydraulic fluid lost from a truck and trailer.	N/A	Cat 2	Closed

Note for table 5-4: reporting to DPI&E under condition CoA A14 is required when there is 'significant offsite' impacts. The incidents described in the table above relate to issues managed onsite and did not result in significant offsite impacts.

6. Environmental representative reports and correspondence

The CEMP requires a suitably qualified and experienced person, independent of the project design and construction, to act as a principal point of assistance in relation to all questions and complaints regarding environmental performance. Updates to the CEMP, consistency assessments and any other plans required under MCoA are required to be signed off by the environmental representative (ER) as necessary. The ER is also required to monitor the implementation of environmental management plans and monitoring programs.

6.1 Environmental representative approvals

During the reporting period the project ER continues to review, provide feedback and inspect the project. There were less approvals required by the project ER in this six-monthly period due to the stage of construction.

The project Environment Representative continues to attend the project and conduct site inspection, audits and approve minor extra approvals/OOH permits as required. The last ERG was chaired in December 2019.

Extra approvals and reviews conducted by the project Environmental Representative during the period included:

Consistency Reviews

- Addenda Consistency review, project boundary extension, extra area required to safely access the Gwydir and Pacific Highway roundabout in South Grafton – *Gwydir Pacific Highway Roundabout work area access*
- Addenda Consistency review, beneficial reuse of surplus material – *Beneficial reuse of surplus material*
- Consistency Review for the United Temporary Work Area (Gwydir Highway)

Ancillary Facilities Assessments

- Nil

Environmental audits

- April 2020

Incident reviews

- Nil during the reporting period

6.2 Environmental Representative Reports and Outcomes

Site inspections with the environmental representative occur on a fortnightly basis. RMS and the project Environmental Representative alternate on the reporting of those site inspections

Table 6-1 ER inspection report comments

Report number	Date	Issues/Comments	Status
41	20 February 2020	Ensure that maintenance of the landscape planting areas is undertaken as per R179 and that the mulch for skink habitat requirement is implemented where required as these areas have been included as part of the projects Biodiversity Offset Statement.	Closed out
		Ensure site access arrangements are installed and maintained as per G36, G38, CSWQMP, CAQMP, SWTC and the Bluebook and that any material tracked onto public roads is removed.	Closed out
		Where safe to do so, inspect the area and reinstate controls where required. Provide update on final landscaping of the area given the recent flooding and deposition of material.	Closed out
		Ensure adequate ERSED controls are installed for required works being undertaken until site is stabilised and/or final landscape treatments are implemented.	Closed out
		Review the requirement for the areas required to have mulch for skink habitat and implement where required as these areas are part of the projects Biodiversity Offset Statement. Ensure maintenance of planted areas is undertaken as per R179.	Closed out
		Area has been demobilised although stabilisation and revegetation works may need to be reviewed to provide adequate groundcover and stability for the area. Review area to determine if final treatment has reached the stage where controls can be removed and the site is reinstated to the condition as agreed with the landowner.	Closed out
		Ensure any PASS/ASS material that has not been neutralised and or validated is stockpiled and treated in a designated ASSTA and can be segregated from treated and validated material. ASSTA may require separate bays for treated material as depending on when material is excavated and stockpiled.	Closed out
		Ensure that adequate bunding, containment and sumps are installed for ASSTA to capture and contain runoff from the material, current arrangement flows straight into drainage channel for the entire area through to Fill 2 Basin and potentially offsite. Ensure stockpiled material is managed as per the Stockpile Management Protocol, G36, G38, CSWQMP and CWEMP, in particular segregation and sign posting of diffierent types of material. Ensure spill kits are appropriately installed and maintained and all fuels and chemicals are stored and bunded as per G36 and CSWQMP. Ensure weeds are managed as per G36, G40, R178, R179 and CFFMP.	Closed out
		Ensure that landscape plantings are maintained as per R179.	Closed out
		Observed residual water in sediment basin from recent rainfall which ceased on the Monday prior to the inspection, potential to not meet the 5 day requirement for treating and discharging.	Closed out
		Concrete waste material observed in landscaped area, noted on previous inspection and needs to be managed as per G36 and CWEMP. Ensure all waste material is managed as per G36 and CWEMP.	Closed out

Report number	Date	Issues/Comments	Status
		Noted additional controls in place after recent rainfall event. Site may still have some exposed areas next to a live cleanwater drain which may need to be stabilised. Ensure areas that have potential to generate and mobilise sediment in clean waterways are either stabilised or have adequate controls in place. Update PESCP for the area.	Closed out
		Ensure all disturbed areas in the vicinity of the cleanwater drain are controlled or stabilised prior to rain or end of day where required and all fuels and chemicals are stored and appropriately bunded storage.	Closed out
		Ensure that only approved activities are undertaken on the old United Service Station area and that all stockpiling of material is in approved locations. Ensure ERSED controls are installed and maintained as per the current and approved PESCP.	Closed out
		Ensure that maintenance of Landscape Planting areas is undertaken as per R179 and weeds are managed as per G36, G40, R178, R179 and CFFMP.	Closed out
		Ensure all construction waste and rubbish is managed as per G36 and CWEMP	Closed out

7. Environmental Monitoring

Environmental monitoring is used to review potential environmental risks caused by project activity. It allows the project to assess and evaluate receiving environment trends and ensure installed controls are appropriate and effective.

A range of environmental monitoring is required during construction of the project. These measures are listed in the CEMP. The results of the monitoring programs are described in this section.

7.1 Water Quality

Water quality throughout the reporting period continues to be representative of background data and has not demonstrated any impacts resulting from construction. Decreases in water quality are typically observed following a large rainfall in the wider upstream catchment.

Water quality monitoring was ceased at the end of 2019 when the marine works were completed and equipment and barges removed from the river.

Water quality monitoring results are included in **Appendix B**.

7.1.1 Groundwater monitoring

The project has two underground sources of soil contamination that required monitoring during construction. Both locations were affected by hydrocarbon pollution into areas of stiff clay. Monitoring results have shown neither plume is moving and bound in the dense soils.

ARTC plume, identified pre-construction, a decision made not to remediate the land but install a monitoring regime. That ground water monitoring regime undertaken during construction has established that the plume is not moving or moving very slowly. There was no groundwater monitoring undertaken during the reporting period as the requirements of the construction monitoring has been completed. A review of the monitoring results will be undertaken and outlined in the next Construction Compliance Report. A map showing the location of the monitoring bores used during construction in included in Appendix B-2.

