



# Clarence River Crossing

## Construction Compliance Report

*Report 3*

*18 October 2017 - 17 April 2018*



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## Appendices

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- Appendix B: Water Quality Monitoring Results
- Appendix C: Noise and Vibration Monitoring Results

## Distribution of controlled copies

The most current version of this report will be available on the Fulton Hogan database for all project personnel. The document will be publicly available at <http://www.rms.nsw.gov.au/projects/northern-nsw/grafon-clarence-river-crossing/>.

Distribution of this report will be made through the Clarence River Crossing project document control system. The environmental management team will maintain, review and update this document on a six monthly basis.

Copy Number	Issued to	Date	Name
1	Project Director	May 2018	Mark Stevenson
2	Environmental Manager	May 2018	Sam Leigh
3	NSW Environmental Manager	May 2018	Irina Kliger
4	RMS Environmental Representative	May 2018	Greg Nash
5	DP&E endorsed Environmental Representative (ER)	May 2018	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Each new revision to the report will be distributed to all registered copyholders with an instruction that the superseded copy be destroyed or marked as superseded.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
0	19 April 2018	Draft for internal review	All	R. Hannah	S. Leigh
1	23 April 2018	RMS and ER review	All	R. Hannah	S. Leigh
2	17 May 2018	RMS comments	All	S. Leigh	S. Leigh
3	June 2018	Final revision for submission	All	S. Leigh	S. Leigh
4	October 2019	Updated to include DPIE comments	All	M. Bryson	S. Leigh

## Abbreviations

CEMP	Construction Environmental Management Plan
CPESC	Certified professional in erosion and sediment control
DP&E	Department of Planning & 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

## 1.0 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 to the conditions of approval (**Appendix A**). A review of compliance for the six month period from 18 October 2017 to 17 April 2018 is provided in this report.

### 1.3 Relevant Documentation

Documentation relevant to this report include:

- 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

## 2.0 Project Update

Project works are proceeding generally in accordance with the construction program. During the reporting period there was a total of 96 rain days, 1 of which exceeded the 5 day 85<sup>th</sup> percentile rainfall depth value of 37.2mm. Total rainfall was 559mm for the reporting period. The long term average for the same period in Grafton is 645mm.

The project continued to operate at full capacity as weather and site conditions allowed during the reporting period.

### 2.1 Levees

Levee works for the project are 99% complete, one small levee is needed near the South Grafton bowling club. Maintenance and minor defects works were ongoing throughout the reporting period and the last lots closed in March 2018.

There is temporary access through the Grafton levee within the project alignment to support construction of the new bridge and drainage works.

### 2.2 Demolition

No demolition works occurred during the reporting period. Final demolition works to be completed on the project will be the removal of fencing, redundant power poles, road signage and the Pound street rail bridge.

### 2.3 Utilities and service relocation

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

- 82% of water relocation completed - 1800 meters out of 2200 meters
- 80% of sewer relocation completed - 360 meters out of 450 meters
- 100% copper cable relocation completed - 5000 pairs
- 94% of fibre optic cables have been installed – 15 out of 16 lines
- 50% of the electrical service packages completed - 3 out of 6
- 19% of stormwater relocation completed - 435 meters out of 2400 meters

#### 2.3.1 Drainage

Final drainage works have progressed in South Grafton and begun in Grafton, the focus of these works has been:

- Pound Street drainage works are continuing and are about 40% complete
- Concrete drains progressing in fill 2
- Completion and backfilling of the first half of culvert 1 on Iolanthe Street
- Completion and backfilling of culvert 4, 5 and 8 in Fill 2
- Installation and head wall construction of the first stage of culvert 7 at Pound Street
- Installation of subsoils at fill 2, shallow embankment and Clarence Street

### 2.3.2 Pump Station

The prefabricated base of the pump station was successfully installed in January 2018 with construction progressing to near completion at the end of the reporting period. The remaining steps to reach final completion include:

- Concrete works for the roof of the pump station
- Installation of internal pump systems
- Pour generator slab and install generator, this is installed on the road embankment
- Inlet and outlet piping systems are under construction

The pump station is expected to be completed within the next reporting period.



*Figure 1 Pump station being lifted into place at Kent Street*

### 2.4 Earthworks

Earthworks have been progressing well in South Grafton with all of the active work sites reaching pavement level reducing the risk footprint for dirty water leaving site. The first half of the roundabout at Iolanthe and Through Street has been completed ready for the upcoming stage 1 traffic switch. Construction of the roundabout consisted of 31 unique concrete pours taking place over a period of 15 days. Once traffic has been successfully diverted onto the new pavement, construction to complete the second half of the roundabout will start. Site waters continue to be managed through maintained erosion and sediment controls. Water continues to be directed away from the Clarence River into sediment basins and then through well vegetated swale drains.



Figure 2 Seal and subsoils place on fill 2 (left) and construction of the new roundabout at Iolanthe and Through Street (right)

Upgrades to the local roads have begun in Grafton with the excavation and widening of Pound Street and Clarence Street underway. This has largely involved the relocation and replacement of local services and removal of unsuitable material. Abutment B has reached pre-load and is expected to reach settlement within the next reporting period.



Figure 3 Fill placed at abutment B to pre-load level (left) and upgrades to local roads, Clarence Street, in Grafton being undertaken (right)

### 2.4.1 Contaminated Land

During the reporting period no new contaminated soil sources were encountered. The management of known and existing contaminated sources was ongoing, updates on the known contamination includes:

- Asbestos water mains were removed from under the pavement in Pound Street
- Asbestos conduits for the communications services were removed ahead of the new stormwater line which lies on the same alignment
- Asbestos Telstra pits were removed during the communications relocation works



*Figure 4 Removal of asbestos pipes from Pound Street, photo shows the pipes wrapped, exclusion zone around the area and air monitoring device on the fence*

Hydrocarbon contaminated soil in South Grafton, in the last reporting period a hydrocarbon contaminated find was reported. The contaminated soil is thought to be from the historic land use of fuel storage and refuelling at this location. The project investigated the extent, level of contamination and surrounding land use at this location.

A decision was made to leave the source material in the ground and under the road alignment. This decision was made in consultation with specialist advice from the contaminated land auditor appointed to the project. It was considered that there was a manageable risk to the environment by leaving it where it is because:

- The material has not moved far from the source since it was lost into the ground
- Groundwater contamination does not appear to be moving far from source location
- There are no sensitive receivers nearby
- There are no sensitive environmental features, open waterways or stands of vegetation nearby
- The material is held within a stiff clay
- The road going over the top of the source will prevent ingress of water and reduce the risk of mobilisation
- RMS will implement a long term water monitoring strategy to ensure the above assumptions are correct

## 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:

- Continued temporary closure of Greaves Street
- One lane periodic closures on Iolanthe, Through, Pound and Clarence Street during service relocation works and road upgrade works
- 27 traffic control plans have been used on the project, two extra plans were approved in the reporting period

The project has spent a lot of the reporting period preparing for the upcoming traffic switches which are planned to start early in the next reporting period. Preparation works has included significant community consultation, one on one meetings with affected local businesses, presentations to business liaison group and the Grafton Chamber of commerce. These traffic switches will allow for the following works to occur:

- Upgrade and widening of Clarence and Pound Street
- Upgrade to Iolanthe and Spring Street
- Opening of final traffic stages for Pacific Highway tie-in and Butters Lane

## 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 have appropriate environmental controls in place which are maintained on a regular basis. Temporary work areas and facilities will be remediated at the completion of construction.

## 2.6 Casting Yard

During the reporting period production at the casting yard amplified, the first segments of the bridge were made. 9 out of 176 segments have been successfully cast in preparation for construction of the new bridge.

A sustainability focus at the casting yard has achieved a 75% reduction in water used to cure each segment. The work crew in this area have also fostered the EPA supported bottle recycling program with over 1000 bottles recycled to date. Workers are also working towards a zero cigarette butt loss program, this has been achieved by installing signage, re-training staff and providing adequate cigarette butt disposal units.

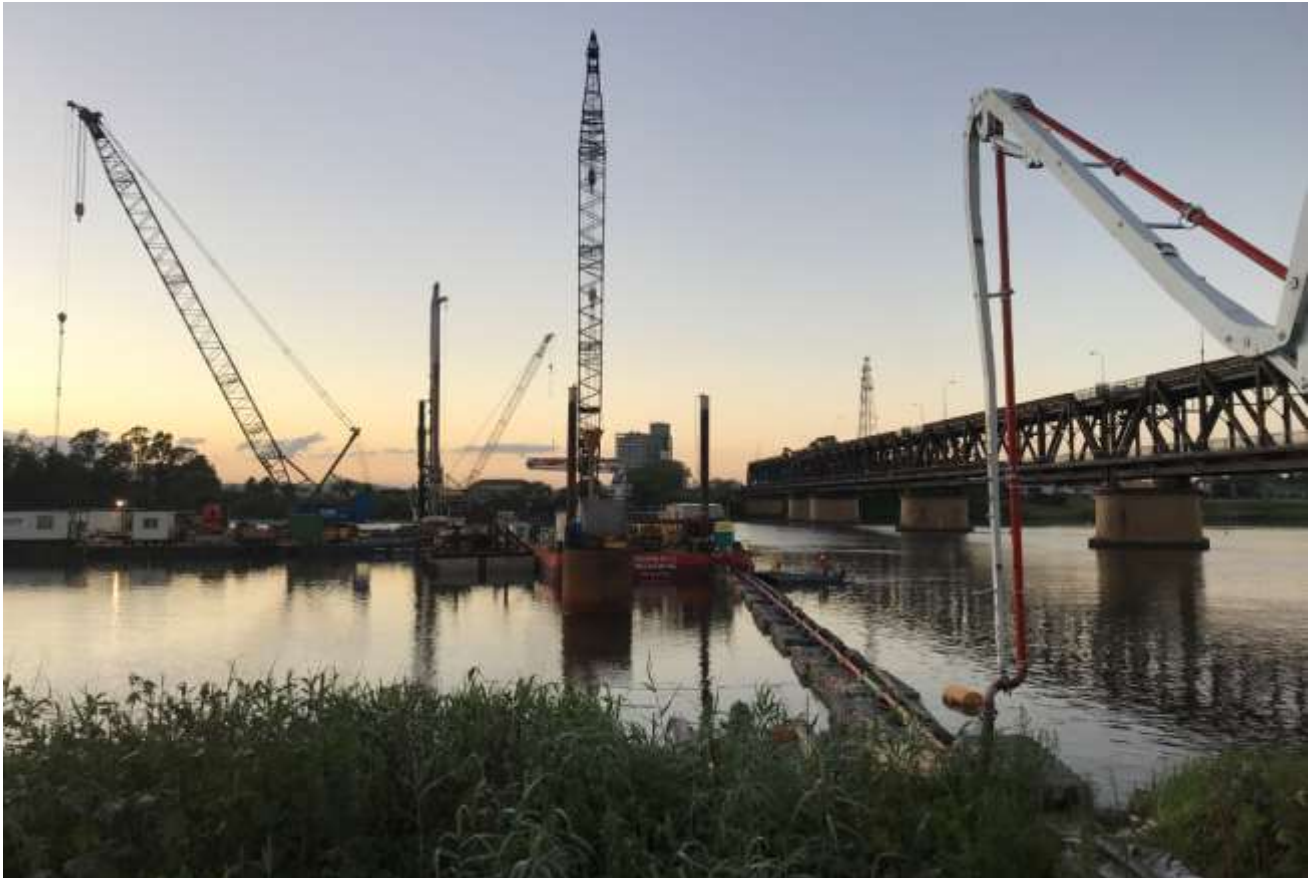


Figure 5 Pre-fabricated reo cage being placed into the mould with pre poured segment placed in front for match casting

## 2.7 Bridge Works

River piling was successfully completed during the reporting period, all 10 piles poured without impacts on the Clarence River. This is significant and a fantastic project achievement considering the following points:

- Largest diameter piles currently under construction in Australia
- Marine passage maintained throughout all works
- The pile diameter of 3m created significant pressure on engineering equipment. All piles were successfully bored without a single hydraulic hose failure. This exceptional result was delivered due to good maintenance and operation of the pile rig, 250t crane and barge
- All spoil drilled from the bed of the river was taken in sealed buckets, to sealed steel bins and then transported back to land without any spillages
- Ten pours with up three air lifts per pile created a total of over 3.6million litres of site water to be managed from the marine environment back to land. This process was managed, without a spill, without leaks, without loss into the live and protected waterway
- Floated concrete lines taking high pressure concrete from land to the piles was generally managed very well. An incident did occur when a line became blocked on the north side but crews responded immediately. The incident didn't result in measurable impacts on the river.
- Fauna, an interesting part of the works has been visits from many snakes to the barges throughout works. In each case workers have taken care to not cause harm or distress the animals and they were returned safely to shore.



*Figure 6 Early morning pile pour at Pier 6, floated concrete and water line back to shore*

The overall management of marine works environmental controls has been done to a high standard consistently throughout works. Regulators have noted this performance at several ERG meetings.

All 5 pier skirts were installed post piling completion. This has allowed for the construction of the bridge piers to begin. Both Pier 2 and 3 stage 1 pours have been completed with construction for the stage 2 pours well underway. All piers are expected to be completed within the next reporting period.



*Figure 7 Last of the pier skirts being lifted into place at Pier 6 (left) and construction of Pier 2 with environmental controls in place on the river (right)*



### 2.7.1 Land Substructure

Piling for piers 7 and 8 was completed in January 2018 with minimal vibration and noise impacts on nearby residents. Due to quality and durability issues, additional piles are required to be installed at these locations prior to pier construction, this will commence in the next reporting period.

Pier 1 was completed in November 2017 and is ready to facilitate the construction of the southern abutment.

## 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:

- Correct cigarette butt disposal campaign
- 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
- Waste concrete is being made into reusable precast products at the project casting yard

The project has continued to recycle steel and concrete waste generated onsite, utilising it where possible i.e. crushed concrete used for stabilised access ways. Where it cannot be reused, the project has disposed of waste to licensed facilities for recycling.

## 3.0 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 regional RMS, the project ER, EPA, local council, DP&E 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.

The design of the fill 1 and fill 2 catchment continues to be a success with very few rainfall events causing basins to overtop. During the reporting only one rainfall event caused the fill 1 basin to overtop after 76mm of rain, this is almost double the required design event of 37.2mm.

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.

In South Grafton, controls remain focused on diverting water away from the Clarence River. As earthworks have progressed design drainage has been installed and areas landscaped to reduce disturbance footprint and maintain a high standard of site water control. The focus of the project is to control sediment at the source by applying hydromulching and polymer. Minimising the footprint through the course of construction will reduce effects on the environment over time.



*Figure 8 Polymer application to exposed dirt in South Grafton at Abutment A (left) and new grass growth at the Hydroseeded area in Fill 1 (right)*



Figure 9 SMZ placed at fill 1 (left) stabilised access and egress points (right)

The Grafton section of the project is an urban construction area. This section of the project has limited space and a high complexity of works. In Grafton, the key focus was to minimise the amount of water entering site and reduce the sediment mobilisation. Key controls were seeding disturbed areas and earth mounds, mulch bunds around the works perimeter, polymer stabilisation on exposed dirt and stockpiles, and installing stormwater pit controls.



Figure 10 Grass strike and controls installed near abutment B in Grafton



Figure 11 Controls installed to manage piling water during air lifts and pile pours in Grafton (left) and additional controls and drains installed along Kent Street, Grafton to manage potential dirty water run off (right)

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

Whilst majority of clearing has been completed, the project continued to maintain a high level of ecological management ensuring all impacts on the 'Three Toed Snake Tooth Skink' (TTSTS), and other local flora and fauna, were minimised.

A total of 2 skinks were encountered throughout the reporting period, these were found during asbestos removal works at 31 Pound Street. Both skinks were relocated into the skink protection areas onsite. Habitat enrichment including additional mulch and leaf litter, frequent watering and planting of native species was undertaken throughout the reporting period to maintain a high level of suitable habitat for protected skinks.

Monitoring of nest boxes throughout the reporting period did not show an increase or use of nest boxes by micro bats. Monitoring will continue bi-annually for another year.

Further detail will be discussed in section 7.4.

### 3.1.3 Heritage

Education of field staff in recognising potential heritage items has resulted in further works being stopped 3 times for potential unexpected heritage finds during the reporting period.

Two of the finds occurred during earthworks for local road upgrades in Grafton, one on Pound Street and one on Clarence Street. Both finds consisted of shattered glass and bottle fragments and were suspected to be old rubbish pits. At Pound Street, a fully intact ceramic lid was found and dated back to the late 1800's, this has been maintained by the project and will be donated to the local historic society at project completion.

The third find occurred during the stripping back of soil for piling pad construction and the railway viaduct and consisted of a roughly 40mm long bone. After thorough investigations, the bone was deemed to be a baby cow and works were permitted to continue.



*Figure 12 Excavation from bone find near the railway viaduct on the corner of Bridge and Pound Street, Grafton*

Further detail is outlined in Section 7.5.

### 3.2 Environmental Initiatives

The project team has continued to embrace a beyond compliance approach to the project, aiming to go above and beyond industry best practice standards and to strive for excellence in all aspects of environmental management.