Culvert 1 plume, this area was identified during construction when excavating for the design open drain. Investigation during construction established the likely extent of the plume. A decision was made not to remediate the land but to put in place a ground water monitoring regime. Ground water monitoring has confirmed the plume is not moving or moving very slowly. The final monitoring event was completed in August 2019 with no further monitoring completed during the reporting period. The outcomes of the monitoring events and requirements for any further monitoring or management is under review and will be outlined in the next Construction Compliance Report.

7.2 Noise and Vibration Monitoring

Noise monitoring was undertaken during standard construction hours for periodic (monthly) review, background noise assessments and for out of hours work assessments. All recorded noise levels were consistent with the anticipated levels as described in the approved Noise and Vibration Management Plan with no non-compliances. 26 out of hours work events were approved during the reporting period. Refer to table 7-1 below.

Table 7-1 Approved OOHW summary

The results of OOH noise monitoring for compliance tracking report 7 are summarised in the table below. A brief summary of the site conditions includes:

- Background noise is consistently higher than the NML at each location monitored. This is due to several factors, including, early morning starts fall into the night period but the background noise from 0500 is dominated by increasing traffic over the existing bridge, which is higher than the NML. Background noise from birds in Grafton starts from about 0430 and is high, there are large groups of birds active in the established heritage trees that make noise of about 60-65dBA in the urban streets of Grafton.
- Pacific Highway traffic at night changes from cars to trucks, there is less volume of traffic but the noise is consistent from passing trucks
- The train line is active 24 hours a day in Grafton, both from shunting and moving carriages but also from train traffic through Grafton
- South Grafton commercial zone is located in an area away from residents, there is also significant attenuation provided by existing buildings and the rail embankment
- Many of the OOH works in the South Grafton marine zone were low noise works that were not audible over the traffic on the existing bridge, these type of works included early pre-start meetings, access to the work area, tying steel, formwork and engineering works
- Works on Pound Street were included in the EIS and are required to reduce impacts on businesses and the TAFE. It was always anticipated that OOH works along Pound Street would be a requirement during construction
- Concrete works are at times required OOH to ensure that concrete quality requirements

Permit #	Start Date	End Date	Time Reference	Extra Hours	Works Activity	Justification	Notes	Works Location	NCA	Predicted	NML (RBL+5)	Compliant
166	4/11/19	6/11/19	Night	1800-0600	Pound Street AC	Traffic Restrictions	Resident Agreements	Pound Street	NCA 4	76	40	Yes
167	31/10/19	31/10/19	Day OOH	1300-1800	Jacaranda Public Holiday	Inaudible / Safety concerns	Construction noise was not audible at nearest receiver	Bridge	NCA 6	66	54	Yes
168	4/11/19	8/11/19	Day OOH	0530-0700	Expansion Joint Installation	Inaudible / Safety concerns	Construction noise was not audible at nearest receiver	Bridge	NCA 6	38	40	Yes
169	28/10/19	28/10/19	Day OOH	1300-1700	Noise Wall Installation	Inaudible / Safety concerns	Construction noise was not audible at nearest receiver	Fill 3	NCA 6	49	50	Yes
170	16/11/19	17/11/19	Day OOH	1300-1800	Bridge Completion Works	Inaudible / Safety concerns	Construction noise was not audible at nearest receiver	Bridge	NCA 6	44	49	Yes

Permit #	Start Date	End Date	Time Reference	Extra Hours	Works Activity	Justification	Notes	Works Location	NCA	Predicted	NML (RBL+5)	Compliant
171	20/11/19	22/11/19	Night	1700-0700	Expansion Joint Installation	Inaudible / Safety concerns	Construction noise was not audible at nearest receiver	Bridge	NCA 6	40	41	Yes
172	21/11/19	22/11/19	Day OOH	0500-0700	SUP Construction	Traffic Restrictions	Construction noise was not audible at nearest receiver	Bridge	NCA 6	38	40	Yes
173	26/11/19	27/11/19	Night	1800-0600	Villiers Street AC	Traffic Restrictions	Resident Agreements	Villiers Street	NCA 5	62	40	Yes
174	30/11/19	1/12/19	Day OOH	1300-1700	Bridge Finishing Works	Inaudible / Safety concerns	Monitoring not completed due to previous data showing works are Less than 5dBA above the RBL at this location	Bridge	NCA 6	44	49	Yes
175	5/12/19	15/12/19	Night	0500-0700	Line Marking	Traffic Restrictions	Dominant noise source was traffic on Bent Street	Pound Street	NCA 4	57	40	Yes
176	11/12/19	12/12/19	Evening	1800-2100	Line Marking	Traffic Restrictions	Dominant noise source was traffic on Bent Street	Clarence Street	NCA 4	57	47	Yes
177	6/12/19	13/12/19	Evening	1800-2100	Completion Works	Traffic Restrictions	Monitoring not completed due to previous data showing excavators are Less than 5dBA above the RBL at this location	Pound Street	NCA 4	37	44	Yes
178	20/1/20	20/1/20	Night	2200 - 0400	Water main works	Water outage required	Dominant noise source was traffic on the Pacific highway	Iolanthe Street	NCA 8	32	46	Yes
179	20/1/20	30/1/20	Night	0400-0700	Concrete Pavement Works	High air temperatures during the day	Dominant noise source was traffic on the Pacific highway	Gwydir Hwy	NCA 8	46	46	Yes

Permit #	Start Date	End Date	Time Reference	Extra Hours	Works Activity	Justification	Notes	Works Location	NCA	Predicted	NML (RBL+5)	Compliant
181	11/2/20	14/2/20	Night	1800-0700	Drainage Defect Pipe Lining	Traffic Restrictions	Construction noise was not audible at nearest receiver	Summerland Way & Pound Street	NCA 4	49	40	Yes
182	18/2/20	21/2/20	Night	1800-0600	Gwydir Hwy Barrier Movements	Traffic Restrictions	Dominant noise source was traffic on the Pacific highway	Gwydir Highway	NCA 8	38	46	Yes
183	19/2/20	20/2/20	Evening	1800-2100	Fill 1 Pipe Lining	Traffic Restrictions	Construction noise was not audible at nearest receiver	Fill 1	NCA 5	43	40	Yes
184	19/2/20	21/2/20	Night	1800-0600	Drainage Defect Pipe Lining Rail Bridge Drainage Defects	Traffic Restrictions	Resident Agreements	Summerland Way & Pound Street	NCA 5	43	40	Yes
185	2/3/20	2/3/20	Night	1800-0600	Replacement of Pier 1 SE Cyclist Plate	Traffic Restrictions	Dominant noise source was traffic on Bent Street	Pier 1 expansion joint, southbound	NCA 2	35	37	Yes
186	5/3/20	5/3/20	Day OOH	0600-0700	Fill 2 Verge Preparation	Traffic Restrictions	Dominant noise source was traffic on the Pacific highway	Fill 2	NCA 1	35	50	Yes
187	26/3/20	27/3/20	Night	1800-0700	Iolanthe St Median Works	Traffic Restrictions	Dominant noise source was traffic on the Pacific highway	Iolanthe Street	NCA 1	37	37	Yes
188	1/4/20	2/4/20	Night	1800-0600	Rail Bridge Works	Traffic Restrictions	Dominant noise source was traffic on Bent Street	Pound Street	NCA 4	40	40	Yes
189	14/4/20	19/4/20	Night	1800-0700	South Grafton AC	Traffic Restrictions	Monitoring not completed due to previous data showing excavators are Less than 5dBA above the RBL at this location	Iolanthe Street	NCA 1	37	37	Yes

Permit #	Start Date	End Date	Time Reference	Extra Hours	Works Activity	Justification	Notes	Works Location	NCA	Predicted	NML (RBL+5)	Compliant
190	26/4/20	26/4/20	Night	2000-0200	South Grafton Line Marking	Traffic Restrictions	Monitoring not completed due to previous data showing excavators are Less than 5dBA above the RBL at this location	Through Street	NCA 1	37	37	Yes
191	5/5/20	8/5/20	Night	1900-0500	Drainage and Sign defects	Traffic Restrictions	Construction noise was not audible at nearest receiver	Iolanthe Street	NCA 8	46	46	Yes
192	21/5/20	5/6/20	Night	1800-0600	Northern Tie In	Traffic Restrictions	Dominant noise source was traffic on the Pacific highway	Gwydir Highway	NCA 8	46	46	Yes

Out of hours works have been used to ensure the safe, on time and high quality delivery of the 'Additional Crossing of the Clarence River at Grafton'. Out of hours works for the reporting period have been done with the support of the project neighbours with minimal complaints received during out of hours work. At times out of hours works have also been done at the request of the community to reduce impacts on the street scape and to limit impacts on businesses and the TAFE.

7.3 Vibration monitoring

The construction of the new road and bridge sub-structure does from time to time create vibration on the ground which can be felt at nearby sensitive receivers. For residents and businesses near the works this is often a new process which can be disconcerting. To alleviate that potential stress, the project team has been working hard to consult with neighbours about vibration works prior to them occurring.

No vibration monitoring was undertaken throughout the reporting period due to completion of all activities likely to impact receivers. The last monitoring event for the project was undertaken on 25/09/2019.

7.4 Air Monitoring

Ambient air quality monitoring was undertaken in accordance with the Construction Air Quality Management sub-plan. Dust monitoring gauges are placed at 4 locations across site:

- DMG1 – Pound Street, Grafton
- DMG2 – Rail Station, South Grafton
- DMG3 – Bunnings, South Grafton
- DMG4 – Control, South Grafton

Air monitoring results for the reporting period are shown in figure 14 below.

Clarence River Crossing
Dust Deposition Monitoring Results

All results are reported in g/m2/month - Total Insoluble Solids
All results greater than 4g/m2/month are shaded red
NS = Not sampled (include details e.g sample tampered with, funnel broken, etc)
Comments - Sample to be taken over 28 days (+ 2)

				DMG1	DMG2	DMG3	DMG4		
Sample Number	Month	Date Started	Date Finished	Grafton - Pound Street	Sth Grafton - Rail Station	Sth Grafton - Bunnings	Sth Grafton - Control Site	Monthly Average	Comments
40	October 2019	16-Sep-19	16-Oct-19	2.7	2.3	4.7	2.2	3.0	Increased overall results across all guages, exceedance at Bunnings associated with the regional bushfires which caused widespared air qaulity impacts during this period
41	November 2019	16-Oct-19	25-Nov-19	2.8	1.4	2.4	1.0	1.9	All gauges compliant. Monitoring ceased as agreed with NSW EPA
			Average g/m2	1.2	0.8	1.2	0.5		
			Number of exceedences (Total)	1	0	1	0		
			Number of 'No Samples' (Total)	1	0	0	0		
			Compliance	94%	100%	97%	100%		

Figure 14 Air monitoring results for the reporting period

In October 2019, an increase in air borne dust was observed regionally, this occurred because of the ongoing drought and bushfires. In October the deposition results were higher at Bunnings measuring over 4g/m², the three other gauges recorded a month on month increase. The results confirming the onsite observations of increased dust and smoke throughout the month. The high results caused by the bushfire activity and the ongoing drought were reported to EPA, the project ER and RMS.

It was agreed with NSW EPA via email correspondence on 06/01/2020 that if no exceedances were experienced in November 2019, that depositional dust monitoring would be able to cease with only minor works at the Gwydir Highway intersection remaining. As no exceedances were recorded, depositional dust monitoring on the project has now ceased. The results of the dust monitoring for November 2109 have been included in Appendix D.

7.5 Flora and Fauna

At this late stage of the project there has been limited need for further ecological inspections or investigations. The site is cleared and the requirements of the 'Three toed Snake Tooth Skink' Management plan predominantly complete.

The most significant change for the flora and fauna at the project is the increase in landscaped and rehabilitated areas. The approved urban design and landscaping plan provides full details on the rehabilitation of the site. In general the plan sought to provide native plantings and shrubs in visible areas, maintain open spaces and heritage views, native plantings in south Grafton, some exotic species which match the natural character of Grafton north side of the river and provide desirable riparian revegetation outcomes for impacted areas.

Landscape planting was largely completed by January 2020, after January 2020 maintenance of the landscaping areas included weeding, watering and replacing plants that did not survive. When the project reaches practical completion of all defects in mid 2020 the maintenance period for the project will commence.

8. Audits and Inspections

8.1 Compliance Auditing

Regular auditing of the management system is completed during construction. This includes:

- Internal compliance audits undertaken by Fulton Hogan
- External compliance audits undertaken by the ER and RMS appointed auditors

The intent of these audits is to identify opportunities for improvement and any non-compliances during the course of construction so appropriate corrective actions can be implemented in a timely manner.

Table 8-1 below summarises the audits undertaken during the reporting period.

Table 8-1 Audit summary

Audit	Type of Audit	Date	Overview	Outcome
Six monthly / periodic	RMS / TfNSW	April 2020	Pursuant to RMS Contract Specifications	Nil

8.2 Internal and external environmental inspections

The project completes weekly site inspections as a minimum to assess environmental performance and identify areas of improvement and maintenance. This includes prior to, during and after adverse weather events, clearing activities, high risk activities and the opening new works areas.