Embracing the beyond compliance approach, the following goals have been achieved during the reporting period:

1. An environmental education presentation was given at a local primary school to over 100 year 3 and 4 students.
2. Return and Earn recycling promoted onsite
3. Recognition of sustainability initiatives with the project winning the sustainability award for NSW construction within Fulton Hogan
4. Water use reductions at the casting yard facility by using curing blankets, this resulted in about 75% less water used for each pier segment
5. Battery recycling stations have been setup in the project office to encourage the correct disposal of potentially harmful waste

Future project goals are likely to include:

- Assessing the amount of energy saved by the innovative pier skirt design
- Restriction of pesticides used onsite to prevent the use of 'Glyphosate' in the environment
- Alipou creek restoration

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## 4.0 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.

The Fulton Hogan EMS is periodically audited by external auditors to ensure compliance with ISO 14001.

### 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.

The CEMP and sub-plans have been reviewed and the dates of revision for the plans are detailed in table 4-1 below.

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

<b>Plan Name</b>	<b>Approved for use on the Project</b>	<b>Latest Revision Date</b>
Construction Environmental Management Plan	15/09/16	March 2018
Construction Contaminated Land Management Plan	15/09/16	October 2017
Construction Air Quality Management Plan	15/09/16	August 2016
Construction Flora and Fauna Management Plan	15/09/16	November 2017
Construction Flood Management Plan	15/09/16	November 2017
Construction Heritage Management Plan	15/09/16	August 2016
Construction Noise and Vibration Management Plan	15/09/16	October 2017
Construction Soil and Water Quality Management Plan	15/09/16	November 2017
Construction Waste and Energy Management Plan	15/09/16	August 2016
Construction Traffic and Access Management Plan	15/09/16	October 2017



## 5.0 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.

During the reporting period there were:

- 2 non-compliances. See table 5-1
- Zero non-conformances. See table 5-2

Table 5-1 Non-compliance summary

Date	Description	Non-Compliant against	Status
December 2017	The dust gauge located on the corner of Bridge and Pound Street, DMG1, recorded 27.9 g over the allowable limit. The exceedance is well outside the range of what would be considered normal air conditions. The measured value is extreme and clear anomaly of data when compared to all other monitored months at this location. It is therefore concluded that there was contamination of the gauge not representative of construction or background conditions. The data will be excluded from long term averages.	CoA D45d (ii)	Closed
January 2018	Dust gauge DMG3 at Bunnings had an exceedance greater than 2g in one reporting period. Works at the location where the gauge is situated reached pavement level prior to the end of 2017, as a result, dust was not being generated at the work site through this period. Recent slashing of vegetation had been undertaken during the reporting period and is likely to have been the source of the increase.	CoA D45d (ii)	Closed

Table 5-2 Non-conformance summary

Date	Description	Resolution	Status
<i>Nil</i>	<i>Nil</i>	<i>Nil</i>	<i>Nil</i>

### 5.2 Incident Management

During the reporting period there were eight events recorded as incidents - see tables 5-3 and 5-4 below. The incidents consisted of:

- Three reportable events
- Three category 2 incidents
- Two category 1 incidents

Table 5-3 Recorded Incidents

RMS Incident Category	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Category 1		1	1					2
Category 2	1			1			1	3
Reportable Event		1	1		1			3
<b>Total</b>	1	2	2	1	1	0	1	<b>8</b>

Table 5-4 Incident Summary

Date	Description	Agency Reporting	Classification	Status
19-Oct-17	Excavation for an open drain took place in a known contaminated area. Once contaminated material was observed, excavation stopped immediately.	<i>Minor site issue that was reported to RMS environment</i>	Cat 2	Closed
24-Nov-17	Clarence Valley council had partaken in a mock trial of the new water mains on the morning of the incident. During the process, council had not been able to switch one of the valves back off. During flushing of the new water main, water came out of a scour valve and pooled on the site boundary at Greaves Street. Council was called back to site and worked with the FH team to stop the water flow.	<i>This event was not reported because it was considered trivial.</i>	Reportable Event	Closed
27-Nov-17	The new pump station on Kent St Grafton, is below the groundwater table and requires de-watering to facilitate works. Ground waters are pumped to a nearby sediment basin for on-site recycling. It was during pumping of ground water to the basin that alluvial sands were sucked up through the pump and into the open drain. The sands caused the open drain to block and overflow towards the storm water system	<i>This incident was reported to:</i> <ul style="list-style-type: none"> <li>- EPA</li> <li>- DPI Fisheries</li> <li>- RMS Environment</li> </ul> <i>Incident reporting occurred immediately on the day of the event</i>  <i>The project also reports incidents to all other agencies during the ERG meetings. Clarence Valley Council, the project ER and DP&amp;E were also informed of the incident</i>	Cat 1	Closed
8-Dec-17	Works at the water main on Clarence Street relied on council turning off a water main, the incorrect main was turned off. The result of this was drinking water came into and excavation and flowed 100m down a	<i>This event was not reported because it was considered trivial.</i>	Reportable Event	Closed

	grassed table drain on the edge of a road.			
11-Dec-17	The concrete line taking concrete to the pier 5 pile pour area blocked during the pour, the block had to be cleared by hand and required the line to be opened. When opened concrete flowed from the line and onto the pontoon.	<p><i>This incident was reported to:</i></p> <ul style="list-style-type: none"> <li>- EPA</li> <li>- DPI Fisheries</li> <li>- RMS Environment</li> </ul> <p><i>Incident reporting occurred immediately on the day of the event</i></p> <p><i>The project also reports incidents to all other agencies during the ERG meetings. Clarence Valley Council, the project ER and DP&amp;E were also informed of the incident</i></p>	Cat 1	Closed
31-Jan-18	Excavator hose came loose during works causing some hydraulic fluid to leak from machine onto the ground	<i>Minor site issue that was reported to RMS environment</i>	Cat 2	Closed
5-Feb-18	Works started at piling pad construction area near the existing rail viaduct. Topsoil stripping stopped when a foreign object was observed.	<i>Agencies were not notified of unexpected find.</i>	Reportable Event	Closed
3-Apr-18	During a regular site inspection, a recently used trailer was observed to be in a poor state of repair. Curing compound had spilled into the trailer from the tanks/hoses/pump on the trailer	<i>Minor site issue that was reported to RMS environment</i>	Cat 2	Closed

## 6.0 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, correspondence with the environmental representative has been inclusive of the following:

#### October 2017

- Consistency Assessment – Western Boundary Extension (Pound St Rail Bridge) - Approved
- Minor Consistency Review – Pound Street Railway Closure Works - Approved
- TTSTS Management Plan Addenda 2 – Approved
- Consistency Assessment - 7 Kent Street – Reviewed
- CEMP – Periodic review

#### November 2017

- South Clarence Valley Weed Management – review and discussion.
- Temporary Stockpiling of Contaminated Materials – review and discussion.
- Construction Compliance Report and Compliance Tracking Table (November 2017) - review

#### December 2017

- Construction Compliance Report and Compliance Tracking Table (December 2017) – Lodged.
- OOHW Request (MCoA D4): Piers Five and Six Pile Pours – Reviewed and approved.

#### January 2018

- Unexpected Heritage Find No. 17 (Pound Street) – Scattered Glass and Ceramics
- Contamination Find (Pound Street) – Redundant Water Main – Asbestos
- OOHW Request for Pier 6 Pile Concrete Pour (modification to route) - Inaudible

#### February 2018

- Unexpected Heritage Find No. 18 (Pound Street): Bones (animal) – reviewed.
- Site Auditor review and advice on Detailed Site Investigation Report – reviewed.
- OOHW (Inaudible) for Pier 6 Pile Concrete Pour (modification to route) – reviewed.
- Nest Box Monitoring Report – reviewed.

#### March 2018

- Construction Compliance Report and Compliance Tracking Table (December 2017) – DPE Acceptance.
- Unexpected Heritage Find No. 19 (Clarence Street): Broken Glass Bottles – reviewed.
- Site Auditor review and advice on SA&QPG – reviewed.

- Pipe Jacking Environmental Control Plan – reviewed.
- Nest Box Installation Report (Final) – reviewed.
- Grafton ERSED plans – reviewed.

## 6.2 Environmental Representative Reports and Outcomes

Site inspections with the environmental representative occur on a monthly basis. The results of these inspections are detailed in this section.

Table 6-1 ER inspection report comments

Report Number	Date	Issues/Comments	Status
1	25 Oct 2017	Clarence Street (north side) clean up top soil washed into curb and gutter and seed	Closed out
		Ensure ESCs are in place, the site is tidy and general waste is removed	Noted
		Ensure land piling rig is not dumping spoil directly onto piling pad due to risk of fines leaching through pad and into the Clarence River. Spoil should be placed into a bin or on geofabric	Closed out
		Manage spoil located on the verge	Closed out
		Spoil settling ponds from utility works are over full including the sump. Manage material	Closed out
		Ensure weeds are being managed on the site including consistency with the RMS weed Management Specification	Noted
		Ensure the site ESCs are being managed consistent with the prepared and approved ESCP	Noted
		Clean out ESC drains	Closed out
		Ensure that controls are installed as per approved EST, in particular where controls have been removed to allow access to areas. Control(s) need to be reinstated prior to rainfall	Noted
2	22 Nov 2017	Silt curtain/fence on the pile parapet was lose and required repairing	Closed out
		Spoil from utilities has been placed in storage area. Review ERSED controls and ensure it is stored appropriately. Update PESC plan where necessary	Closed out
		Finalise ERSED controls including spillway and update PESC where necessary	Closed out
		Ensure street sweeper regularly attends to Iolanthe Street mud tracking and dust management	Closed out
3	19 Dec 2017	Ensure all stockpiles are stabilised prior to rain and the Christmas shutdown	Closed out
		Ensure rock checks are in place and operational prior to rain and the Christmas shutdown	Closed out
		Contaminated stockpiles need to remain covered and routinely checked	Closed out
		Ensure material is cleared out of constriction basins prior to their commissioning as sediment basins. Ensure that capacity is reinstated in basins where required	Closed out
4	23 Jan 2018	Install notification signage on the contaminated soil stockpile	Closed out
		Ensure mud tracking on the site including Pound Street is monitored and cleaned when necessary	Closed out
		Several stockpiles, batters and disturbed ground throughout the site require stabilisation	Closed out
		Ensure sediment fence used on pile curtains in covering the balustrade and tied/pinned down	Closed out
		Contaminated soil stockpile requires covering and pinning down	Closed out
		Contaminated soil sump appears to have an overflow into the clean water drain. Ensure this is consistent with approved ESC plan. Re-instate required capacity of sump using appropriate means depending on water quality results	Closed out

		Review ESC plan to ensure appropriate measures are identified and requirements for installation to ensure no construction water leaves site through Temporary load out jetty	Closed out
		Seek clarification from project soil con that this area is considered a stable catchment and that any water that leaves the site is considered clean water	Closed out
		Confirm status of stockpiled material in road verge and if required store in an appropriate location	Closed out
		Confirm arrangements for stabilisation /drainage of drain, install appropriate measures where required	Closed out
5	01 Mar 2018	All erosion and sediment control inlets and outlets to be checked and stabilised. In particular the inlets, outlets and spillway for the Kent street basin	Closed out
		Skink enclosure habitat requires review and management. Ensure it is being managed in accordance with the TTSTS MP	Closed out
		Ensure weeds are being managed on the site in accordance with relevant specifications i.e. G36, G38, G40 and R178 and R179 given landscaping works are proposed to commence in the coming months. Also the CFFMP provides requirements and details for weed management on-site, in particular appendix G weed management plan	Closed out
		Topsoil stockpiles have become contaminated with weeds. Confirm that topsoil stockpiles meet the requirements in G38 and are being managed to ensure that topsoil remains suitable for use on the site in accordance with R178	Closed out
		Ensure mud tracking on the site including Pound Street is monitored and cleaned when necessary	Closed out
6	28 Mar 2018	Ensure access/egress points and adjoining public roads are clear of mud and dirt and rock checks are in place and working. Access to abutment B and Grafton basin requires stabilised access arrangements, significant amount of material on Kent street. Point St access off Clarence may also require some arrangements and access via the levee in south Grafton	Closed out
		Stabilise batter chutes on the table drain on Iolanthe and Spring street at the south eastern corner of casting yard. Review ESC and update to ensure appropriate measures are in place to control run off	Closed out
		Ensure general rubbish is kept out of drainage lines, sediments ponds and waste is collected and disposed of appropriately	Closed out
		IBCs in casting yard to be stored in an appropriately sized bunded area. Issue was raised during previous ERG and has not been closed out/	Closed out
		Fuel in bund and pump was located in the spillway. Ensure spillways are kept clear and fuel/pumps are not located in spillways. Store chemicals, fuels and lubricants in a suitable bunded location away from water.	Closed out
		Ensure ESC drain jute mesh is kept pinned down. In some areas the jute mesh has detached and is sagging. Areas of undermining and tunnelling observed. Reinstate surface level to prevent further impact	Closed out
		Concrete washout located too close to the adjacent sediment basin. Move washout away from basin	Closed out
		Drums (empty) are located on the site and in the potential ERSED drainage lines. Ensure all drums are removed at the end of each day	Closed out
		Ensure appropriate arrangements are developed and able to be implemented in the case of the basin over topping and water flowing to culvert. Requires management of clean and dirty water separation	Closed out
		Placed topsoil and stockpile appear to have rocks. Ensure topsoil meets R178 requirements and is sorted and screened to remove any items bigger than 50mm in size	Closed out
		Confirm that appropriate batter treatment was undertaken prior to placement of topsoil and that the required topsoil depth is achieved. May require some stabilising treatment if there is a delay for pre-emergent spray and hydromulching to prevent slippage.	Closed out
		Ensure that topsoil that is determined to be weed contaminated and not suitable for use is managed as per R178 requirements	Noted
		Ensure stockpiled material on Abutment B is appropriately managed prior to rain or shut down periods	Noted

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## 7.0 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 by the MCoA throughout the duration of 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 as can be seen in the November and March monitoring results. It takes about 2-7 days before upstream affected waters flow past the bridge works site in Grafton.

During the reporting period there was a total of 96 rain days consisting of 11 heavy rainfall events. Only once was the 5 day 85<sup>th</sup> percentile rainfall depth value of 37.2mm exceeded in a single downpour. Majority of rainfall occurred at the end of November and December, and consistently throughout the months of February of March. Total rainfall was 559mm for the reporting period. Site water from rainfall events were managed through the project sediment control devices, stored water was treated and pumped onto well grassed areas.

The project did not have any measurable effect on the background water quality of either Alipou creek or the Clarence River during the reporting period. Rainfall events were well managed and site materials and waters contained on the site.

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

#### 7.1.1 Groundwater monitoring

The second round of groundwater monitoring was undertaken in November 2017 to assess the extent and movement of the existing contaminated plume of groundwater beneath the southern abutment of the new bridge. Results showed a slight movement of the hydrocarbon plume in monitoring wells PMW01, PMW04 and PMW06. All three wells indicated a presence of BTEX/TPH's while only PMW01 and PMW06 showed presence of PAH's. PMW01 is directly on top of the plume and would be expected to show affected results. All sentinel wells were clear of contamination.

The next round of groundwater monitoring is expected to take place in May 2018.