Each inspection provides an opportunity to improve environmental management across the project including new erosion and sediment control installations, improved site mitigation measures and general site improvements.

During the reporting period ERG meetings were held bi-monthly, this frequency was agreed with the ERG group. The bi-monthly schedule was appropriate due to the size of the site, level of risk and speed of construction. The last ERG was held on 5th December 2019 and it was agreed that due to the stage that the project was at that no further ERG's would be required.

Inspections are completed consistent with the requirements of the project CEMP. Table 8-2 below summarises the inspections completed on the project.

Table 8-2 Inspections summary

Type of Inspection	Attendees	Duration
Weekly	Fulton Hogan Staff; environmental, engineers, foreman, leading hand, labourers, superintendents, management	Weekly
Wet Weather	Fulton Hogan Staff; environmental, engineers, foreman, leading hand, labourers, superintendents, management	As required
ER	Simon Williams (ER - GeoLINK) Fulton Hogan Staff; environmental, engineers, foreman and superintendents	Fortnightly

Type of Inspection	Attendees	Duration
TfNSW Northern Project Office	Jason Sheehan Fulton Hogan Staff; environmental, engineers, foreman and superintendents	Fortnightly
NSW EPA	Stan Viney Peter Higgs Fulton Hogan Staff; environmental, engineers, foreman and superintendents	As required
NSW DPI (Fisheries)	James Sakker Fulton Hogan Staff; environmental, engineers, foreman and superintendents	As required
DPI&E	Michael Young Fulton Hogan Staff; environmental, engineers, foreman and superintendents	As required
Environmental Consultants	SEEC – Project Soil Conservationist Ecosure Ecology – Project Ecologist Sandpiper Ecology – Project Ecologist Cavvanba Fulton Hogan Staff; environmental, engineers, foreman and superintendents	As required
Clarence Valley Council	David Morrison Fulton Hogan Staff; environmental, engineers, foreman and superintendents	As required
ERG	TfNSW ER EPA Clarence Valley Council DPI (Fisheries) DPI&E Fulton Hogan Staff; environmental, construction manager	Bi-Monthly

9. Environmental Complaints

In accordance with MCoA C2 and C3, a complaint management system has been established on the project to address any community enquiries and complaints during the course of construction. There are four mechanisms that have been established to facilitate the lodgement of enquiries and complaints:

Table 9-1: Community contact details

Tool	Details
Project Information line (24-hour toll free)	The Project information line (1800 918 759) is a 24-hour toll free telephone number allowing the community to contact the community relations team at all times when work is being carried out on site, including out of hours work. Outside of working hours, a recorded message with voicemail is available.
Email Address	The email address (graftonbridgecommunity@fultonhogan.com.au) is monitored by the community relations team for incoming emails during business days.
Postal Address	The postal address (PO Box 546, Grafton NSW 2460) is monitored by the project team for incoming letters.
Website	The RMS Additional Crossing of the Clarence River – Grafton Bridge website (www.rms.nsw.gov.au/graftonbridge) includes the contact tools and will be updated regularly to have the latest information about the project.

These tools will be in place until eight weeks after the date of construction completion.

Stakeholder complaints will be responded to and managed in accordance with

- AS-ISO 10002-2006 Complaints Handling (which has superseded AS 4269 Complaints Handling)
- Section 9.2 of the Construction complaints management system – Additional Crossing of the Clarence River at Grafton, Community consultation strategy

9.1 Complaints Management

The project engaged with the community in various forms of communication about one thousand times during the reporting period. Those engagements include: door knocks, letter box drops, phone calls, email, community information nights and visitors to the project community display centre.

The majority of communications and interactions with the community are positive with the local residents interested and supportive of the project. At times the construction activities can cause some impacts which can result in complaints. The project received 15 complaints in the reporting period.

Table 9-1 Environmental complaints summary

Complaint #	Date	Environmental Relevance	Summary	Status
1	5/11/2019	Traffic management	TAFE emailed re traffic movements from general public through TAFE carparks. TAFE were not reported to about using their carpark as a detour	Closed
2	6/11/2019	Out of hours work	Resident complained about noise from out of hours' work being completed outside of the notified hours	Closed
3	8/11/2019	General complaint	Resident called and was not happy with where the noise wall stopped. RMS were to send letter back.	Closed
4	8/11/209	General complaint	Resident concerned with traffic control setup.	Closed
5	11/11/2019	General complaint	Resident upset with the amount of street sweeping occurring within 1.5-hour period. Thought truck drivers were not covering their loads.	Closed
6	26/11/2019	General complaint	Resident called to get someone to clean an oil spill up. FH inspected and could not find an oil spill.	Closed
7	27/11/2019	Out of hours complaint	Resident not happy with noise from approved works.	Closed
8	27/11/2019	General complaint	Business owner not happy with tyre marks on the concrete and screwed asphalt in front of their business.	Closed
9	17/12/2019	Road condition	Resident complained about the deteriorating condition of the road due to construction vehicles	Closed
10	8/01/2020	General complaint	Resident thought that works were causing property damage. There was no damage; it was paint coming off in some areas.	Closed
11	8/01/2020	General complaint	Business owner not happy with noise from braking trucks and cars now the new bridge is open.	Closed

Complaint #	Date	Environmental Relevance	Summary	Status
12	12/02/2020	General complaint	Resident thought drain was blocked under driveway. Drain was checked and was clear	Closed
13	12/02/2020	General complaint	Resident complained about manhole banging and keeping her up at night.	Closed
14	10/03/2020	Signage	Business owner asked for pedestrian access signage to be removed	Closed
15	8/04/2020	Parking	Business owner concerned about construction vehicles parking in business complex	Closed

9.2 Community Engagement Initiatives

Throughout the report period, ongoing consultation with directly impacted residents about upcoming work was carried out. A member of the community relations team was available at all times during standard working hours at the community display centre, 76-79 Pound Street, Grafton and 13 Pound Street, Grafton after the main construction office was relocated.

Community consultation for work has included but not been limited to:

- OOH works in Grafton and South Grafton
- Marine navigation
- Special events
- Business Liaison Groups with affected businesses in Grafton and South Grafton, providing updates on traffic staging and program
- Segment production
- Marine works and progress
- Traffic switches, staging and changes to access
- Information provided to interested residents at the project community display centre

The project is maintaining and building on the positive and constructive relationship with the community and stakeholders to effectively address and manage issues as they emerge during construction. All contact with the community and stakeholders is recorded in the community contact database – Consultation Manager.

10. Pre-Operation

The main bridge structure and the approaches leading to the bridge opened to traffic in December 2019, noting that there are sections of the project around the Gwydir roundabout, Pacific Highway and tie-ins to the local road network and finishing works that were undertaken after the bridge was open to traffic. It should also be noted that the bridge maybe subject to reduced traffic speed and periods of traffic control through to the completion of construction for ongoing works.

As the project opened the main bridge structure at design speed, MCoA E3, Operational Noise Compliance Report will be triggered which requires the Operational Noise Report to be submitted within 12 months of the opening date in December 2019 unless otherwise agreed by the Secretary. As noted above the project will also have some sections still under construction and it is anticipated that the project is likely to be fully operational by mid-2020.

A staging report which outlined the works that were completed as part of Stage1 and open to traffic in December 2019 and works to be completed as part of Stage 2 was submitted to DPI&E in April 2020. The staging report outlined which CoA were either closed, applicable to Stage 1 only, applicable to Stage 2 only or applicable across both stages.

APPENDIX A

Project Approval Compliance Table

APPENDIX B

Water Quality Monitoring Results

B-1: Surface water quality monitoring completed during the reporting period

Date	Weather conditions	Sampling Location	Location ID	Turbidity	pH	Conductivity	Temperature	Oil and Grease	Algae	Debris and rubbish	Flow rate	Colour
19/11/2019	Dry	Sailing Club	US1	5	7.50	592	23.1	No	No	No	Slow-tidal	clear
19/11/2019	Dry	Boat Ramp South	US2	5	7.54	610	23.2	No	No	No	Slow-tidal	Clear
19/11/2019	Dry	Alipou Creek	US3	8	7.9	856	20.1	No	No	No	Slow-tidal	Moderate tannin
19/11/2019	Dry	Pound Street	DS1	6	7.8	622	22.8	No	No	No	Slow-tidal	Clear
19/11/2019	Dry	DS River/Butters Lane	DS2	5	7.6	751	22.9	No	No	No	Slow-tidal	Clear
16/12/2019	Dry	Sailing Club	US1	4	6.8	600	22.9	No	No	No	Slow-tidal	Clear
16/12/2019	Dry	Boat Ramp South	US2	5	7.1	685	22	No	No	No	Slow-tidal	Clear
16/12/2019	Dry	Alipou Creek	US3	9	7.2	900	19.8	No	No	No	Slow-tidal	Brown
16/12/2019	Dry	Pound Street	DS1	5	6.9	655	22.9	No	No	No	Slow-tidal	Clear
16/12/2019	Dry	DS River/Butters Lane	DS2	3	7.2	705	23.1	No	No	No	Slow-tidal	Brown

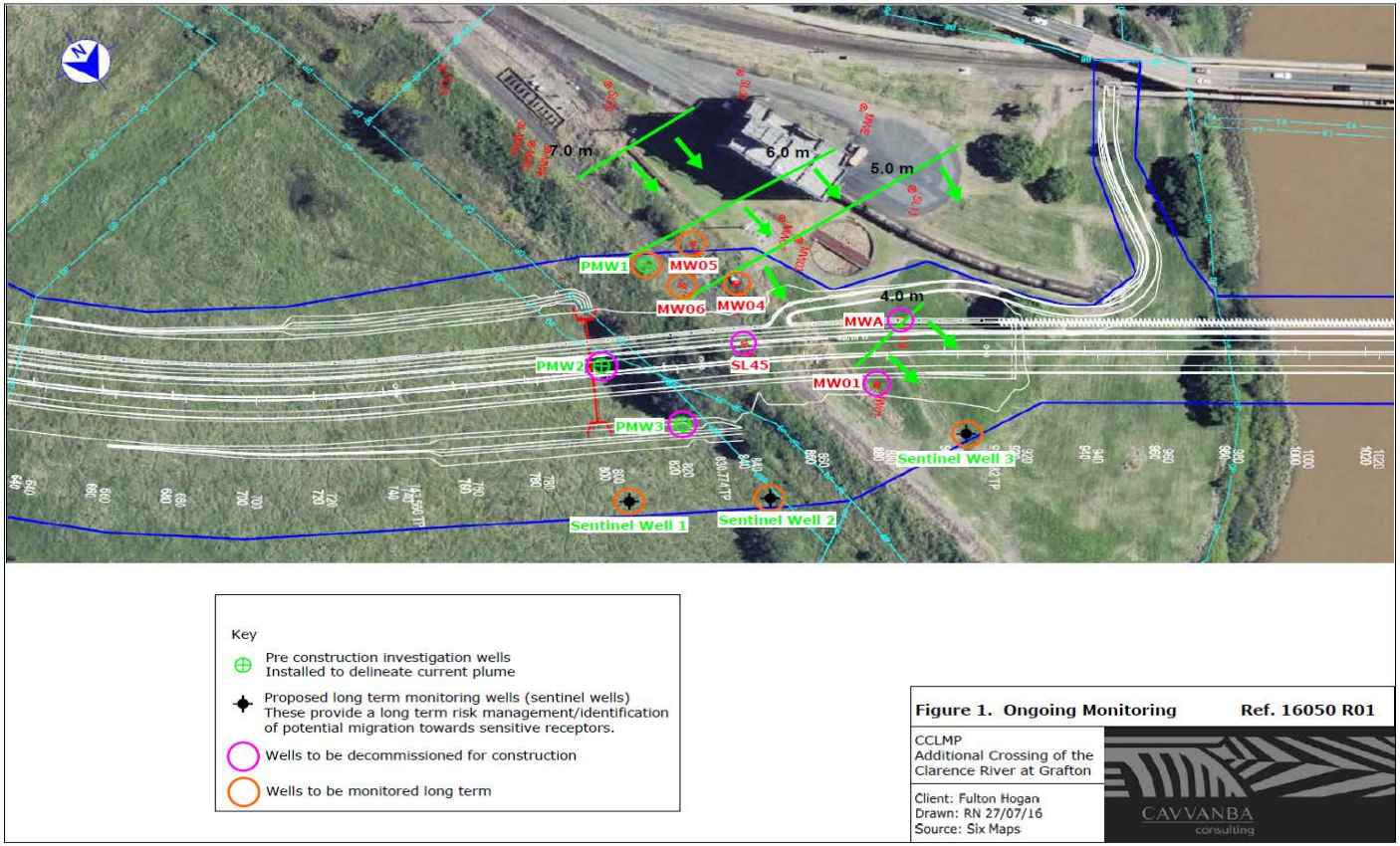
No surface water monitoring was recorded after the marine works were completed in 2019. All barges, boats and equipment was demobilised from the Clarence River in 2019, there was no longer a need to monitor river water quality.