## 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.

35 out of hours work events were approved during the reporting period. Refer to table 7-1 below

The results of OOH noise monitoring for compliance tracking report 3 are summarised in the table below. A brief summary of the site conditions and monitoring 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



Table 7-1 Approved OOHW summary

Permit #	Start Date	End Date	Time Reference	Extra Hours	Works Activity	Justification	Notes	Works Location	NCA	Predicted	NML (RBL+5)	LAeq15 (verification)	Approval type	Approved	Compliant
028	24/10/17	24/10/17	night	0430 to 0700	Pier 3-02 pile pour	Early start to manage concrete temperatures	All access through Sth Grafton Industrial area	Pier 3	NCA 2	42	41	52	Agreement	Yes	Yes
029	28/10/17	29/10/17	day ooh	Saturday afternoon until 1700	Removal of pole 22	Removal of Sydney trains pole no.22 OOH to prevent interactions with other operations. Safety	Sunshine Sugar also not working on the weekend	ARTC/Abutment A	NCA 2	48	64	50	Less than 5dBA above the RBL	Yes	Yes
030	20/10/17	20/10/17	night	0500 to 0700	Stage 2 Pier 1 pour	Pier 1 pour started early to manage peak concrete temperatures	Construction noise not audible	Pier 1	NCA 2	38	41	38	Less than 5dBA above the RBL	Yes	Yes
031	16/11/17	16/11/17	night	Night shift	Optus cutover	Night works to reduce impacts on the service users	Construction noise not audible	Abutment A/Pier 1	NCA 2	41	41	42	Less than 5dBA above the RBL	Yes	Yes
032	1/11/17	1/11/17	night	0400 to 0700	Pier 7 pile pour	Early start to manage concrete temperatures		Pier 7	NCA 6	xx	40		Agreement	Yes	Yes
033	28/10/17	29/10/17	day ooh	Sat afternoon until 1700	trenching power connection	Working in the afternoon on Saturday to reduce impacts on the business and reduce the need for noisy generators	South Grafton commercial and industrial centre no other sensitive receivers nearby	Through Street	NCA 2	36	64	45	Less than 5dBA above the RBL	Yes	Yes
034	4/11/17	8/11/17	night	Night shift	Telstra cable splicing	Splicing cable at night to reduce impacts on the services users	Construction noise not audible	South Grafton	NCA 1	36	37	41	Less than 5dBA above the RBL	Yes	Yes

035	2/11/17	2/11/17	day ooh	1200 - 1800	Telstra trenching and underboring	conducted OOH to reduce impacts on the services users	Construction noise not audible	South Grafton	NCA 4	40	53	44.1	Less than 5dBA above the RBL	Yes	Yes
036	1/12/17	31/1/18	night		Structural Concrete Pours - Noise Report	<p>There are several positive outcomes that would result from moving the works to a weekend, they include:</p> <ul style="list-style-type: none"> <li>- Improved safety outcomes through a reduction of interactions between the project and local students, residents, business patrons and the wider community</li> <li>- Reduce impacts on parking. Pound Street is a central parking point for the local businesses and the TAFE – both have reduced activities on the weekend</li> <li>- Reduction of impacts to local business operations</li> <li>- Improved noise impact</li> </ul>		Grafton	NCA 4	53	40	51	CoA D4 Approved	Yes	Yes

						outcomes for the TAFE students. Students would be exposed to noise if the works occurred during the week, these affects would be reduced or eliminated by doing the works on a weekend.									
037	3/12/17	3/12/17	night	1800 - 0700	optus haul and cutover	Works are to take place at night time to reduce impact on local residents and businesses – prevent disconnecting people during day hours		Spring Street	NCA 2	32	41	47.1	Less than 5dBA above the RBL	Yes	Yes
038	23/11/17	23/11/17	night	0430 - 0700	Pile Pour	Quality of concrete		Pier 4	NCA 2	38	41	54.2	Less than 5dBA above the RBL	Yes	Yes
039	25/11/17	25/11/17	day ooh	1300 - 1700	Stabilising hydrocarbon area	Less than 5dBA above the RBL works which will assist and accelerate the project		Fill 1	NCA 2	47	64	52	Less than 5dBA above the RBL	Yes	Yes

040	1/12/17	31/1/18	night	0430 - 0700	Pier 5 and 6 Pile Pours - Noise Report	The justification for the out of hour's works is that the concrete must be delivered to the project at the lowest temperature possible. For the marine piles at piers 5 and 6, the works need to start at 0430 in the morning. Concrete must be delivered to the project during the coolest part of the day to ensure the peak temperature is not exceeded.	Construction noise not audible	Piers 5 and 6	NCA 4	53	40	56.5	CoA D4 Approved	Yes	Yes
041	9/12/17	17/12/17	day ooh	1300 - 1700	Marine pile works - sat works	Less than 5dBA above the RBL works which will assist in mitigating delays to the project	Construction noise not audible	Pier 5 and 6	NCA 2	41	64	57	Less than 5dBA above the RBL	Yes	Yes
042	13/12/17	13/12/17	evening	1800 - 1900	Backfilling trench	Less than 5dBA above the RBL works which will assist in mitigating delays to the project	Construction noise not audible	Iolanthe Street	NCA 2	33	51	42	Less than 5dBA above the RBL	Yes	Yes
043	24/1/18	26/1/18	night	0530 - 0700	Segment Pour early start	Quality of concrete	Construction noise not audible	Casting Yard	NCA 2	40	41	43.2	Less than 5dBA above the RBL	Yes	Yes

044	16/1/18	20/1/18	night	24hrs	Overnight dewatering	Quality of concrete. Ensuring appropriate curing takes place		Pump station	NCA 4	30	40	56.8	Less than 5dBA above the RBL	Yes	Yes
045	13/1/18	14/1/18	day ooh	0800 - 1700	Demobing of piling rig	Less than 5dBA above the RBL works which will assist in mitigating delays to the project	Construction noise not audible	Bradys Marine	NCA 2	45	64	52	Less than 5dBA above the RBL	Not used	Yes
046	8/2/18	31/3/18	night	1800 - 0700	Concrete saw cutting	Less than 5dBA above the RBL works which will prevent damage to finished product	Construction noise not audible	Through Street RAB	NCA 2	38	41	44.3	Less than 5dBA above the RBL	Yes	Yes
047	22/1/18	22/1/18	night	1800 - 1900	float 450 tonne crane	Less than 5dBA above the RBL works which will assist in mitigating delays to the project	Construction noise not audible	Clarence River	NCA 5	44	40	46	Less than 5dBA above the RBL	Yes	Yes
048	22/1/18	25/1/18	night	1800 - 1900	lighting towers and dewatering pump station	Less than 5dBA above the RBL works which will assist in mitigating delays to the project	Construction noise not audible	Kent and Pound Street	NCA 6	35	40	42	Less than 5dBA above the RBL	Yes	Yes
049	24/1/18	24/1/18	evening	1800 - 1930	segment completion works	Casting yard first segment completion works, the works required at the end of the day are finishing works which will be lower noise	Construction noise not audible	casting yard	NCA 2	41	51	47	Less than 5dBA above the RBL	Yes	Yes

						generating activities									
050	24/1/18	24/1/18	evening	1800 - 1930	pump station finishing works - grouting	Less than 5dBA above the RBL emergency works which will assist in mitigating delays to the project	Construction noise not audible	kent street	NCA 4	43	47	46	Less than 5dBA above the RBL	Yes	Yes
051	30/1/18	1/2/18	night	1800 - 1900	pump station preparation works	Early start for dewatering the pump station to allow for timing and preparation of concrete works. Noise monitoring previously for the same activity overnight has proven the works to be Less than 5dBA above the RBL at all sensitive receivers	Construction noise not audible	kent street	NCA 4	30	40	37.6	Less than 5dBA above the RBL	Yes	Yes
052	1/2/18	7/2/18	night	0600 - 0700	formwork preparation for RAB	Less than 5dBA above the RBL works which will assist in mitigating delays to the project	Construction noise not audible	Iolanthe Street	NCA 2	39	41	45	Less than 5dBA above the RBL	Yes	Yes
053	3/2/18	10/2/18	night	0600 1800	sewer 3 early start	Less than 5dBA above the RBL works which will assist in mitigating delays to the project	Construction noise not audible	Iolanthe and Through Street	NCA 2	34	41	36	Less than 5dBA above the RBL	Yes	Yes

054	9/2/18	3/3/18	night	0600 - 2000	formwork preparation for segments	Formwork crew require extra time to become properly familiarised with operations of the precast mould – construction & dismantling in preparation for segment concrete pours & mould changes associated with these pours	Construction noise not audible	Casting Yard	NCA 2	40	41	48	Less than 5dBA above the RBL	Yes	Yes
055	17/2/18	17/2/18	night	0500 - 0800	early start for annulus pour	Quality of concrete	Construction noise not audible	Pier 2	NCA 2	40	41	46.4	Less than 5dBA above the RBL	Yes	Yes
056	20/2/18	20/2/18	night	0500 - 0800	early start for pier 3 pour	Quality of concrete	Construction noise not audible	Pier 3	NCA 2	40	41	45.6	Less than 5dBA above the RBL	Yes	Yes
057	1/3/18	31/4/18	day ooh	1300 - 1800	extended Saturday works for casting yard	Quality of concrete	Construction noise not audible	Casting Yard	NCA 2	40	64	53.1	Less than 5dBA above the RBL	Yes	Yes
058	14/4/18	15/4/18	day ooh	0800 - 1800	removal and installation of new power pole	Less than 5dBA above the RBL works which will assist in mitigating delays to the project	Construction noise not audible	north fo levee, fill 2	NCA 7	30	44	43.3	Less than 5dBA above the RBL	Yes	Yes
60	17/4/18	24/4/18	Night	Early morning start 0400 - 0700	Pier 3 concrete pour	Technical, quality of concrete	Predominant noise at all locations was traffic across the bridge or at NCA 7 from Pacific H/Way	Marine works area	NCA 6	40	40	51.5	Less than 5dBA above the RBL	Yes	Yes

62	14/4/18	14/4/18	Day OOH	Saturday 1300 - 1700	Water main works	Services works required OOH	Wind speed too high to get a representative reading	Clarence Street	NCA 4	51	53		Less than 5dBA above the RBL	Yes	Yes
63	13/4/18	13/4/18	Night	Extended hours 0600 - 1900	HBB placement fill 2	Quality of pavement	Consistent background traffic noise at the time of monitoring 0555 to 0610. Construction 300m away and not audible	Fill 2 works area	NCA 2	41	41	61	Less than 5dBA above the RBL	Yes	Yes

All out of hour's works were consistent with the CEMP management plans and were completed without incident. Some noise complaints were received from the residents on Pound Street when trucks were heard driving over a steel manhole lid early in the morning, this caused a loud instant noise. The truck route was changed for other OOH works that required concrete truck deliveries to site.

Noise monitoring results can be seen in **Appendix C**.

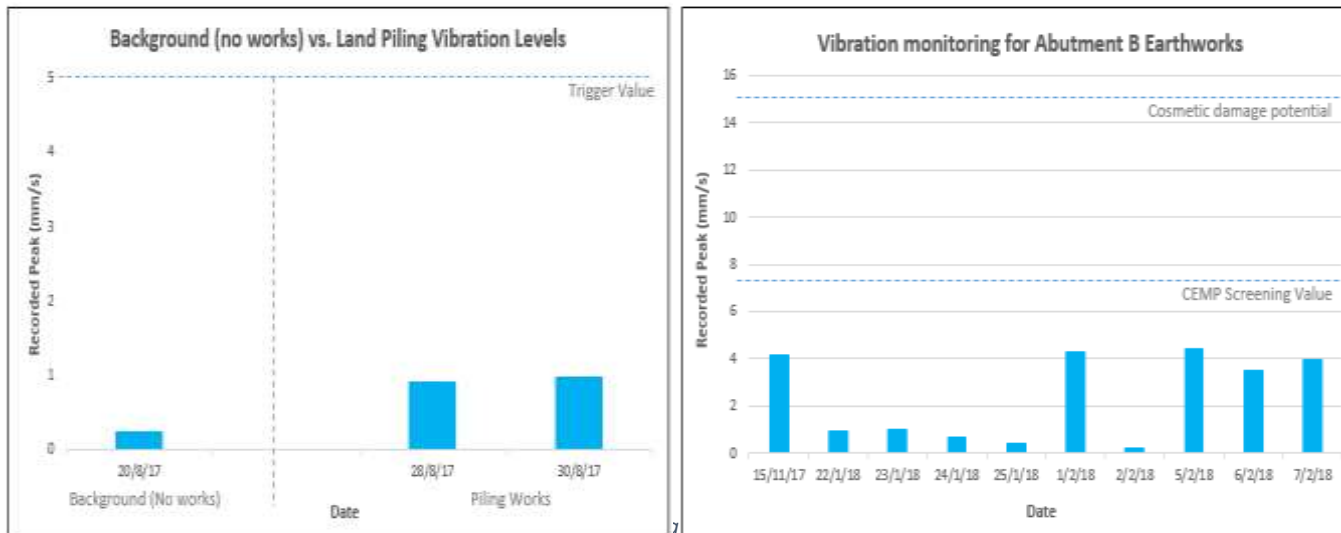
Vibration monitoring was undertaken throughout the reporting period for the following activities:

- Compaction of fill during Clarence Street widening and upgrade works
- Excavation of Pound Street
- Earthworks for the construction of Abutment B
- Piling works for Pier 7
- Background reference samples





At no point throughout the reporting period was the monitoring trigger value (5mm/s) exceeded. All recorded levels were within acceptable parameters described in the approve Noise and Vibration Management Plan – see figure below.



activities show results below the project screening value (5mm/s) and the CEMP trigger value (7.5mm/s)

Vibration monitoring results can be seen in **Appendix C**.

### 7.3 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.

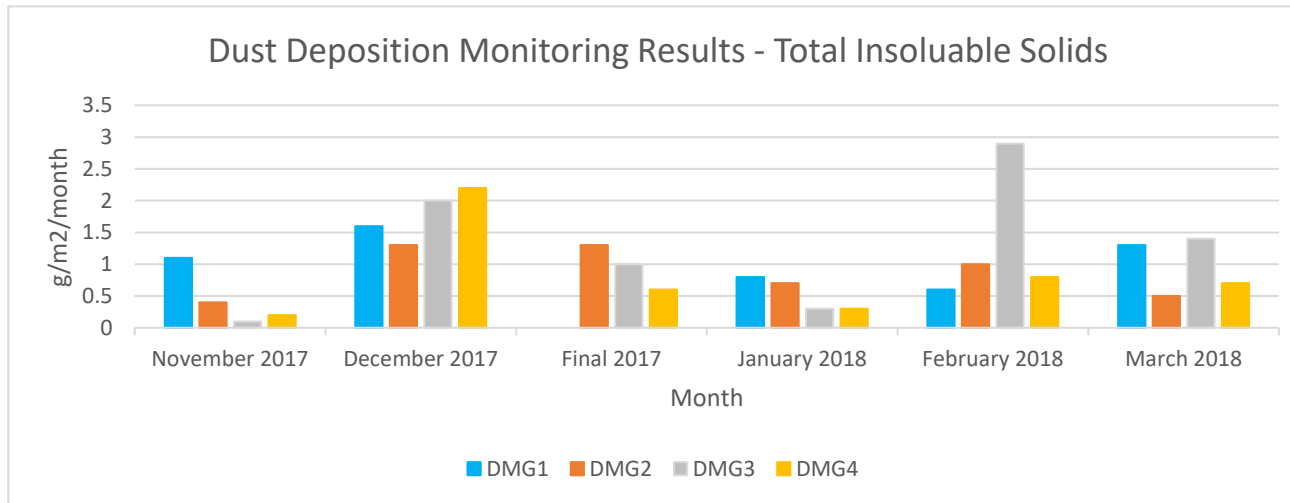


Figure 14 Air monitoring results for the reporting period

An anomaly was found in the data set during this reporting period where an additional reading was undertaken for the year – these results are labelled as final 2017 in the data set. Results were comparative to the rest of the reporting period results with one noted exceedance. This exceedance was 27g/m<sup>2</sup>/month over the allowable limit from a period that included the two week Christmas shut down and high rainfall (176mm). The exceedance is well outside the range of what would be considered normal air conditions. The measured value is extreme and clear anomaly of data when compared to all other monitored months at this location. It is therefore concluded that there was contamination of the gauge not representative of construction or background conditions.

Dust suppression on the project during the reporting period included the increased use of water carts, shade cloth, webbing around basin perimeters, and pre-wetting of materials prior to cartage. Seeding, hydromulching and polymer application to stockpiles, batters and earth mounds was implemented where possible.

## 7.4 Flora and Fauna

Project ecologists have been onsite to carry out pre-clearing inspections, hollow bearing tree inspections, nest box installations and monitoring, clearing reviews and fauna rescues. The project ecologist has also completed pre-clearing inspections in areas identified for three-toed snake tooth skinks.

During the reporting period 2 more skinks were successfully caught and relocated into skink protection areas onsite. All skink protection areas across the project progressively undergo habitat enrichment including new mulch and leaf litter, weed management, watering down during dryer periods and planting of native flora as well as audit checks for damage or further required works.

Multiple fauna rescues occurred during the reporting period, refer to table 7-2 below. All staff and site crew have remained diligent in implementing the correct procedures when fauna have been sighted or injured, stopping works until the project ecologist has successfully removed the fauna and they had been safely relocated into adjacent unaffected habitat areas, or when injured, to the local veterinary clinic.

Table 7-2 Fauna rescues for the project throughout the reporting period

Fauna Type	Location Found	Works Occurring	Injured	Outcome
Eastern Brown Snake	Casting yard	Segment construction	No	Relocated
Brown Dove chick	Southern bank of Clarence River	Bridge construction works	No	Taken to vet



Figure 15 Carpet python spotted on top of one of the buoys on the river (left) and a baby eastern brown snake found trying to climb to reo at Pier 3 (right)

Green Tree Frog	Butters Lane dust gauge	Dust monitoring	No	Relocated
Carpet Python	Buoy on the river	Pier construction	No	Relocated
Baby eastern brown snake	Pier 3	Construction of pier	No	Relocated
Baby marsh snake	Pier 4	Construction of pier	No	Relocated
Carpet python	Southern Crane Pad	Lifting of reo	No	Relocated
Carpet python	Pound Street	Site shut down	No	Relocated

Other snake and animal sightings were reported by work crews, the animals were given space and time to move safely through the work area.

No fauna impacts were observed during the reporting period.

## 7.5 Heritage (Aboriginal & Non-aboriginal)

All staff and site crew have remained diligent in implementing the unexpected find procedure when an unexpected heritage item is encountered. Three heritage finds were found during earthworks for the main alignment in north Grafton during the reporting period. Table 7-3 below summaries all heritage finds on the project during the reporting period.

*Table 7-3 Heritage finds on the project during the reporting period*

UF Number	Date	Location	Description	Significance
17	12 Jan 18	Pound Street	Potential rubbish pit which contains some green glass bottles and ceramics	Nil
18	05 Feb 18	Rail viaduct piling pad on the corner of Bridge and Pound Street	A partially buried large bone – about 400mm long	Nil
19	01 Mar 18	10 Clarence Street	Scattered rubbish items – broken glass bottles and ceramics	Nil

All locally significant heritage locations in close proximity to the project have been protected with clear exclusion signage and boundary fencing.

## 8.0 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*

<b>Audit</b>	<b>Type of Audit</b>	<b>Date</b>	<b>Overview</b>	<b>Outcome</b>
ER Audit	External	December 2017	Six monthly and periodic ER audit	Nil
RMS Audit	External	14 Nov 2017	Six monthly Audit	Nil
ER Audit	External	17 April 2018	Six monthly and periodic ER audit	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.

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*

<b>Type of Inspection</b>	<b>Attendees</b>	<b>Duration</b>
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	Monthly
Pacific Highway RMS	John O'Donnell Jason Sheehan	Monthly

	Fulton Hogan Staff; environmental, engineers, foreman and superintendents	
NSW EPA	Craig Dunk 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
DP&E	Michael Young Fulton Hogan Staff; environmental, engineers, foreman and superintendents	As required
Environmental Consultants	SEEC Ecosure Ecology 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	RMS ER EPA Council DPI (Fisheries) DP&E Fulton Hogan Staff; environmental, construction manager	Monthly



## 9.0 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
<b>Project Information line (24-hour toll free)</b>	The Project information line ( <a href="tel:1800918759">1800 918 759</a> ) 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.
<b>Email Address</b>	The email address ( <a href="mailto:grafonbridgecommunity@fultonhogan.com.au">grafonbridgecommunity@fultonhogan.com.au</a> ) is monitored by the community relations team for incoming emails during business days.
<b>Postal Address</b>	The postal address ( <a href="#">76-79 Pound Street, Grafton NSW 2460</a> ) is monitored by the project team for incoming letters.
<b>Website</b>	The RMS Additional Crossing of the Clarence River – Grafton Bridge website ( <a href="http://www.rms.nsw.gov.au/grafonbridge">www.rms.nsw.gov.au/grafonbridge</a> ) 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).

### 9.1 Complaints Management

During the reporting period, 914 events were logged by the community team including telephone calls, meetings, emails, letters, door-knocks and visits to the project display centre.

Of these events, 25 were registered as complaints relating to environmental management issues. A summary of these complaints are shown in table 9-2 below.

Table 9-1 Environmental complaints summary

Complaint Number	Date	Environmental Relevance	Summary	Status
1	30 October 2017	Vibration	Resident rang inquiring about vibration impacts on their residence. Vibration monitoring process explained along with information regarding the Australian Standard at which structural damage such as hairline cracks in plaster could occur. Results also provided from monitoring.	Closed
2	9 November 2017	Light	Complaint about agitators using flashing lights down Pound St to site for early morning pours. Drivers were advised to turn off their flashing lights for that section of the drive to site near residential area.	Closed
3	15 November 2017	Noise and light spill and out of hours work	Resident rang to complain about construction noise from an overnight pour and complained about light spill	Closed

			from day maker. Day maker was realigned and construction crew advised to minimise noise.	
4	15 November 2017	Noise	Resident rang to say they had been woken up at 2am by noise from concrete pour. He was advised of noise monitoring regimen and mitigations in place.	Closed
5	4 December 2017	Dust and weeds	Business called to advise dust was blowing into their store from adjacent construction site and weeds were growing through joint fence line. Adjoining boundary was mowed and additional dust suppression completed.	Closed
6	11 December 2017	Light spill and noise and out of hours work	Resident rang to say she was woken by light and construction noise at 3.45am. Lighting towers were realigned and area in front of their house compacted to stop noise as trucks ran over it,	Closed
7	13 December 2017	Noise	Resident rang to say they had been woken up at 4am by noise from river pile pour. He was advised of noise monitoring regimen and mitigations in place.	Closed
8	17 January 2018	Water	Resident complained that water cart was driving onto his property and spraying water when the project did not lease it. Advised that this would not happen again and project was unaware it had happened.	Closed
9	17 January 2018	Light spill	Resident complaint about day maker left on overnight on barge. Subcontractor was advised of issue and ensured it would not happen again.	Closed
10	18 January 2018	Dust	Resident rang to complain about dust film inside their house blowing across the river from the construction site. CRM advised of dust mitigation measures and additional dust suppression was conducted onsite.	Closed
11	24 January 2018	Light spill	Resident complained of noise being emitted by light close to his house. Light was changed to solar lighting tower to reduce noise.	Closed
12	25 January 2018	Light spill	Resident complained about a flashing light going all night. The faulty sola lighting tower was removed for repair.	Closed
13	25 January 2018	Light spill	Resident texted to say lighting towers were turned on before trucks started to roll in.	Closed
14	29 January 2018	Noise and weeds	Resident complained about reversing beepers and grass getting long at Pound St site office.	Closed
15	13 February 2018	Vibration	Resident rang inquiring about vibration impacts on their residence after complaining of cracks. Vibration monitoring process explained along with information regarding the Australian Standard at which structural damage such as hairline cracks in plaster could occur. Results also provided from monitoring.	Closed
16	26 February 2018	Noise	Business complained about noise associated with stump grinding. Noise mats were brought to the site.	Closed
17	5 March 2018	Vibration	Resident complained of vibration at their house the previous week. Showed resident monitoring device and how it works in follow up meeting.	Closed
18	6 March 2018	Soil	Business complained that soil had not been compacted and nature strip was boggy. Crew returned when rain stopped and sheeted the area.	Closed

19	12 March 2018	Vibration	Resident called to say house had been shaken by loud bang on the weekend and they were concerned about their house cracking. They were advised of vibration monitoring process explained along with information regarding the Australian Standard at which structural damage such as hairline cracks in plaster could occur. Results also provided from monitoring.	Closed
20	19 March 2018	Dust	Resident complained of dust on vehicles blowing from construction area. Dust suppression was immediately increased.	Closed
21	26 March 2018	Weeds	Complaint from resident that weeds were growing up their joint boundary fence with the project. Resident was advised weeds would be managed in the coming week.	Closed
22	28 March 2018	Flora	Community group called to complain they had not been delivered timber felled during the project that had been promised to them. Timber was delivered the following week.	Closed
23	3 April 2018	Weeds	Business complained about weeds around Clarence St car park. Weeds were removed a day later.	Closed
24	6 April 2018	Noise	Resident emailed to complain about noise keeping her awake during the day. Project delivered a portable air conditioner to use so that she could sleep with the windows closed.	Closed
25	11 April 2018	Dust	Resident emailed to complain about tree stump left on Clarence St which they said impeded their ability to park and dust issues from the construction beside their house. Dust suppression was increased and stump has been removed flush to the ground and star picket removed.	Closed

## 9.2 Community Engagement Initiatives

Throughout the report period, ongoing consultation with directly impacted residents about upcoming works took place. A member of the community relations team was available at all times during standard working hours at the community display centre at 76-79 Pound Street, Grafton.

Community consultation for works between 18 October 2017 and 17 April 2018 has included:

- Vegetation removal in Villiers and Pound streets – October 2017
- Out of hours work for Pier 7 concrete pours – November 2017
- Out of hours work between November and Christmas 2017
- Out of hours work for Sunday - December 2017
- Start of segment production - January 2018
- Out of hours work January to April 2018
- Stump removal Pound St - February 2018
- Segment production schedule - February 2018

The community relations team has managed a number of community group presentations, staffed displays and static displays including the following:

- Community Displays at Grafton Shopping World in October 2017 and April 2018
- Presentation to South Grafton Probus Club - November 2017.
- Probus Club bridge walking tour - December 2017
- Grafton Business Liaison Group meeting - February 2018
- Clarence River Historical Society pre cast yard bus tour - March 2018
- Clarence Valley Anglican School bridge walking tour - March 2018
- South Grafton Business Liaison Group meeting - April 2018
- Presentation to the University of the 3<sup>rd</sup> Age - April 2018
- Grafton Senior Citizens Club presentation - April 2018.

The Project has established a positive relationship maintaining regular two-way communication 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.

# APPENDIX A

## Project Approval Compliance Table

**Additional Crossing of the Clarence River at Grafton (SSI-6103)**

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
<b>Part A - Admin Conditions</b>					
A1.	In addition to meeting the specific performance criteria established under this approval, the Proponent shall implement all feasible and reasonable measures to prevent and/or minimise any harm to the environment that may result from the construction or operation of the SSI.	Pre-construction, construction, and operation	Contractor and RMS	Open	Measures used to reduce environmental impacts include additional environmental requirements in the SWTC, a series of FHC/ RMS environmental workshops, ERG meetings (in construction), CEMP and sub-plans, environmental work method statements for high-risk construction activities.
A2.	The Proponent shall carry out the SSI generally with the: <b>(a)</b> State significant infrastructure application SSI-6103; <b>(b)</b> Additional Crossing of the Clarence River at Grafton Environmental Impact Statement Main Volume and Appendices A - L, prepared by Roads and Maritime Services, dated August 2014; <b>(c)</b> Additional Crossing of the Clarence River at Grafton Submissions Report Main Volume and Appendices, prepared by Roads and Maritime Services, dated October 2014; <b>(d)</b> Correspondence from Roads and Maritime Services to the Department titled Grafton Bridge - Additional Crossing of the Clarence River at Grafton – Proposed Early Works dated 1 December 2014; <b>(e)</b> Modification request 1 and letter dated 24 September 2015 to modify the approval to update references to public authorities in the conditions of approval; and <b>(f)</b> Conditions of this approval	Pre-construction, construction, and operation	Contractor	Open	Addressed in compliance register. These sheets are updated regularly.
A3.	If there is any inconsistency between the above documents, the more recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.	Pre-construction, construction,	Contractor	Open	No inconsistency noted at this stage.
A4.	The Proponent shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of: <b>(a)</b> any documentation or correspondence that is submitted in accordance with this approval; and <b>(b)</b> the implementation of any actions or measures contained in these documents.	Pre-construction, construction, and operation	Contractor	Open	Have an Excel sheet layer for DPE letters and applicable tracking. Refer extra Excel sheet layer for DPE letters and applicable compliance tracking.
A5.	This approval shall lapse 10 years after the date on which it is granted, unless the works the subject of this SSI approval are physically commenced on or before that date	Pre-construction, construction, and operation	RMS	Open	Construction started in October 2016 and will be completed within the ten years allowed under the approval.
A6.	The Proponent shall ensure that all licences, permits and approvals are obtained as required by law and maintained as required throughout the life of the SSI. No condition of this approval removes the obligation for the Proponent to obtain, renew or comply with such licences, permits or approvals.	Pre-construction, construction, and operation	Contractor and RMS	Open	Addressed in Deed, SWTC, G 36 and Environment Documents. Fulton Hogan has an approved EPL for the Rail Viaduct over Pound Street.
A7.	The Proponent may elect to construct and/or operate the SSI in stages. Where staging is proposed, the Proponent shall submit a <b>Staging Report</b> to the Secretary prior to the commencement of each proposed stage. The Staging Report shall provide details of: <b>(a)</b> how the SSI would be staged, including general details of work activities associated with each stage and the general timing of when each stage would commence; and <b>(b)</b> details of the relevant conditions of approval, which would apply to each stage and how these shall be complied with across and between the stages of the SSI.	Pre-construction, construction	Contractor and RMS	Open	This matter has been discussed with DPE. The Department has confirmed on 15 September 2016 that a staging report is not required for the early opening of parts of the project (Clarence Street, Iolanthe Street and Spring Street) as indicated in the email provided from RMS dated 6 September 2016. Generally the Department requires a Staging Report where a project is opened to traffic, however, as the Additional Crossing of the Clarence River at Grafton project involves a new bridge, this project is considered to be different to a Pacific Highway Upgrade project. This detail on need for a staging report has been included in the Compliance Tracking Program and Pre-construction Compliance Report for CoA A7.

Additional Crossing of the Clarence River at Grafton (SSI-6103)

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
A8.	The Proponent shall ensure that any strategy, plan, program or other document required by the conditions of this approval and relevant to each stage (as identified in the Staging Report) is submitted to the Secretary no later than one month prior to the commencement of the relevant stage(s), unless otherwise agreed by the Secretary. Notes: • While any strategy, plan or program may be submitted on a progressive basis, the Proponent will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times; and • If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program shall clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program	Pre-construction, construction	Contractor and RMS	Open	Noted, refer detail re staging above.
A9.	The Proponent shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.	Pre-construction, construction	Contractor	Open	For early works induction training booklets are issued for all works. Addressed in FHC's induction program and environmental awareness training. This would also be considered in planning sessions and addressed in EWMSs.
A10.	The Proponent shall be responsible for environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors	Construction	Contractor	Open	The project has prepared and is implementing a CEMP onsite. All sub contractors are required to work under the project CEMP. Good outcomes have been observed on the project by implementing the CEMP including the completion of 3m diameter marine piling without impact on the river
A11.	In the event of a dispute between the Proponent and a public authority, in relation to an applicable requirement in this approval or relevant matter relating to the SSI, either party may refer the matter to the Secretary for resolution. The Secretary's determination of any such dispute shall be final and binding on the parties.	Pre-construction, construction, and operation	Contractor and RMS	Open	To be undertaken if required.
A12.	The Proponent shall prepare and implement a <b>Compliance Tracking Program</b> , 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: <b>(a)</b> provisions for the notification of the Secretary 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>(b)</b> provisions for periodic review of the compliance status of the SSI against the requirements of this approval; <b>(c)</b> provisions for periodic reporting of compliance status to the Secretary, including but not limited to: <i>(i) a Pre-Construction Compliance Report, prior to the commencement of construction;</i> <i>(ii) 6-monthly Construction Compliance Reports, for the duration of construction; and</i> <i>(iii) a Pre-Operation Compliance Report prior to the commencement of operation;</i> <b>(d)</b> a program for independent environmental auditing in accordance with AS/NZS ISO 19011:2014 – Guidelines for Auditing Management Systems; <b>(e)</b> mechanisms for recording environmental incidents during construction and actions taken in response to those incidents; <b>(f)</b> provisions for reporting environmental incidents to the Department and relevant public authorities during construction; <b>(g)</b> procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management; <b>(h)</b> 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 <b>(i)</b> provisions for reporting complaints received in accordance with the Construction Complaints Management System required under condition C2 of this approval.	Pre-construction, construction, and operation	Contractor to prepare, and RMS input	Open	This table is Appendix A of the Compliance Tracking Program. Compliance is being managed under a shared compliance system by RMS and FHC, with regular updating. DPE approval letter dated 10 October 2016. The letter approved the Compliance Tracking Program and Pre-Construction Compliance Report. Modification 1 requirements raised in the DPE letter have been updated in this register.
A13.	The Proponent shall notify the EPA in relation to any pollution incident in carrying out the SSI as required by the <i>Protection of the Environment (Operations) Act 1997</i> as required by that Act. The Proponent shall provide the Secretary with a record of any such notification.	Construction	Contractor and RMS	Open	EPA are advised of all applicable incidents. EPA are given construction updates generally which include information on waste management, threatened species management and other activities as they are occurring. EPA are consulted on all of the project EWMS.