Results recorded during construction were indicative of background conditions and showed no impacts at any time from the construction activities.

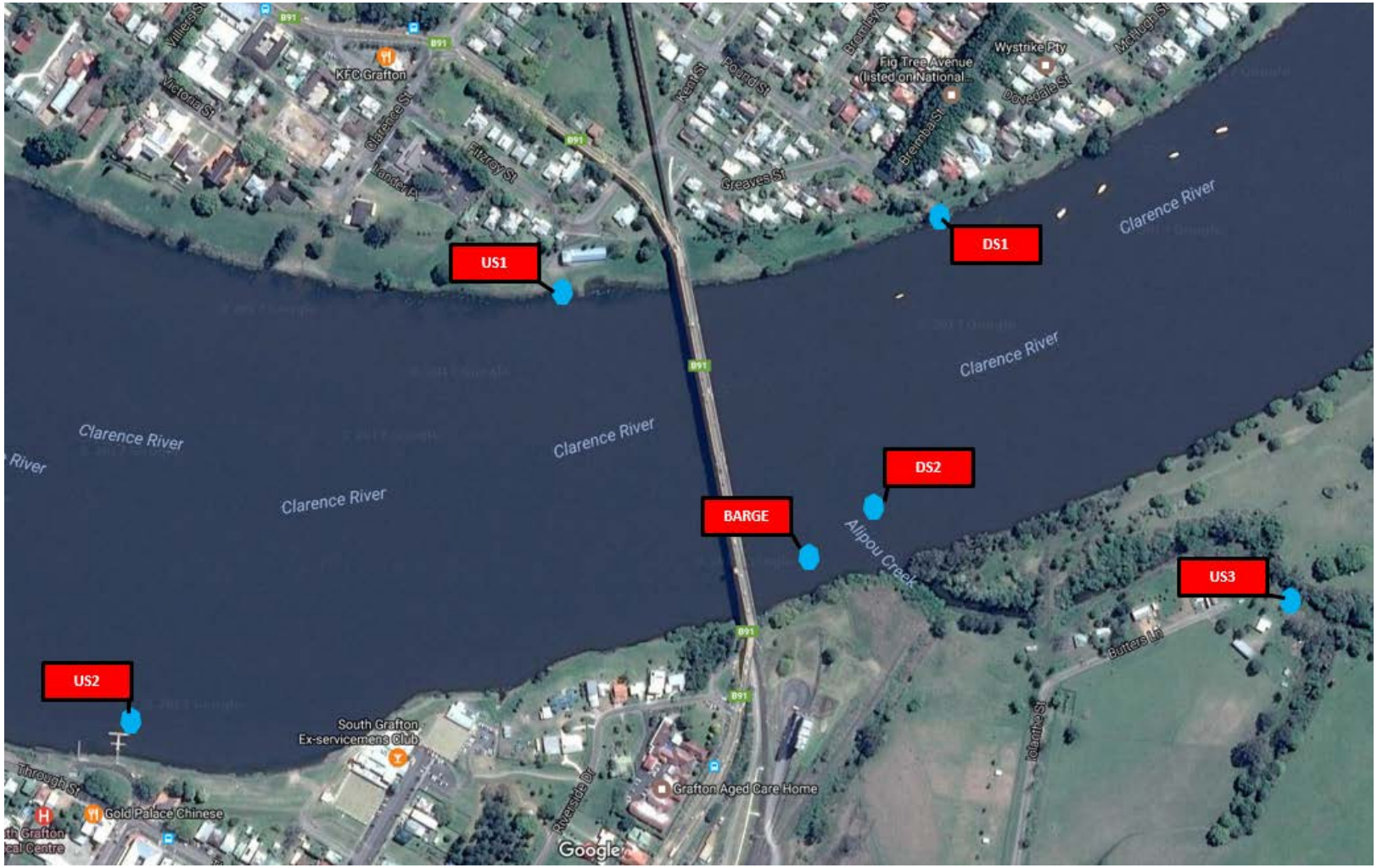
B-2: Ground water quality monitoring completed during the reporting period.

No groundwater monitoring completed during the reporting period.

A map showing the location of the monitoring bores and sentinel that were monitored during construction has been included on the following page.



B-3: Water quality monitoring locations, including extra locations sampled for construction



APPENDIX C

Noise and Vibration Monitoring Results

C-1: Periodic monthly Nosie monitoring results

Monitoring Type	Date	Day	Time (24 hr)	Works Activity	Works Location	Monitoring Location	NML (RBL+5)	LAeq15	LAmax	LAmin	Compliant	Additional Comments
Out of hours	10/10/19	Thursday	19:15	KBP Application	Pier 3-4	8 Greaves St	44	42.8	62	38.4	Yes	See Minuted detail. Compliant
Out of hours	26/10/2019	Saturday	14:00	Day works, completion of the noise wall at the northern end behind 13, 15 and 17 Pound Street.	Fill 3	Works occurred behind 13, 15 and 17 Pound Street which are project occupied houses. These houses provide attenuation	50	60.2	74	52.8	Yes	There is a measured exceedance to the modelled noise which is not related to construction. This noise was generated by background noise, such as home tools, traffic and birds
Out of hours	28/10/2019	Monday	6:30	Low noise expansion joint works, hand tools and light vehicles only	Pier 8	Greaves street, audibility check behind installed design noise wall	40					Audibility check on Greaves street, works were confirmed as inaudible
Out of hours	31/10/2019	Thursday	16:00	Bridge defects and repairs	Clarence River Bridge	Riverside Drive	54					Spot audibility check only. Works occurred during the day, paving works on the bridge. Works were considered audible on the street, no tonal noise. No noise complaints
Out of hours	4/11/2019	Monday	20:00	Pound Street Asphalting works	Pound Street Grafton	14 Clarence St	40	66.2	75.2	58.3	Yes	Measured noise was within the range of the predicted noise output and approved by the community
Out of hours	16/11/2019	Saturday	15:00	Installation of barriers & plates over the expansion joins	Clarence River Bridge	Greaves Street	49	68.4	78	60	Yes	Consistently throughout construction this location has had measured noise above the background levels of the management plan. Construction inaudible
Periodic (monthly)	16/11/2019			Periodic monitoring		16 Clarence St	58	48	64	44		Birds observed to be dominant noise source

Monitoring Type	Date	Day	Time (24 hr)	Works Activity	Works Location	Monitoring Location	NML (RBL+5)	LAeq15	LAmax	LAmin	Compliant	Additional Comments
Periodic (monthly)	16/11/2019			Periodic monitoring		10 Pound St	54	65	80	47		Background traffic was the predominant noise source
Periodic (monthly)	16/11/2019			Periodic monitoring		5 Kent Street	58	60	78	44		Cars passing, home tools, construction vehicle passing
Periodic (monthly)	16/11/2019			Periodic monitoring		3 Riverside Drive	69	54	75	46		Birds, boat on the river and nearby domestic building works
Periodic (monthly)	16/11/2019			Periodic monitoring		Butters Lane Residence	49	57	74	49		No construction noise audible
Out of hours	20/11/2019	Wednesday	600	Early morning access for concrete trucks to pour the SUP path near the Clarence River. Required OOH due to concrete temperature management	Southern abutment of the new Clarence River Bridge	Riverside Drive	40	59	74	52	Yes	Early morning traffic on Summerland way and the new bridge was the noise source
Out of hours	23/11/2019	Saturday	16:00	Expansion join works at pier 1	Clarence River Bridge	Butters Lane Residence	44	45	76	43	Yes	Background noise from the Pacific Highway, bird noise and farming tractor. Construction activities inaudible
Out of hours	26/11/2019	Tuesday	2200	Villiers Street roundabout asphalting and milling works	Villiers Street	24 Villiers Street	40	55	77	43	Yes	The measured noise was within the range of the noise model and as anticipated for the works
Out of hours	30/11/2019	Saturday	1700	Expansion joint works, hand tools and low noise works only	Clarence River Bridge	Greaves St	44				Yes	Activity consistent with the previous weekend works, low noise inaudible works. Spot checks confirmed construction noise was inaudible

Monitoring Type	Date	Day	Time (24 hr)	Works Activity	Works Location	Monitoring Location	NML (RBL+5)	LAeq15	LAmax	LAmin	Compliant	Additional Comments
Out of hours	5/12/2019	Thursday	600	Line marking activity	Pound Street	14 Clarence Street	40	57.3	67.1	54.9	Yes	Works were completed with community agreement and due to inclusion in the EIS documents. The measured noise was above background but consistent with the modelled noise at this location so considered compliant
Out of hours	7/12/2019	Saturday	600	Completion and defect works. Low noise completion works at abutment B behind the installed noise screen and in south Grafton away from residents	Clarence River Bridge	Greaves Street and South Grafton, audibility check only	40				Yes	Low noise day work, works behind the design noise wall and in South Grafton area away from residents. No construction works were considered audible
Periodic (monthly)	7/12/2019			Periodic monitoring		16 Clarence St	58	48	66	42		Minor construction noise, background domestic noise the dominant noise source
Periodic (monthly)	7/12/2019			Periodic monitoring		10 Pound St	54	64	78	50		Passing traffic
Periodic (monthly)	7/12/2019			Periodic monitoring		5 Kent Street	58	56	83	48		Dogs barking
Periodic (monthly)	7/12/2019			Periodic monitoring		3 Riverside Drive	69	58	76	50		Traffic predominant noise source
Periodic (monthly)	7/12/2019			Periodic monitoring		Butters Lane Residence	49	48	71	41		Birds observed to be dominant noise source
Out of hours	11/12/2019	Wednesday	1900	Line marking activity	Pound Street	Pound Street	44	53	70	44	Yes	Works were completed with community agreement and due to inclusion in the EIS documents. The measured noise was above background but consistent with the modelled noise at this

Monitoring Type	Date	Day	Time (24 hr)	Works Activity	Works Location	Monitoring Location	NML (RBL+5)	LAeq15	LAmax	LAmin	Compliant	Additional Comments
												location so considered compliant
Periodic (monthly)	4/01/2020			Periodic monitoring		16 Clarence St	58	60	79	52		Traffic and people walking by
Periodic (monthly)	4/01/2020			Periodic monitoring		10 Pound St	54	59	85	38		Domestic noise the main noise source
Periodic (monthly)	4/01/2020			Periodic monitoring		5 Kent Street	58	63	75	49		Construction inaudible
Periodic (monthly)	4/01/2020			Periodic monitoring		3 Riverside Drive	69	55	67	49		Construction inaudible
Periodic (monthly)	4/01/2020			Periodic monitoring		Butters Lane Residence	49	58	73	48		Construction inaudible
Out of hours	20/01/2020	Monday	2200	Fire hydrant works in a commercial area, required out of hours to prevent interruption of water service on surrounding businesses	Iolanthe Street	Monitoring not required						Due to location and the low risk nature of the works no OOH monitoring was undertaken
Out of hours	23/1/20	Thursday				Monitoring not required						No monitoring completed. More than 200m to the nearest receiver and background traffic of the Pacific highway is the predominant noise. Previously completed noise monitoring for other events confirmed construction works are inaudible.
Out of hours	3/02/2020	Monday	500	Works on the Gwydir Highway area	Gwydir and Pacific Highway	Ryan Street, South Grafton	37	64	73	50		Background noise from the Pacific Highway

Monitoring Type	Date	Day	Time (24 hr)	Works Activity	Works Location	Monitoring Location	NML (RBL+5)	LAeq15	LAmax	LAmin	Compliant	Additional Comments
Out of hours	19/02/2020	Wednesday	1900	Bridge repairs at the overhead rail bridge.	Pound Street Rail bridge	Pound Street residences	40	46	68	42		Community agreed to the works and measured noise was within the range of the modelled noise, background noise was also observed to be higher than the NML
Out of hours	2/03/2020	Monday	2100	Pier one cyclist plate changeover	Pier one SUP	Greaves Street	49	47	63	37		Background traffic was the predominant noise source
Out of hours	26/03/2020	Thursday	2200	Kerb installation in the median of Iolanthe Street South Grafton commercial area	Iolanthe Street, South Grafton	Monitoring not required						In a commercial zone with no nearby sensitive receivers