**Additional Crossing of the Clarence River at Grafton (SSI-6103)**

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
A14	The Proponent shall notify the Secretary (using the contact name and phone number notified by the Department from time to time) of any incident (other than those relating to the Protection of the Environment (Operations) Act 1997) with actual or potential significant off-site impacts on people or the biophysical environment within 24 hours of becoming aware of the incident on weekdays, or the following business day on weekends. The Proponent shall provide full written details of the incident to the Secretary within seven days of the date on which the incident occurred.	Construction	Contractor and RMS	Open	Being undertaken as required.
A15	The Proponent shall meet the requirements of the Secretary or relevant public authority (as determined by the Secretary) to address the cause or impact of any incident, as it relates to this approval, reported in accordance with condition A14, within such period as the Secretary may require.	Construction	Contractor	Open	To be undertaken as required, in consultation with DPE and RMS.
<b>Part B- Environmental Performance</b>					
B1.	The clearing of native vegetation shall be generally in accordance with the areas specified in the documents listed in condition A2, and with the objective of reducing impacts to any endangered ecological communities (EECs), threatened species and their habitat to the greatest extent practicable.	Pre-construction, construction	Contractor	Open	Clearing on the project has been completed. The overall results of clearing were that both for levees and the mainline the amount of trees proposed to be cleared in the EIS was reduced through onsite management of clearing. The full details of clearing will be included in the biodiversity offset report prepared by RMS.
B2.	Prior to construction, pre-clearing surveys and inspections for EECs and threatened species shall be undertaken. The surveys and inspections, and any subsequent relocation of species, shall be undertaken under the guidance of a suitably qualified ecologist and shall be in accordance with the methodology incorporated into the approved Construction Flora and Fauna Management Plan required under condition D46(e).	Pre-construction	Contractor	Open	Pre clearing surveys have been undertaken by a qualified ecologist appointed by FHC prior to commencement of construction. This condition has been addressed in the CFFMP. Ecosure have undertaken the majority ecological works including Pre-clearing surveys and Sandpiper are now the Project Ecologist for any ongoing matters as required by the CFFMP. The project has found 51 threatened skinks which have been moved safely away from the construction zone ahead of works. One extra hatchling was observed in a protection area in April 2018, this is a great outcome for the project
B3.	The Proponent shall undertake flora and fauna surveys of those parts of the project area previously not surveyed, due to accessibility issues, prior to the commencement of construction that affects those areas. Should threatened species, communities or habitats be identified, these shall be offset and addressed in the Biodiversity Offset Statement required under condition D1.	Pre-construction	RMS	Open	Surveys of missed areas have been undertaken by RMS in January/ February 2016. These surveys have been undertaken and 2-3 Three toed Snake Tooth Skink found in these missing lots. Further surveys were undertaken on the project and outside the project. An TTSTS MP has been prepared. DPE has been advised of the missing lot survey results and referral to the DoE re EPBC.. EPBC referral has been determined 30/06/2016 as "Not Controlled Action". Work is being undertaken in accordance with TTSTS Management plan. .
B4.	The Proponent shall undertake a targeted rehabilitation program post construction to restore riparian habitat to at least the pre-construction condition or better, unless otherwise agreed by DPI (Fisheries) and NOW.	Construction, Operation	Contractor	Open	Has been addressed in consultation with agencies and in the FFMP, UDLP and revegetation plans. The rehabilitation of the riparian areas will be targeted to follow the completion of the superstructure.
B5.	Vegetation shall be established in or adjacent to disturbed areas and include species which may provide habitat for wildlife following the completion of construction in the vicinity of the disturbed area. Revegetation is to be consistent with the Urban Design and Landscape Plan required under condition D42.	Construction, Operation	Contractor	Open	Has been addressed in consultation with agencies and in the FFMP, UDLP and revegetation plans. TTSTS MP measures have been included in the UDLP, RMS have raised the importance of this issue. As noted above, impacts on vegetation have been reduced in Grafton at 31 and 33 Pound St, 37 Pound St, 13-17 Pound St and 4 McClymont Place. The project 'Urban Design and Landscaping Plan' has been reviewed by DP&E and approved in the period.



Additional Crossing of the Clarence River at Grafton (SSI-6103)

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
B6.	Scour protection measures shall be implemented prior to and during construction on the banks of the Clarence River in the vicinity of the bridge works to protect the riverbank from erosion and instability during construction and operation.	Pre-construction, construction	Contractor	Open	The Clarence River riparian vegetation has been maintained and protected for construction. Only very minor cut stump clearing has occurred to allow for the jetty and pontoon construction. Post rainfall inspections during the reporting period confirm no visible bank erosion as a result of construction. Erosion and Sediment Control Plans have been developed in consultation with a qualified CPESC to ensure that construction activities in the vicinity do not impact on the banks of the Clarence River. The measures included in the plan are monitored and updated accordingly.
B7.	The Proponent shall consult with and provide feasible and reasonable assistance to NSW State Emergency Service and Council, prior to operation of the SSI, to: (a) prepare any new or necessary update(s) to the relevant evacuation, traffic management and flood plans and documents in relation to flooding events in Grafton and South Grafton, to reflect changes to flooding levels, flows and characteristics; and (b) prepare or update community evacuation information, to improve the community's awareness of the risk of flooding and the need to evacuate Grafton and South Grafton prior to the levees overtopping.	Pre-construction, construction	Contractor	Open	FH has consulted with SES and council on emergency response. FH will continue to work with these groups throughout construction. RMS has provided mapping showing changes to the flood behaviour to SES and Council.
B8.	Any drainage works that are intended to be operated by Council shall be designed in consultation with Council. Facilities such as back-up generators shall be provided to ensure continued operation of the Pound Street pumping station during electrical power outages.	Pre-construction	Contractor	Open	This condition is being addressed through detailed design in consultation with RMS and Clarence Valley Council.
B9.	The SSI shall be constructed and operated to comply with section 120 of the <i>Protection of the Environment Operations Act 1997</i> , which prohibits the pollution of waters.	Construction, Operation	Contractor and RMS	Open	In accordance with CoA D46 (c) a Construction Soil and Water Quality Management Plan (CSWQMP) was prepared and submitted to the Secretary for approval. The Plan outlines the mitigation and management measures that would be implemented during construction to ensure compliance with section 120 of the Protection of the Environment Operations Act 1997. Planning sessions are held for earthworks to optimise controls and PESCPs. Innovation has been achieved at Fill 1 to divert dirty water away from the Clarence. Other innovations including ESCs, basins and land irrigation are being adopted.
B10.	All water from the SSI shall be appropriately treated prior to discharge, to protect the quality of the receiving waters.	Construction, Operation	Contractor and RMS	Open	In accordance with CoA D46 (c) a Construction Soil and Water Quality Management Plan (CSWQMP) was prepared and submitted to the Secretary for approval. The Plan outlines the mitigation and management measures that will be implemented during construction to meet water quality criteria for all off site water discharges. Planning sessions are held for earthworks to optimise controls and PESCPs. Innovation has been achieved at Fill 1 to divert dirty water away from the Clarence. All sediment basins on the project continue to be well managed, the multistage over sized design has resulted in very few overflows in the 18 months of construction to date.
B11.	In the event that remediation of contaminated soils is required, the Proponent shall engage a suitably qualified and experienced contaminated land consultant to prepare a validation report upon completion of the remediation. The validation report shall verify that the site has been remediated consistent with the remediation action plan for the project and to a standard consistent with the clean-up criteria for the site.	Pre-construction, construction	Contractor and RMS	Open	The project has a 'Contaminated Land Management Plan'. In the reporting period two contaminated land unexpected finds were observed. One location is capped and management will be addressed after construction activities are completed. The other location in South Grafton is a diesel contamination and a contaminated land auditor has been appointed. The proposed final management strategy for this area is to leave the material in the ground and monitor the groundwater to ensure it does not move or cause potential offsite impacts. The management strategy and recommended measures has been developed and implemented in consultation and under the guidance of a Contaminated Land specialist and suitably qualified Contaminated Land Auditor.
B12.	The Proponent shall engage an accredited NSW Site Auditor to prepare a <b>Site Audit Report</b> and <b>Site Audit Statement</b> to determine the land use suitability. The Site Audit Report shall summarise the information reviewed by the auditor and provide the basis for the conclusions contained in the Site Audit Statement. The Statement and Report shall be submitted to the Secretary within seven days of the report being finalised and prior to the commencement of site preparation or excavation activities within areas identified as requiring remediation. A copy of the report shall also be submitted to Council for its information.	Pre-construction	RMS and Contractor	Open	A contaminated land auditor from the approved EPA list is appointed to oversee the management of the south Grafton diesel contamination. The groundwater monitoring and modelling to demonstrate this area is stable in the ground will be reviewed independently by the auditor

**Additional Crossing of the Clarence River at Grafton (SSI-6103)**

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
B13.	Impacts to Aboriginal heritage shall be minimised to the greatest extent practicable through both detailed design and construction, particularly with regard to encroachment on the Aboriginal dreaming site Golden Eel (AHIMS site number 12-6-0326). Where impacts are unavoidable, works shall be undertaken in accordance with the strategy outlined in the Construction Heritage Management Plan required under condition D46(d).	Pre-construction, construction	Contractor	Open	Management strategies are included in the project Construction Heritage Management Plan (CHMP). The CHMP was prepared in consultation with OEH, NSW Heriatge Council and Aboriginal groups. Heriatge issues have also been included in site environmental induction training. Permanent fencing has been installed on the eastern side of the corridor west of Alipou Ck in South Grafton. A meeting of Ngerrie LALC and RMS discussed Aboriginal heritage issues on 8 Feb 2016 and again on 28 June 2016. There have been further meetings with the LALC organised by Fulton Hogan. A consistency review was prepared for an additional construction area east of the project boundary and at closer to the imporant Alipou creek cultural site. Ngerrie LALC approved the boundary extension and have taken part in onsite heriatge inductions discussing the history and signifiance of the site with construction crews.
B14.	Prior to the commencement of construction in proximity to the following heritage items: CZB18, CZB25, CZB26, CZB27, CZB28, CZB30, CZB31, CZB32, CZB33 and CZB35, the Proponent shall complete all archival recordings, including photographic recording of these heritage items, unless otherwise agreed by the Secretary.	Pre-construction	Contractor and RMS	Open	Archival reports have been addressed by Biosis heritage consultants. Also included this detail in the CHMP. The reports were forwarded to relevant agencies in November 2016.
B15.	Prior to construction partially affecting the following heritage items: CZB10, CZB11, CZB19, CZB20, CZB21 and CZB37, the Proponent shall complete archival recordings of existing condition, including photographic recording of these heritage items, unless otherwise agreed by the Secretary. The Proponent shall ensure the project is conducted in a sympathetic manner that minimises impact to these sites.	Pre-construction	Contractor and RMS	Open	Archival reports have been addressed by Biosis heritage consultants. Also included this detail in the CHMP. The reports were forwarded to relevant agencies in November 2016.
B16.	Archival recording shall be undertaken by an experienced heritage consultant, in accordance with the Guidelines issued by the Heritage Council of NSW. The areas containing heritage items shall be clearly identified and/or fenced until the completion of the archival recordings. Within 6 months of completing the archival recording, the Proponent shall submit a report containing the archival and photographic recordings and the historical research, where required, to the Department, the Heritage Council of NSW, Australian Rail Track Corporation, the local library and the local Historical Society.	Pre-construction	Contractor and RMS	Open	Has been addressed by Biosis heritage consultants. Also include this detail in the CHMP.  Note updated Sched 28 ammended requirement.
B17.	A monitoring program shall be implemented for construction works in the vicinity of the flood levee in highly archaeologically sensitive areas and overseen by an appropriately qualified archaeologist. Any previously unidentified heritage items shall be managed in accordance with the procedures detailed in the Construction Heritage Management Plan provided under condition D46(d) of this approval	Pre-construction, construction	Contractor and RMS	Open	Being addressed by Biosis heritage consultants for RMS requirements only/ RMS monitoring. Biosis attended the levee works for inductions, heritage protection issues and unexpected finds. Levee work now completed. For construction of the main line project, Biosis is managing heritage issues. The CHMP has addressed this condition. The main levee construction works have been completed with only minor maintenance undertaken during the reporting period.
B18.	Prior to the commencement of construction, the Proponent shall implement 'no-go' exclusion zones to prevent access and protect the following heritage item: FMW29.	Pre-construction	Contractor	Open	The item was signposted during levee works close to the ship wreck. No impacts occurred. The construction of the bridge will not go near this site. A marine exclusion area has been implemented on the Clarence River, this area is downstream of the current bridge. The marine exclusion is also the heritage site exclusion
B19.	The Proponent shall not destroy, modify or otherwise physically affect the heritage items listed in Table 8-46 in the <i>Additional Crossing of the Clarence River at Grafton Environmental Impact Statement Main Volume</i> (RMS, August 2014).	Pre-construction, construction	Contractor	Open	The CHMP has addressed this condition. Heritage sites are included in Sensitive Area Plans. Important all heritage items are included in the GIS sensitive area plan layers, including those additional items addressed in the June 2016 Built Heritage report.
B20	Identified impacts to heritage sites shall be minimised where feasible and reasonable through both detailed design and construction, particularly with regard to retained locally listed historic properties and the existing Grafton Bridge. Where impacts are unavoidable, works shall be undertaken in accordance with the actions to manage heritage construction impacts required by condition D46(d) and under the guidance of an appropriately qualified heritage specialist.	Pre-construction, construction	Contractor and RMS	Open	This condition is being addressed through detailed design and in the CHMP.
B21.	This approval does not allow the Proponent to destroy, modify or otherwise physically affect human remains as part of the SSI	Pre-construction,	Contractor	Open	Addressed in the CHMP.
B22.	The Proponent shall not destroy, modify or otherwise physically affect any heritage items outside the SSI footprint, unless otherwise agreed by the Secretary in accordance with condition D41.	Pre-construction, construction	Contractor	Open	Addressed in the CHMP and managed during construction, including using the Sensitive Area Plans.
B23.	The measures to protect heritage sites near or adjacent to the SSI during construction shall be detailed in the Construction Heritage Management Plan required under condition D46(d).	Pre-construction	Contractor	Open	The CHMP has addressed this condition. The boundary fence has been installed on the eastern side of the works on South Grafton to protect sensitive areas to the east.

**Additional Crossing of the Clarence River at Grafton (SSI-6103)**

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
B24.	In relation to new or modified local road, parking, pedestrian and cycle infrastructure, the SSI shall, where feasible and reasonable, be designed: <b>(a)</b> <i>in consultation with the Council;</i> <b>(b)</b> <i>to take into consideration existing and future demand, road safety and traffic network impacts;</i> <b>(c)</b> <i>to meet relevant design, engineering and safety guidelines, including Austroads Guide to Traffic Engineering Practice; and</i> <b>(d)</b> <i>be certified by an appropriately qualified person that has considered the above matters.</i>	Pre-construction	Contractor	Open	This condition is being addressed by Fulton Hogan through detailed design in consultation with Council, TAFE and local businesses. The car park on the corner of Pound and Clarence St has been installed early in the project to provide extra car parking to the community as soon as possible. The temporary closure of Greaves Street and the permanent closure of Kent Street were both successfully implemented. Consultation was undertaken with Council, emergency services and local residents for these closures.
B25	The Proponent shall ensure that the SSI is designed to minimise land take impacts to surrounding properties as far as feasible and reasonable, in consultation with the affected landowners.	Pre-construction	Contractor	Open	This condition is being addressed by Fulton Hogan through detailed design in consultation with affected landowners. 13 and 15 Pound Street have had impacts removed and are now TTSTS relocation areas. Both properties have been acquired by RMS but will be returned to the property market at the end of the project. Fulton Hogan will continue to consult and engage with project neighbours throughout construction
B26	The Proponent shall, in consultation with relevant landowners, construct the SSI in a manner that minimises intrusion and disruption to surrounding properties, unless otherwise agreed by the landowner.	Pre-construction, construction	Contractor	Open	This condition is being addressed by Fulton Hogan through detailed design in consultation with affected landowners. Intrusion into other properties at 13 and 15 Pound St has been avoided by the retention of these properties. Design measures on the levees have also significantly reduced impacts to vegetation and properties.
B27	Any damage caused to property as a result of the SSI shall be rectified or the landowner compensated, within a reasonable timeframe, with the costs borne by the Proponent. This condition is not intended to limit any claims that the landowner may have against the Proponent.	Pre-construction, Construction, operation	Contractor	Open	Noted.
B28	Utilities, services and other infrastructure potentially affected by construction and operation shall be identified prior to construction to determine requirements for access to, diversion, protection, and/or support. Consultation with the relevant owner and/or provider of services that are likely to be affected by the SSI shall be undertaken to make suitable arrangements for access to, diversion, protection, and/or support of the affected infrastructure as required. The cost of any such arrangements shall be borne by the Proponent.	Pre-construction	Contractor	Open	This condition is being addressed through detailed design. Minor refinements to utilities have and are being progressed for proposed minor design refinements to utilities.
<b>Part C - Community Information and Reporting</b>					
C1.	C1. Prior to the commencement of construction or as otherwise agreed by the Secretary, the Proponent shall prepare and implement a Community Communication Strategy to the satisfaction of the Secretary. The Strategy shall provide mechanisms to facilitate communication between the Proponent (and its contractor(s)), the Environmental Representative (see condition D43), the Council and community stakeholders (particularly adjoining landowners) on the construction environmental management of the SSI. The Strategy shall include, but not be limited to: <b>(a)</b> <i>identification of stakeholders to be consulted as part of the Strategy, including affected and adjoining landowners;</i> <b>(b)</b> <i>procedures and mechanisms for the regular distribution of information to community stakeholders on construction progress and matters associated with environmental management;</i> <b>(c)</b> <i>the formation of community-based focus groups for key environmental management issues for the SSI. The Strategy shall provide detail on the structure, scope, objectives and frequency of the community-based focus groups;</i> <b>(d)</b> <i>procedures and mechanisms through which the community stakeholders can discuss or provide feedback to the Proponent and/or Environmental Representative in relation to the environmental management and delivery of the SSI;</i> <b>(e)</b> <i>procedures and mechanisms through which the Proponent can respond to enquiries or feedback from the community stakeholders in relation to the environmental management and delivery of the SSI; and</i> <b>(f)</b> <i>procedures and mechanisms that would be implemented to resolve issues/ disputes that may arise between</i>	Pre-construction	Contractor	Open	A Community Communication Strategy (CCS) has been prepared and submitted to the Secretary prior to commencement of construction. DPE approval letter dated 6 October 2016.

Additional Crossing of the Clarence River at Grafton (SSI-6103)

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
	<p>parties on the matters relating to environmental management and the delivery of the SSI. This may include the use of an appropriately qualified and experienced independent mediator.</p> <p>Issues that shall be addressed through the Community Communication Strategy include (but are not necessarily limited to):</p> <ul style="list-style-type: none"> <li>(i) flooding and hydrology matters, including levee works;</li> <li>(ii) traffic management (including parking, property access, pedestrian access);</li> <li>(iii) noise and vibration mitigation and management;</li> <li>(iv) heritage matters;</li> <li>(v) landscaping and urban design matters;</li> <li>(vi) construction staging, hours and activities;</li> <li>(vii) the relocation of moorings including a strategy for consulting with affected mooring owners;</li> <li>(viii) biodiversity matters; and</li> <li>(ix) socio-economic, property and land use impacts, including impacts to recreational and commercial river users.</li> </ul>				
C2.	<p>Prior to the commencement of pre-construction and construction, or as otherwise agreed by the Secretary, the Proponent shall ensure that the following are available for community enquiries and complaints for the duration of construction:</p> <p style="text-align: right;"><b>(a) a 24</b></p> <p>hour telephone number(s) on which complaints and enquiries about the SSI may be registered;</p> <p><b>(b)</b> a postal address to which written complaints and enquires may be sent;</p> <p><b>(c)</b> an email address to which electronic complaints and enquiries may be transmitted; and</p> <p><b>(d)</b> a mediation system for complaints unable to be resolved. The telephone number, the postal address and the email address shall be published in newspaper(s) circulating in the local area prior to the commencement of construction and prior to the commencement of operation. This information shall also be provided on the website (or dedicated pages) required by this approval.</p>	Prior to pre-construction, Prior to construction, prior to operation.	Contractor and RMS	Open	The web site is being updated progressively by RMS and Fulton Hogan. A toll free number is established and well publicised in all communications material since the development of the project. Postal address is established to the RMS Pacific Highway Office and publicised in all communications material and on the website. A dedicated Grafton Bridge email address is established and managed by RMS. Addressed in Community Communications Strategy. This are included in the project web site. RMS placed advertisements prior to commencement of construction on two occasions (between 12 October and 19 October) in the Grafton Coastal Views, Grafton Daily Examiner and Clarence Valley Review.
C3.	<p>Prior to the commencement of pre-construction and construction, or as otherwise agreed by the Secretary, the Proponent shall prepare and implement a <b>Construction Complaints Management System</b> consistent with AS 4269: <i>Complaints Handling</i> and maintain the System for the duration of construction and up to 12 months following completion of the SSI. Information on all complaints received, including the means by which they were addressed and whether resolution was reached, with or without mediation, shall be maintained in a complaints register and included in the construction compliance reports required by condition A12 of this approval. The information contained within the System shall be made available to the Secretary and relevant agencies on request.</p>	Prior to pre-construction	Contractor and RMS	Open	<p>Consultation Manager database is established which manages and tracks consultation, feedback and complaints. This will be handed over to the contractor to manage through construction.</p> <p>Fulton Hogan's Construction Complaints Management System is described in the Community Communications Strategy.</p>
C4.	<p>Prior to the commencement of pre-construction and construction, or as otherwise agreed by the Secretary, the Proponent shall establish and maintain a new website, or dedicated pages within an existing website, for the provision of electronic information associated with the SSI, for the duration of construction and for 12 months following completion of the SSI. The Proponent shall, subject to confidentiality, publish and maintain up-to-date information on the website or dedicated pages including, but not necessarily limited to:</p> <ul style="list-style-type: none"> <li><b>(a)</b> information on the current implementation status of the SSI;</li> <li><b>(b)</b> a copy of the documents listed in condition A2, and any documentation supporting modifications to this approval that may be granted from time to time;</li> <li><b>(c)</b> a copy of this approval and any future modification to this approval;</li> <li><b>(d)</b> a copy of each relevant environmental approval, licence or permit required and obtained in relation to the SSI;</li> <li><b>(e)</b> a copy of each current strategy, plan, program or other document required under this approval;</li> <li><b>(f)</b> the outcomes of compliance tracking in accordance with condition A12 of this approval; and</li> <li><b>(g)</b> details of contact point(s) to which community complaints and enquiries may be directed, including a telephone number, a postal address and an email address.</li> </ul>	Prior to pre-construction	Contractor and RMS	Open	The Grafton Bridge web site has been established for a long period and is regularly updated with Community Updates. The EIS is included in the web site. Subs report and planning approval docs on website. <a href="http://www.rms.nsw.gov.au/projects/northern-nsw/grafton-clarence-river-crossing/environmental-impact-statement.html">http://www.rms.nsw.gov.au/projects/northern-nsw/grafton-clarence-river-crossing/environmental-impact-statement.html</a>
<b>Part D - Construction Environmental Management, Reporting and Auiting.</b>					

**Additional Crossing of the Clarence River at Grafton (SSI-6103)**

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
D1.	<p>Prior to the commencement of operation of the SSI, the Proponent shall prepare a <b>Biodiversity Offset Statement</b> in consultation with the EPA. The Statement shall: <b>(a)</b> confirm the threatened species, communities and their habitat (in hectares) cleared and their condition; and <b>(b)</b> provide details of measures to offset impacts of the SSI on native vegetation, including threatened species, communities and their habitats, including the timing, responsibility, management and monitoring, and implementation of the offset measures.</p> <p>Biodiversity impacts shall be offset in accordance with the document Principles for the Use of Biodiversity Offsets in NSW (DECCW, 2008). A copy of the statement shall be submitted to the Secretary and EPA.</p>	Construction	Contractor and RMS		Biodiversity Offset Statement will be prepared in consultation with the DPE and EPA. It is important to note that the project impact 0.41 ha of EEC vegetation, remaining impacts include weeds/ planted native vegetation. TTSTS impacts would need to be considered. Vegetation impacts have been reduced on the levees and somewhat on the Grafton bridge side of the project. The Biodiversity Offset Statement is currently in an early draft format.
D2.	<p>Construction activities associated with the SSI shall be undertaken during the following standard construction hours:</p> <p><b>(a)</b> 7:00 am to 6:00 pm Monday to Friday, inclusive; and</p> <p><b>(b)</b> 8:00 am to 1:00 pm Saturday; and</p> <p><b>(c)</b> at no time on Sunday or public holidays.</p>	Construction	Contractor	Open	Hours of work and Out-of-Hours Work Protocol have been included in the CNVMP. The CNVMP has been submitted to the Secretary for approval and was approved as part of the CEMP. During the reporting period one out of hours activity occurred in consultation with EPA, local community and sensitive receivers - approved by the project ER
D3.	<p>Construction works outside the standard construction hours may be undertaken in the following circumstances:</p> <p><b>(a)</b> construction works that generate noise and vibration that is:</p> <p><b>(i)</b> LAeq(15 minute) noise levels no more than 5 dB(A) above rating background level at any residence in accordance with the Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009); and</p> <p><b>(ii)</b> LAeq(15 minute) noise levels no more than the noise management levels specified in Table 3 of the Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009) at other sensitive receivers; and</p> <p><b>(iii)</b> continuous or impulsive vibration values, measured at the most affected residence, that are no more than those for human exposure to vibration, specified for residences in Table 2.2 of Assessing Vibration: a technical guideline; and</p> <p><b>(iv)</b> intermittent vibration values, measured at the most affected residence, that are no more than those for human exposure to vibration, specified for residences in Table 2.4 of Assessing Vibration: a technical guideline; or</p> <p><b>(b)</b> where a negotiated agreement has been reached with affected receivers, where the prescribed noise and vibration levels cannot be achieved; or</p> <p><b>(c)</b> for the delivery of materials required outside the standard construction hours by the NSW Police Force or other authorities for safety reasons; or</p> <p><b>(d)</b> where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or</p> <p><b>(e)</b> out-of-hours work in accordance with condition D4.</p>	Construction	Contractor	Open	Out of hours works have been required for a number of reasons in the reporting period, those reasons included: new services construction, services connections, concrete pours to manage temperature and critical works that were not audible. The approval pathway for the works has been under condition D3 the works were either done with a negotiated agreement or they were inaudible.
D4.	<p>Construction activities which cannot be undertaken during the standard construction hours for technical or other justifiable reasons (Out of Hours work) may be permitted with the approval of the Environmental Representative. Out of Hours work shall be undertaken in accordance with an approved Construction Environment Management Plan or Construction Noise and Vibration Management Plan for the SSI, where that plan provides a process for the consideration of Out of Hours work. This consideration includes:</p> <p><b>(a)</b> process for obtaining the Environmental Representative's approval for Out of Hours work;</p> <p><b>(b)</b> details of the nature and need for activities to be conducted during the varied construction hours;</p> <p><b>(c)</b> justifies the varied construction hours in accordance with the Interim Construction Noise Guideline (DECC, 2009);</p> <p><b>(d)</b> provides evidence that consultation with potentially affected receivers, that the issues raised have been addressed and all feasible and reasonable mitigation measures have been put in place; and</p> <p><b>(e)</b> provides evidence of consultation with the EPA and Council on the proposed work outside the standard construction hours.</p>	Construction	Contractor	Open	Out of hours works have been required for a number of reasons in the reporting period, those reasons included: new services construction, services connections, concrete pours to manage temperature and critical works that were not audible. The approval pathway for the works has generally been under condition D3 the works were either done with a negotiated agreement or they were inaudible. <b>On</b> one occasion condition D4 was used when a residents agreement could not be gained. The project ER review the justification, mitigations and consultation before approving the works. The works were completed without complaints.

**Additional Crossing of the Clarence River at Grafton (SSI-6103)**

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
D5.	Construction activities resulting in impulsive or tonal noise emission (such as rock breaking, rock hammering, pile driving) shall only be undertaken: (a) between the hours of 8:00 am to 6:00 pm Monday to Friday; (b) between the hours of 8:00 am to 1:00 pm Saturday; and (c) in continuous blocks not exceeding three hours each with a minimum respite from those activities and works of not less than one hour between each block. For the purposes of this condition 'continuous' includes any period during which there is less than a one hour respite between ceasing and recommencing any of the work the subject of this condition.	Construction	Contractor	Open	See CNVMP
D6.	The Proponent shall, where feasible and reasonable, limit high noise impact activities and work to the mid-morning and mid-afternoon periods.	Construction	Contractor	Open	See CNVMP
D7.	The SSI shall be constructed with the aim of achieving the construction noise management levels detailed in the <i>Interim Construction Noise Guideline</i> (DECC, 2009). All feasible and reasonable noise mitigation measures shall be implemented and any activities that could exceed the construction noise management levels shall be identified and managed in accordance with the Construction Noise and Vibration Management Plan required under condition D46(a).				See CNVMP. At residence vibration monitoring is undertaken as required and results discussed at each ERG.
D8.	The SSI shall be constructed with the aim of achieving the following construction vibration goals: (a) for structural damage to heritage structures, the vibration limits set out in the German Standard DIN 4150-3: <i>Structural Vibration – Part 3 Effects of vibration on structures</i> ; (b) for damage to other buildings and/or structures, the vibration limits set out in the British Standard BS 7385-1:1990 – <i>Evaluation and measurement of vibration in buildings - Guide for measurement of vibration and evaluation of their effects on buildings (and referenced in Australian Standard 2187.2 – 2006 Explosives – Storage and use – Use of explosives)</i> ; and (c) for human exposure, the acceptable vibration values set out in <i>Assessing Vibration: A Technical Guideline</i> (Department of Environment and Conservation, 2006).	Construction	Contractor	Open	The project is undertaking vibration monitoring at sensitive receivers for all works which cause vibration and are near sensitive receivers. The monitoring is compliant with the project CNVMP for the reporting period.
D9.	Wherever feasible and reasonable, piling activities shall be undertaken using quieter construction methods, such as bored piles or vibrated piles rather than impact or percussion piling methods.	Construction	Contractor	Open	The has been no percussing piling on the project, piles in Grafton near residents have used a method of vibration and drill and vibration to install steel casings.
D10	During construction, affected educational institutions shall be consulted and reasonable steps taken to ensure that noise generating construction works in the vicinity of affected buildings are not timetabled during examination periods where practicable, unless other reasonable arrangements to the affected institutions are made at no cost to the affected institution.	Construction	Contractor	Open	The TAFE situated in Grafton NSW shares boundaries with the project on Clarence and Pound Street. The project consults with TAFE about upcoming works, access, disruption to services, changes to traffic. Consultation takes place on average twice a month. The project has done the following to mitigate impacts on the TAFE: working outside of normal construction hours to reduce impacts during class times, improved temporary pavements to reduce dust, scheduled only low noise activities during exams.
D11.	The Proponent shall undertake a review of the operational noise mitigation measures proposed to be implemented for the SSI, within six months of commencing construction, unless otherwise agreed by the Secretary. The review shall be submitted for the approval of the Secretary, and be prepared in consultation with the EPA, and shall:	Construction	Contractor	Open	Operational Noise report submitted to DP&E and approved by Secretary on 4/8/2017.
D12.	Where feasible and reasonable, operational noise mitigation measures shall be implemented at the start of construction (or at other times during construction) to minimise construction noise impacts.	Pre - Construction and Construction	Contractor	Open	RMS is undertaking at residence treatment and is endeavouring to complete this pre start of road and bridge construction. The Contractor is required to design operational noise measures and measures such as noise walls and low noise pavements. These measures need completion of earthworks/ drainage as a first stage. The Contractor is finalising the Operational Noise Report and this includes operational noise mitigation measures.  Scoping of sensitive receivers impacted by noise levels that exceed the RNP guidelines has commenced. The first package of building works for the installation of mitigation commenced in September 17 and was completed in March 2018 and included 19 properties. The second package commenced in mid October 2017 and was completed in April 2018 and included 17 properties. The final package of works will commence in the next reporting period and will in the remaining 4 properties and the TAFE.
D13.	Access to all properties shall be maintained during construction, where feasible and reasonable, unless otherwise agreed by the relevant property owner or occupier. Any access physically affected by the SSI shall be reinstated to at least an equivalent standard, unless agreed with by the property owner.	Construction	Contractor	Open	See CTAMP. CTAMP has been submitted to the Secretary for approval. This plan was approved with the CEMP. Works have been scheduled and implemented to ensure that access to properties is maintained during construction works in consultation with the affected property owners.

**Additional Crossing of the Clarence River at Grafton (SSI-6103)**

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
D14.	Safe pedestrian and cyclist access through or around worksites shall be maintained during construction. In circumstances where pedestrian and cyclist access is restricted due to construction activities, a satisfactory alternate route shall be provided and signposted.	Construction	Contractor	Open	Access has been maintained through the worksite at all times for pedestrians travelling from town and across the existing bridge. The access has been moved at times but always remained open and safely presented for pedestrians. Safety and amenity has been maintained by sealing the path and providing temporary lighting
D15.	Construction vehicles (including staff vehicles) associated with the SSI shall be managed to: <b>(a)</b> minimise parking or queuing on public roads; <b>(b)</b> minimise idling and queuing in local residential streets where practicable; <b>(c)</b> minimise the use of local roads (through residential streets and town centres) to gain access to construction sites and compounds; and <b>(d)</b> adhere to the nominated haulage routes identified in the Construction Traffic and Access Management Plan required under condition D46(b)	Construction	Contractor	Open	Parking for the project works have been modified to reduce the traffic and visual effects on neighbours and the community. Where possible traffic is directed through the project away from public roads, for example this method has been used to bring in concrete trucks for sub-structure works in Grafton.
D16.	Where feasible and reasonable, the Proponent shall provide alternative temporary parking spaces for formal on-street parking spaces removed and/or impacted by the construction of the SSI. The location and number of temporary or relocated parking spaces shall be determined in consultation with Council and affected businesses. The alternative parking spaces shall be provided prior to commencement of construction activities that impact on parking spaces within the SSI footprint.	Construction	Contractor	Open	See CTAMP. CTAMP has been submitted to the Secretary for approval and approved by DPE. Pound St carpark has been completed and open to traffic. This 28 space carpark will provide alternate parking for the TAFE and adjacent businesses during construction.
D17.	Upon determining the haulage route(s) for construction vehicles associated with the SSI, and prior to construction, an independent and qualified expert shall prepare a <b>Road Dilapidation Report</b> for local roads outside the SSI boundary. The Report shall assess the current condition of the road and describe mechanisms to restore any damage that may result due to their use by traffic and transport related to the construction of the SSI. The Report shall be submitted to Council for review prior to the commencement of haulage. Following completion of construction, a subsequent Report shall be prepared to assess any damage that may have resulted from the construction of the SSI. Measures undertaken to restore or reinstate local roads affected by the SSI shall be undertaken in a timely manner, in accordance with the reasonable requirements of Council, and at the full expense of the Proponent. <i>Note:</i> <ul style="list-style-type: none"> <li>• Nothing in this condition restricts the Proponent commencing adjustments and minor upgrades to the existing road network to cater for construction traffic and installation of temporary project signage prior to the commencement of construction.</li> </ul>	Construction	Contractor	Open	A road dilapidation report was completed prior to construction vehicles accessing public roads, the reports were compiled in March 2017.
D18.	Where available and practicable, and of appropriate chemical and biological quality, stormwater, recycled water or other water sources shall be used, where feasible and reasonable, in preference to potable water for construction activities, including concrete mixing and dust control.	Construction	Contractor	Open	This condition has been addressed in the CSWQMP. The issues has also been discussed at the ERG meetings in July and Aug 2016. Water source options have been discussed at ERGs. Fulton Hogan will where possible recycle captured site waters to aid this extra capacity will be provided in site sediment basins. Blue book requirements to empty sediment basins after rainfall will also be met
D19.	Soil and water management measures consistent with <i>Managing Urban Stormwater - Soils and Construction Volumes 1 and 2, 4th Edition</i> (Landcom, 2004) shall be employed during the construction of the SSI to minimise soil erosion and the discharge of sediment and other pollutants to land and/or water.	Construction	Contractor	Open	This condition has been addressed in the CSWQMP. Innovation has been applied at Fill 1 to divert dirty water away from the Clarence and improvement treatment.
D20.	Works in riparian areas and on riverfront land shall be undertaken in accordance with NOW guidelines for controlled activities on waterfront land, as applicable				This issue is being addressed in updated riparian designs. Also being addressed in the Biodiversity offset Statement currently under preparation, which includes riparian areas inside and outside the project.
D21.	The Proponent shall consult with the NSW State Emergency Service during detailed design on feasible and reasonable measures to maximise the evacuation capability of Grafton and South Grafton during a major flood emergency.	Pre-construction	Contractor and RMS	closed	The project has consulted with CVC and SES during the detailed design phase to implement measures that will maximise the flood evacuation capability of Grafton and South Grafton during a major flood event.