C-2: Vibration monitoring completed during the reporting period

Clarence River Crossing - Vibration Monitoring Register

Date	Start Time	End Time	Construction Activity	Plant	Nearest Receiver	Monitoring location	Structure	Building Structure Requirement (mm/s)	Human Response Criteria (mm/s)	Recorded Peak (mm/s)	Screening level Exceeded (7.5 mm/s)	No. of Exceedances	Action	Compliant
3/7/19	930	1630	Segment lifts on northern crane pad	750 t crane	10 Greaves St	10 Greaves St	Residential	20	200	0.50	No	0	Nil	Yes
9/7/19	11:00	12:00	Segment lifts on northern crane pad	750 t crane	10 Greaves St	8 Greaves	Residential	20	200	0.50	No	0	Nil	Yes
23/7/19	6:00	16:00	Segment lifts on northern crane pad	751 t crane	11 Greaves St	8 Greaves	Residential	20	200	1.48	No	0	Nil	Yes
24/7/19	6:00	12:30	Segment lifts on northern crane pad	750 t crane	10 Greaves St	8 Greaves	Residential	20	200	0.75	No	0	Nil	Yes
25/7/19	6:00	14:00	Segment lifts on northern crane pad	751 t crane	10 Greaves St	8 Greaves	Residential	20	200	0.72	No	0	Nil	Yes
3/7/19	930	1630	Segment lifts on northern crane pad	750 t crane	10 Greaves St	10 Greaves St	Residential	20	200	0.50	No	0	Nil	Yes
5/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.53	No	0	Nil	Yes
6/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.93	No	0	Nil	Yes

Date	Start Time	End Time	Construction Activity	Plant	Nearest Receiver	Monitoring location	Structure	Building Structure Requirement (mm/s)	Human Response Criteria (mm/s)	Recorded Peak (mm/s)	Screening level Exceeded (7.5 mm/s)	No. of Exceedances	Action	Compliant
7/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.37	No	0	Nil	Yes
8/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	1.43	No	0	Nil	Yes
9/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	1.04	No	0	Nil	Yes
10/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.24	No	0	Nil	Yes
11/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.32	No	0	Nil	Yes
12/8/19	18:00	6:00	Villiers St demolition and asphalting	Asphalting Plant, 120 T Excavator	36 Villiers St	36 Villiers St	Heritage	20	200	2.32	No	0	Nil	Yes

Date	Start Time	End Time	Construction Activity	Plant	Nearest Receiver	Monitoring location	Structure	Building Structure Requirement (mm/s)	Human Response Criteria (mm/s)	Recorded Peak (mm/s)	Screening level Exceeded (7.5 mm/s)	No. of Exceedances	Action	Compliant
14/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	1.20	No	0	Nil	Yes
15/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.43	No	0	Nil	Yes
16/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.37	No	0	Nil	Yes
17/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	1.63	No	0	Nil	Yes
18/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.62	No	0	Nil	Yes
19/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.47	No	0	Nil	Yes

Date	Start Time	End Time	Construction Activity	Plant	Nearest Receiver	Monitoring location	Structure	Building Structure Requirement (mm/s)	Human Response Criteria (mm/s)	Recorded Peak (mm/s)	Screening level Exceeded (7.5 mm/s)	No. of Exceedances	Action	Compliant
20/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.88	No	0	Nil	Yes
21/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.68	No	0	Nil	Yes
22/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	1.03	No	0	Nil	Yes
23/8/19	6:00	18:00	Crane operations, segment erection works, truck movement	750t Crane, truck and dog, 120 T excavator	8 Greaves Street	8 Greaves Street	Residential	20	200	0.88	No	0	Nil	Yes
11/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	1.08	No	1	Nil	Yes
12/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	1.42	No	2	Nil	Yes

Date	Start Time	End Time	Construction Activity	Plant	Nearest Receiver	Monitoring location	Structure	Building Structure Requirement (mm/s)	Human Response Criteria (mm/s)	Recorded Peak (mm/s)	Screening level Exceeded (7.5 mm/s)	No. of Exceedances	Action	Compliant
13/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	0.54	No	3	Nil	Yes
14/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	0.31	No	4	Nil	Yes
15/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	0.35	No	5	Nil	Yes
16/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	1.99	No	6	Nil	Yes
17/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	1.39	No	7	Nil	Yes
18/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	0.34	No	8	Nil	Yes

Date	Start Time	End Time	Construction Activity	Plant	Nearest Receiver	Monitoring location	Structure	Building Structure Requirement (mm/s)	Human Response Criteria (mm/s)	Recorded Peak (mm/s)	Screening level Exceeded (7.5 mm/s)	No. of Exceedances	Action	Compliant
19/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	0.66	No	9	Nil	Yes
20/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	1.19	No	10	Nil	Yes
21/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	1.19	No	11	Nil	Yes
23/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	0.80	No	12	Nil	Yes/
24/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	1.37	No	13	Nil	Yes
25/9/19	6:00	18:00	Plant movement, fill 3 compaction, barrier and parapet installation	Truck and Dog , pozi track, 13T excavator, smooth drum roller	8 Greaves Street	8 Greaves Street	Residential	20	200	1.26	No	14	Nil	Yes

APPENDIX D

Air Quality Monitoring Results

October 2019

Lab ID	Sample Description	Date On	Date Off Units Method Code Limit of Report	Number of Days days AS 3580.10.1	Insoluble Solids g/m2/mth AS 3580.10.1 0.1	Ash g/m2/mth AS 3580.10.1 0.1	Combustible Matter g/m2/mth AS 3580.10.1 0.1	Calculated Rain mm AS 3580.10.1 1
8249/1	Control	16/09/2019	16/10/2019	30	2.2	1.7	0.5	50
8249/2	DMG 2 Rail	16/09/2019	16/10/2019	30	2.3	2.0	0.3	54
8249/3	DMG 3 Bunnings	16/09/2019	16/10/2019	30	**4.6**	3.8	0.8	56
8249/4	Pound Street	16/09/2019	16/10/2019	30	2.7	2.4	0.3	45

Results have been approved and report finalised on 28/10/2019

NATA Accredited Laboratory – 20375

Accredited for compliance with ISO/IEC 17025 – Testing. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

November 2019

Lab ID	Sample Description	Date On	Date Off Units Method Code Limit of Report	Number of Days days AS 3580.10.1	Insoluble Solids g/m2/mth AS 3580.10.1 0.1	Ash g/m2/mth AS 3580.10.1 0.1	Combustible Matter g/m2/mth AS 3580.10.1 0.1	Calculated Rain mm AS 3580.10.1 1
8385/1	Control	16/10/2019	25/11/2019	40	1.0	0.7	0.3	11
8385/2	DMG 2 Rail	16/10/2019	25/11/2019	40	1.4	1.1	0.3	9
8385/3	DMG 3 Bunnings	16/10/2019	25/11/2019	40	2.4	2.0	0.4	11
8385/4	Pound Street	16/10/2019	25/11/2019	40	2.8	2.1	0.7	11

Results have been approved and report finalised on 3/12/2019

NATA Accredited Laboratory – 20375

Accredited for compliance with ISO/IEC 17025 – Testing. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.