**Additional Crossing of the Clarence River at Grafton (SSI-6103)**

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
D22.	<p>The Proponent shall undertake further flood modelling based on the detailed design of the SSI. The flood modelling shall consider the recommendations of WMAwater outlined in Appendix A <i>EIS flooding and hydrology technical paper peer review</i> in the document listed in condition A2(c), and:</p> <p><b>(a)</b> include a detailed floor level survey of potentially affected properties, as identified in the flood modelling;</p> <p><b>(b)</b> update the flood frequency analysis and application of the latest hydrological practice of the new Australian Rainfall and Runoff publication;</p> <p><b>(c)</b> assess the same design flood events as those in the EIS, including the probable maximum flood (PMF) event; and</p> <p><b>(d)</b> assess and report all flood height changes to a resolution no coarser than 1cm.</p>	Pre-construction	Contractor and RMS	Open	<p>WBM are undertaking the flood modelling for RMS. WMA are the appointed RMS independent hydrologic consultant. KBR have prepared the Hydrological Mitigation report.</p> <p>The Hydrological Mitigation Report was approved by the secretary on 6/7/2016 in accordance with D23. The HMR included further flood modelling based on the detailed design of the new bridge and the recommendations from WMAwater outlined in Appendix A EIS flooding and hydrology technical paper peer review.</p>
D23.	<p>The Proponent shall prepare a <b>Hydrological Mitigation Report</b> that details all feasible and reasonable flood mitigation measures for properties where flood impacts are predicted to increase as a result of the SSI. The Report shall be prepared by a suitably qualified and experienced expert, whose appointment has been approved by the Secretary. The Report shall:</p> <p><b>(a)</b> be informed by the detailed surveys (e.g. floor levels) of potentially affected properties and the results of the flood modelling of the detailed design carried out under condition D22 of this approval and in consultation with EPA and Council;</p> <p><b>(b)</b> include mitigation measures based on documented flood management objectives for affected properties. The flood management objectives shall cover flood level (height), duration, velocity and direction, and flood evacuation and be developed in consultation with Council and the SES;</p> <p><b>(c)</b> ensure mitigation measures that include changes to the height of the levees have no detrimental impact on residences and urban land uses protected by the levees and properties downstream of the SSI;</p> <p><b>(d)</b> identify properties in those areas likely to have an increased/exacerbated flooding impact and detail the predicted impact. The types of impacts to be considered include all those examined in the EIS including but not limited to changes in flood levels and velocities, alteration to drainage, reduction in flood evacuation access or capability and impacts on infrastructure,;</p> <p><b>(e)</b> identify mitigation measures to be implemented to address these impacts;</p> <p><b>(f)</b> identify measures to be implemented to minimise scour and dissipate energy at locations where flood velocities are predicted to increase as a result of the SSI;</p> <p><b>(g)</b> demonstrate consistency with the flood management objectives in subsection (b);</p> <p><b>(h)</b> be developed in consultation with directly-affected landowners, and Council and in relation to public assets and community flood evacuation issues; and</p> <p><b>(i)</b> where house raising is proposed, ensure habitable floor levels are raised to a minimum height of the 100 year ARI flood plus 0.5m freeboard, unless justified by site-specific assessment.</p> <p>Where the flood management objectives in subsection (b) cannot be complied with, the Proponent shall achieve compliance through modified design of the SSI; or achieve an acceptable level of mitigation of impacts through at property design measures (e.g. raised access tracks, flood refuge, house raising) in consultation with affected landowners. The Report shall be submitted for the approval of the Secretary one month prior to the commencement of construction within the floodplain that has potential to alter flood behaviour, unless otherwise agreed by the Secretary. Construction shall not commence on any components of the SSI that have potential to alter flood conditions until such time as works identified in the hydrological mitigation report have been completed, unless otherwise agreed by the Secretary.</p>	Pre-construction	RMS	closed	<p>Schedule 41.Future Approvals to be obtained by RMS. "The Secretary of the Department of Planning and Environment's approval required by condition D23. of the Planning Minister's Approvals in respect of the Hydrological Mitigation Report".</p> <p>KBR have prepared the Hydrological Mitigation report and DPE have approved it.</p> <p>(a) potentially affected properties have been identified. Floor level surveys have been completed.</p> <p>(b) Flood management objectives have been set in the HMR and have been developed in consultation with Council and SES.</p> <p>(c) the proposed levee mitigation measures have no measurable impact on properties downstream of the new bridge.</p> <p>(d) potentially affected properties have been identified. Floor level surveys have been completed and directly affected property owners have been consulted with. One shed floor has been raised slightly.</p> <p>(e) Likely mitigation measures have been identified in the HMR.</p> <p>(f) Flood velocities are mostly not predicted to increase. Where they do increase, the potential impact is addressed in the HMR.</p> <p>(g) Flood management objectives are identified in the HMR and they form the basis for determining flood impact on properties</p> <p>(h) Directly affected landowners and Council have been consulted with with regard to refinement of public assets (levee). This consultation is ongoing.</p> <p>(i) No house raising is required. One shed floor has been raised.</p> <p>Mitigation measures are being determined in consultation with landowners.</p> <p>The HMR has been submitted to DPE and approved by DPE on 6/7/2016.</p> <p>Levee mitigation measures are now complete.</p>
D24.	<p>Based on the mitigation measures identified in the Hydrological Mitigation Report, the Proponent shall prepare and implement a final schedule of feasible and reasonable flood mitigation measures proposed at each directly-affected property in consultation with the landowner, and consistent with the flood management objectives described in condition D23(b). The schedule shall be provided to the relevant landowner(s) prior to the implementation/construction of the mitigation works, unless otherwise agreed by the Secretary. A copy of each schedule of flood mitigation measures shall be provided to the Department and Council prior to the implementation/construction of the mitigation measures on the property.</p>	Pre-construction	RMS	Open	<p>Copies of the final mitigation measures have been provided to relevant land owners, CVC and provided to DP&amp;E.</p>
D25.	<p>The Proponent shall undertake engineering and property investigations of the Grafton and South levees prior to detailed design to inform the structural capability of changes to the levees. Any work to augment the structure of the levees shall be carried out in consultation with Council and affected landowners. Note:• Should additional assessment of work arising from the engineering and property investigations of the levees be required, the proponent shall undertake a review of the consistency of those works with the SSI approval. Work that is inconsistent with the SSI may require a modification of the approval.</p>	Pre-construction, construction	RMS	Open	<p>RMS organised regular meetings with Council, OEH and SES to progress levee upgrading works. PWD have undertaken an engineering assessment of the levees and detailed design of the levee works for RMS.</p> <p>All levee works completed. All work has been carried out in accordance with plans approved by Clarence Valley Council and the private landowners of individual properties impacted.</p>



**Additional Crossing of the Clarence River at Grafton (SSI-6103)**

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
D26.	The proposed Grafton and South Grafton levee flood mitigation measures shall be implemented prior to construction commencing in the Clarence River, including pier/pile construction and the installation of temporary in-river rock platforms, unless otherwise agreed by the Secretary.	Pre-construction	Contractor	Open	Grafton and South Grafton flood levee mitigation measures implemented with secretary approval received 29/3/2017 to allow commencement of construction in the Clarence River.
D27	The Proponent shall employ a suitably qualified and experienced independent hydrological expert, whose appointment has been endorsed by the Secretary, to provide independent advice for all hydrological matters, including assistance to landowners in resolving feasible and reasonable mitigation measures.	Pre-construction, construction	RMS	closed	WMA are the appointed RMS independent hydrologic consultant. The appointment of WMA Water has been approved by DPE on 27/11/2015.
D28	During detailed design, the Proponent shall undertake a detailed drainage study of the SSI adjacent to the northern and southern approach roads within the levees to ensure there are no adverse impacts to property or existing infrastructure. The study shall be carried out in consultation with Council and include the design of the Pound Street drainage basin and pumping station, and Council's existing drainage and flood relief systems.	Pre-construction	Contractor and RMS	closed	A detailed drainage study has been undertaken for the areas adjacent to the SSI for the northern and southern approach roads. This study was undertaken in consultation with CVC and SES.
D29.	The SSI shall be constructed in a manner that minimises dust emissions from the site, including wind-blown and traffic-generated dust and tracking of material onto public roads. All activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Proponent shall identify and implement all feasible and reasonable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease.	Construction	Contractor	Open	Addressed in the CAQMP. CAQMP has been submitted to the Secretary for approval and approved as part of the CEMP. Construction measures to reduce dust emissions include the use of water carts, mud tracking controls, revegetation, monitoring wind conditions and other measures. Dust monitoring results are discussed at monthly ERGs.
D30.	Dangerous goods, as defined by the Australian Dangerous Goods Code, shall be stored and handled strictly in accordance with: (a) all relevant Australian Standards;(b) for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume, within the bund; and (c) the Environment Protection Manual for Authorised Officers: Bunding and Spill Management, technical bulletin (Environment Protection Authority, 1997). In the event of an inconsistency between the requirements listed from (a) to (c) above, the most stringent requirement shall prevail to the extent of the inconsistency.	Construction	Contractor	Open	This has been addressed in CWEMP submitted to the Secretary for approval and approved as part of the CEMP.
D31.	Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the Protection of the Environment Operations Act 1997, if such a licence is required in relation to that waste.	Construction	Contractor	Open	Waste is not been received on the project. Waste will be managed through the correct waste stream and taken to licenced facilities as required.
D32.	The reuse and/or recycling of waste materials generated on site shall be maximised as far as practicable, to minimise the need for treatment or disposal of those materials off site.	Construction	Contractor	Open	This has been addressed in CWEMP submitted to the Secretary for approval and approved as part of the CEMP. Clearing material has been used for timber eg Men Shed and used for mulch for landscaping and erosion and sediment control. As much as possible of the house demolition materials were recycled. Topsoil is recycled as well as waste concrete and steel where possible. Recycled paper is used in site offices.
D33.	All liquid and/or non-liquid waste generated on the site shall be assessed and classified in accordance with Waste Classification Guidelines (Department of Environment, Climate Change and Water, 2009).	Construction	Contractor	Open	This has been addressed in CWEMP submitted to the Secretary for approval and approved as part of the CEMP.
D34.	All waste materials removed from the site shall only be directed to a waste management facility or premises lawfully permitted to accept the materials.	Construction	Contractor	Open	This has been addressed in CWEMP submitted to the Secretary for approval and approved as part of the CEMP.
D35.	The Proponent shall ensure that all plant and equipment used at the site is: <b>(a)</b> maintained in a proper and efficient condition; and <b>(b)</b> operated in a proper and efficient manner.	Construction	Contractor	Open	This has been addressed in CWEMP submitted to the Secretary for approval and approved as part of the CEMP.

Additional Crossing of the Clarence River at Grafton (SSI-6103)

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
D36.	<p>The sites for ancillary facilities that are associated with the construction of the SSI and that have not been identified and assessed in the documents listed in condition A2 shall:</p> <p><b>(a)</b> be located more than 50 metres from a waterway, including the Clarence River;</p> <p><b>(b)</b> be located within or adjacent to the SSI boundary;</p> <p><b>(c)</b> have ready access to the road network or direct access to the construction corridor;</p> <p><b>(d)</b> be located to minimise the need for heavy vehicles to travel through residential areas;</p> <p><b>(e)</b> be located in areas of low ecological significance and require no clearing of native vegetation;</p> <p><b>(f)</b> be located on relatively level land;</p> <p><b>(g)</b> be separated from the nearest residences by at least 200 metres (or at least 300 metres for a temporary batching plant);</p> <p><b>(h)</b> be above the 20 year ARI flood level unless a contingency plan to manage flooding is prepared and implemented;</p> <p><b>(i)</b> not unreasonably affect the land use of adjacent properties;</p> <p><b>(j)</b> provide sufficient area for the storage of material to minimise, to the greatest extent practical, the number of deliveries required outside standard construction hours; and</p> <p><b>(k)</b> be located in areas of low heritage conservation significance (including areas identified as being of Aboriginal cultural value) and not impact on heritage sites beyond those already impacted by the SSI.</p> <p>The Proponent shall undertake an assessment of the facility against the above criteria in consultation with the relevant public authority(s) and the Council. The site and relevant environmental management measures shall be included in the Construction Environmental Management Plan required under condition D45.</p>	Pre-Construction, Construction	Contractor	Open	This has been addressed in Appendix A5 of the CEMP. Ancillary facilities include two houses on Pound Street that have been retained rather than demolished. This is all within the SSI corridor. An approved ancillary area is located on the eastern site of Iolanthe Street, north of Bunnings. The casting yard is within the EIS/ CEMP approved corridor/ approved ancillary area.
D37.	<p>Ancillary facilities that have not been previously identified and assessed in the documents listed in condition A2, and do not meet the criteria set out under condition D36, shall be approved by the Environmental Representative prior to its establishment. In obtaining this approval, the Proponent shall consult with the relevant public authority(s) and the Council, and demonstrate to the satisfaction of the Environmental Representative, how the potential environmental impacts can be mitigated and managed to acceptable standards. The outcomes of the assessment shall be documented in a report and include, but not necessarily be limited to:</p> <p><b>(a)</b> details on the site location and access arrangements;</p> <p><b>(b)</b> a description of the activities to be undertaken including the hours of use and storage of dangerous goods;</p> <p><b>(c)</b> outcomes of the assessment of the site against the locational criteria set out in condition D36;</p> <p><b>(d)</b> an assessment of the environmental impacts on the site and the surrounding environment, including, but not limited to noise, vibration, air quality, traffic and access during site establishment and operation, flora and fauna, heritage, erosion and sedimentation, water quality and light spill;</p> <p><b>(e)</b> details of the mitigation, monitoring and management procedures specific to the ancillary facility that would be implemented to minimise environmental impacts; and</p> <p><b>(f)</b> demonstrated overall consistency with the approved SSI (including impacts identified in the documents listed in condition A2).</p> <p>A copy of the report shall be included in the Construction Environmental Management Plan required under condition D45.</p>	Pre-Construction, Construction	Contractor	Open	This has been addressed in Appendix A5 of the CEMP. Assessment of ancillary sites against these criteria will be undertaken by Fulton Hogan where proposed in consultation with RMS. Refer additional ancillary sites under MCoA D 36.
D38.	<p>Notwithstanding condition D37, ancillary facilities that have not been previously identified and assessed in the documents listed in condition A2 and result in additional impacts to biodiversity, heritage, flooding and noise beyond those approved for the SSI, shall be approved by the Secretary prior to their establishment. In order to obtain this approval, the Proponent shall undertake an assessment of the ancillary facility in accordance with condition D37 and forward a copy of the assessment report to the Secretary, as part of the approval submission, at least one month prior to the establishment of the facility.</p>	Pre-construction	Contractor and RMS	Open	This will be undertaken by Fulton Hogan in consultation with RMS where proposed. An office ancillary site in Pound/ Greaves St has been approved, all within the SSI corridor. The two houses used were originally to be demolished, but are now retained, improving street amenity.
D39.	<p>All ancillary facilities and access points shall be rehabilitated to at least their preconstruction condition or better, unless otherwise agreed by the landowner where relevant.</p>	Construction	Contractor	Open	This will be undertaken by Fulton Hogan in consultation with RMS.

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CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
D40.	Where changes are made to the boundary or use of an ancillary facility, including facilities identified in the documents listed in condition A2, the Proponent shall assess the facility against the criteria set out in condition D36 If the ancillary facility site: <b>(a)</b> does not meet the criteria set out under condition D36 the Proponent shall seek the approval of the Environmental Representative in accordance with condition D37; or <b>(b)</b> results in impacts to biodiversity, heritage, flooding and noise beyond those approved for the SSI, the Proponent shall seek the approval of the Secretary in accordance with condition D38 . The relevant approval shall be obtained prior to the establishment of the ancillary facility.	Pre-construction	Contractor and RMS	Open	This will be undertaken by Fulton Hogan in consultation with RMS where proposed.
D41.	The Proponent may undertake archaeological investigations at ancillary sites that do not meet the criterion set out in condition D36, where this is required to assess the potential Aboriginal and non-Aboriginal archaeological impacts of the ancillary facility provided they are undertaken under a methodology prepared to the satisfaction of the Secretary in consultation with EPA.	Pre-construction	Contractor	Open	This will be undertaken by Fulton Hogan in consultation with RMS where proposed. A archaeologist/ LALC site walk over was undertaken for the Woods ancillary area (had been heritage assessed previously in the EIS) and Robertson easement.
D42.	The Proponent shall prepare and implement an Urban Design and Landscape Management Plan prior to the commencement of permanent built works and/or landscaping, unless otherwise agreed by the Secretary, to present an integrated landscape and design for the SSI. The Plan shall be prepared in accordance with the Roads and Maritime Services urban design and visual guidelines, and the design principles and revegetation guidelines outlined in the EIS. The Plan shall be prepared by an appropriately qualified expert in consultation with EPA, including the Heritage Division, Council and community, and submitted to the Secretary for approval. The Plan shall include, but not necessarily be limited to: <b>(a)</b> identification of design principles and standards based on - (i) local environmental values, (ii) heritage values, (iii) urban design context, (iv) sustainable design and maintenance, (v) community amenity and privacy, (vi) relevant design standards and guidelines including "Crime Prevention Through Environmental Design Principles", and (vii) the urban design objectives outlined in the EIS Technical Paper Urban Design and Landscape Concept Report; <b>(b)</b> details on the location of existing vegetation and proposed landscaping (including use of indigenous and endemic species where possible). Details of species to be replanted/revegetated shall be provided in a Revegetation Strategy, including their appropriateness to the area and habitat for threatened species; <b>(c)</b> a description of locations along the corridor directly or indirectly impacted by the construction of the SSI (e.g. temporary ancillary facilities, access tracks, etc.) and details of the strategies to progressively rehabilitate regenerate and/or revegetate the locations with the objective of promoting biodiversity outcomes and visual integration; <b>(d)</b> appropriate roadside plantings and landscaping in the vicinity of heritage items and ensure no additional heritage impacts; <b>(e)</b> appropriate landscape treatments on flood levees to ensure the structural integrity of the levees is not compromised; <b>(f)</b> strategies for progressive landscaping of environmental controls (such as erosion and sedimentation controls, drainage controls); <b>(g)</b> responsibilities for maintaining landscaping treatments and areas of regeneration and revegetation; <b>(h)</b> location and design treatments for any associated footpaths and cyclist elements, and other features such as seating, fencing, materials and signs; <b>(i)</b> a lighting plan lighting (with lighting in accordance with AS/NZS 1158 Lighting for Roads and Public Spaces series as relevant and AS 4282-1997 Control of the Obtrusive Effect of Outdoor Lighting) including lighting designs; <b>(j)</b> an assessment of the visual screening effects of existing vegetation and the proposed landscaping and built elements. Where properties have been identified as likely to experience high visual impact as a result of the SSI and high residual impacts are likely to remain, the Proponent shall, in consultation with affected landowners, identify opportunities for providing at-property landscaping to further screen views of the SSI. Where agreed with the landowner, these measures shall be implemented during the construction of the SSI; <b>(k)</b> graphics such as sections, perspective views and sketches for key elements of the SSI, including, but not limited to built elements of the SSI; <b>(l)</b> final design details of the proposed external materials and finishes for the bridge and noise barriers, including	Pre-construction	Contractor	Open	The Urban Design and Landscaping plan for the project was submitted to the DP&E during the reporting period with a clarification that works around the pump station are to be finalized due to some design changes. Those changes are related to the location of where the pump station power box will be and how this structure will be managed so that it blends into the landscape of the finished project.

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CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
	<p>schedules and a sample board of materials and colours;</p> <p><b>(m)</b> monitoring and maintenance procedures for the built elements, including performance indicators, responsibilities, timing and duration; and</p> <p><b>(n)</b> evidence of consultation with EPA, Council and community on the proposed urban design and landscape measures prior to finalisation of the Plan.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>The Urban Design and Landscape Plan shall be consistent with any revegetation and biodiversity offsets established for the SSI under the conditions of this approval.</li> </ul>				
D43.	<p>Prior to the commencement of construction of the SSI, or as otherwise agreed by the Secretary, the Proponent shall nominate for the approval of the Secretary a suitably qualified and experienced Environmental Representative(s) that is independent of the design and construction personnel. The Proponent shall employ the Environmental Representative(s) for the duration of construction, or as otherwise agreed by the Secretary. The Environment Representative(s) shall:</p> <p><b>(a)</b> be the principal point of advice in relation to the environmental performance of the SSI;</p> <p><b>(b)</b> monitor the implementation of environmental management plans and monitoring programs required under this approval and advise the Proponent upon the achievement of these plans/programs;</p> <p><b>(c)</b> have responsibility for considering and advising the Proponent on matters specified in the conditions of this approval, and other licences and approvals related to the environmental performance and impacts of the SSI;</p> <p><b>(d)</b> ensure that environmental auditing is undertaken in accordance with the Proponent's Environmental Management System(s);</p> <p><b>(e)</b> be given the authority to approve/reject minor amendments to the Construction Environment Management Plan. What constitutes a "minor" amendment shall be clearly explained in the Construction Environment Management Plan;</p> <p><b>(f)</b> be given the authority to approve/reject Out of Hours Works in accordance with condition D4. These works shall be conducted in accordance with the Out of Hours Works Protocol (OOHW Protocol) required in accordance with condition D46(a)(vi);</p> <p><b>(g)</b> be given the authority to approve/reject ancillary facilities in accordance with conditions D36 and D37;</p> <p><b>(h)</b> be given the authority and independence to require reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse impact on the environment be likely to occur; and</p> <p><b>(i)</b> be consulted in responding to the community concerning the environmental performance of the SSI where the resolution of points of conflict between the Proponent and the community is required.</p>	Pre-construction	RMS	Open	Simon Williams has been appointed the Environmental Representative for the project/ approved by DPE on 16/1/2015.
D44.	<p>The Environmental Representative shall prepare and submit to the Secretary a monthly report on the Environmental Representative's actions and decision on matters specified in condition D43 for the preceding month. The reports shall be submitted within seven (7) days from the end of each month for the duration of construction of the SSI, or as otherwise agreed by the Secretary. Notwithstanding, the Environmental Representative shall be given the independence to report to the Secretary at any time and/or at the request of the Secretary.</p>	Construction	RMS	Open	The Project Environmental Representative restarted in early 2016 and increased presence at 20 September, 2016. Recommended monthly reports from October 2016 as agreed with DPE.
D45.	<p>The Proponent shall prepare and implement a <b>Construction Environmental Management Plan</b> for the SSI, prior to the commencement of construction, or as otherwise agreed by the Secretary. The Plan shall be prepared in consultation with relevant agencies and Council and outline the environmental management practices and procedures that are to be followed during construction. The Plan shall be prepared in accordance with the <i>Guideline for the Preparation of Environmental Management Plans</i> (Department of Infrastructure, Planning and Natural Resources, 2004) : SEE CRITIRIA Clause D45 (a) - (d)(x) of Consolidated instrument Grafton Bridge Modification Document</p>	Pre-Construction	Contractor and RMS	Open	<p>CEMP has been submitted to the Secretary for approval.</p> <p>The following associated management plans have also been submitted to the Secretary for approval:</p> <ul style="list-style-type: none"> <li>- CNVMP</li> <li>- CSWQMP</li> <li>- CFFMP</li> <li>- CAQMP</li> <li>- CCLMP</li> <li>- CFMP</li> <li>- CHMP</li> <li>- CTAMP.</li> </ul> <p>The CEMP and Management Plans were approved by DPE.</p>

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CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
D46.	As part of the Construction Environmental Management Plan for the SSI, the Proponent shall prepare and implement: SEE CRITERIA Clause D46 (a) - (f)(vii) of Consolidated instrument Grafton Bridge Modification Document				DPE CEMP approval was received on 4 October 2016, subject to addressing 4 conditions. DPE issue another letter dated 5 October 2016 correcting errors in the CEMP plan list.
<b>Part E - Operational Environmental Management, Reporting and Auditing</b>					
E1.	The SSI shall be designed and operated with the objective of not exceeding the road noise criteria outlined in the NSW Road Noise Policy (Department of Environment, Climate Change and Water, 2011).	Pre-construction, Operation	Contractor and RMS	Open	There are extensive Environmental Document requirements for design and operation in regards to noise. The SWTC App 4 includes extensive operational noise requirements and the Operational Noise Management Report. Still being considered as part of detailed design
E2.	The Pumping Station at Pound Street shall be designed and operated (including regular maintenance and testing) to not exceed the noise criteria in the <i>NSW Industrial Noise Policy</i> (2000).	Pre-construction, construction, operation	Contractor	Open	The operational noise report establishes the project criteria for long term noise management goals in section 2.5. The specific assessment for the pump station is in section 4.8 of the same report. The final model of the pump will need to be checked against the assumptions and noise modelling of that used in section 4.8. This review will be completed in the next reporting period.
E3.	<p>The Proponent shall undertake operational noise monitoring, to compare actual noise performance of the SSI against noise performance predicted in the review of noise mitigation measures required by condition D11 within 12 months of the commencement of operation of the SSI, or as otherwise agreed by the Secretary. The Proponent shall subsequently prepare an Operational Noise Compliance Report to document this monitoring. The Report shall include, but not necessarily be limited to:</p> <p>(a) noise monitoring to assess compliance with the operational noise levels predicted in the review of operational noise mitigation measures required under condition D11 and documents listed in condition A2;</p> <p>(b) a review of the operational noise levels in terms of criteria and noise goals established in the NSW Road Noise Policy 2011;</p> <p>(c) methodology, location and frequency of noise monitoring undertaken, including monitoring sites at which SSI noise levels are ascertained, with specific reference to locations indicative of impacts on sensitive receivers;</p> <p>(d) details of any complaints and enquiries received in relation to operational noise generated by the SSI between the date of commencement of operation and the date the report was prepared;</p> <p>(e) any required recalibrations of the noise model taking into consideration factors such as noise monitoring and actual traffic numbers and proportions;</p> <p>(f) an assessment of the performance and effectiveness of applied noise mitigation measures together with a review and if necessary, reassessment of feasible and reasonable mitigation measures; and</p> <p>(g) identification of additional feasible and reasonable measures to those identified in the review of noise mitigation measures required by condition D11, that would be implemented with the objective of meeting the criteria outlined in the NSW Road Noise Policy 2011, when these measures would be implemented and how their effectiveness would be measured and reported to the Secretary and the EPA.</p> <p>The Proponent shall provide the Secretary and the EPA with a copy of the Operational Noise Report within 60 days of completing the operational noise monitoring referred to in (a) above or as otherwise agreed by the Secretary.</p>	Pre-construction, construction, operation	RMS	Open	Operational noise monitoring will be undertaken within 12 months of the commencement of operation.
E4.	Prior to the commencement of operation, the Proponent shall incorporate the SSI into existing environmental management systems administered by the Proponent and prepared in accordance with the AS/NZS ISO 14000 or similar Environmental Management System series. If there is an inconsistency between the existing environmental management systems and the conditions of this SSI approval, the requirements of this SSI approval shall prevail.	Construction, Operation	Contractor and RMS	Open	To be undertaken closer to operation.

Additional Crossing of the Clarence River at Grafton (SSI-6103)

CoA Ref	Condition	Timing	Responsible Party	Status (open/closed)	Compliance comments
E5.	<p>Within 18 months of the commencement of operation, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the SSI. This audit shall:</p> <p><b>(a)</b> be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;</p> <p><b>(b)</b> include consultation with the relevant agencies and Council;</p> <p><b>(c)</b> assess the environmental performance of the SSI and assess whether it is complying with the requirements in this approval, and any other relevant approvals (including any assessment, plan or program required under these approvals);</p> <p><b>(d)</b> review the adequacy of any approved strategy, plan or program required under the abovementioned approvals; and</p> <p><b>(e)</b> recommend measures or actions to improve the environmental performance of the SSI, and/or any strategy, plan or program required under these approvals.</p>	Operation	RMS	Open	<p>To be undertaken in operation.</p> <p>Sch 41. Future Approvals to be obtained by RMS.</p> <p>"The Secretary of the Department of Planning and Environment's approval required by condition E5. of the Planning Minister's Approvals in respect of the suitably qualified, experienced and independent team of experts to conduct an Independent Environmental Audit of the SSI (as defined in the Planning Minister's Approvals)".</p>
E6.	<p>Within 90 days of commissioning this audit, or as otherwise agreed by the Secretary, the Proponent shall submit a copy of the audit report to the Secretary and relevant public authorities, together with its response to any recommendations contained in the audit report. Should the Audit identify unsatisfactory compliance with the SSI approval, the Secretary may require an additional Audit to be undertaken at a later date(s).</p>	Operation	RMS	Open	To be undertaken in operation.
E7.	<p>The Proponent shall maintain the SSI in accordance with the documents listed in condition A2 and any strategy, plan, program or other document required by the conditions of this approval.</p>	Operation	RMS	Open	Noted.

## APPENDIX B

### Water Quality Monitoring Results



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

Date	Sample Location	Site	Turbidity (NTU)	pH	Conductivity (µs/cm)	Temp (C)	Observations			Flow		Comments
							Oil/ Grease	Algae	Debris	Speed	Colour	
30/10/2017	Sailing Club	US1	10.1	7.11	192	24.4	No	No	No	Slow	Brown	
30/10/2017	Boat Ramp South	US2	10.11	7.17	197	24.5	No	No	No	Slow	Brown	
30/10/2017	Alipou Creek	US3	14	7.5	230	25.4	No	No	No	Slow	Brown	
30/10/2017	Pound Street	DS1	10.66	7.1	192	24.2	No	No	No	Slow	Brown	
30/10/2017	DS River/Butters Lane	DS2	8	7.3	180	23.9	No	No	No	Slow	Brown	
30/10/2017	Barge	DS3	6.3	7.4	185	24.6	No	No	No	Slow	Brown	
21/11/2017	Sailing Club	US1	37.7	8.1	236	25	No	No	No	Slow	Brown	
21/11/2017	Boat Ramp South	US2	8.26	8.17	335	24.6	No	No	No	Slow	Brown	
21/11/2017	Alipou Creek	US3	6.56	7.95	643	22	Yes	No	No	Slow	Clear	Oil sheen on surface, sample taken from near pacific highway crossing
21/11/2017	Pound Street	DS1	44.3	8.27	202	24.9	No	No	No	Slow	Brown	
21/11/2017	DS River/Butters Lane	DS2	9.37	8.41	424	24.8	No	No	No	Slow	Brown	
21/11/2017	Barge	DS3	8.22	8.45	469	23.9	No	No	No	Slow	Brown	
21/12/2017	Sailing Club	US1	9.11	8.18	163	30	No	No	No	Slow	Brown	
21/12/2017	Boat Ramp South	US2	9.81	8.17	164.5	29.5	No	No	No	Slow	Brown	
21/12/2017	Alipou Creek	US3	7.21	8.03	242.8	29.9	No	No	No	Slow	Clear	
21/12/2017	Pound Street	DS1	10.11	8.16	199.5	30.2	No	No	No	Slow	Brown	
21/12/2017	DS River/Butters Lane	DS2	-	-	-	-	-	-	-	-	-	
21/12/2017	Barge	DS3	9.93	8.25	167.2	29.1	No	No	No	Slow	Brown	
22/01/2018	Sailing Club	US1	10.38	8.47	147.5	29.6	No	No	No	Slow	Brown	
22/01/2018	Boat Ramp South	US2	11.74	8.44	153.8	28.3	No	No	No	Slow	Brown	
22/01/2018	Alipou Creek	US3	4.7	7.77	751	28	No	No	No	Still	Brown	
22/01/2018	Pound Street	DS1	11.38	8.35	156.6	28	No	No	No	Slow	Brown	
22/01/2018	DS River/Butters Lane	DS2	-	-	-	-	-	-	-	-	-	



22/01/2018	Barge	DS3	10.69	8.26	144.5	28.7	No	No	No	Slow	Brown	
26/02/2018	Sailing Club	US1	4.37	8.43	138.2	30.2	No	No	No	Slow	Brown	
26/02/2018	Boat Ramp South	US2	3.92	8.52	145.6	29.1	No	No	No	Slow	Brown	
26/02/2018	Alipou Creek	US3	6.73	8.72	492.8	30.3	No	No	No	Still	Brown	
26/02/2018	Pound Street	DS1	5.16	8.59	154	28.5	No	No	No	Slow	Brown	
26/02/2018	DS River/Butters Lane	DS2	-	-	-	-	-	-	-	-	-	
26/02/2018	Barge	DS3	4.18	8.49	144.7	29.4	No	No	No	Slow	Brown	
12/03/2018	Sailing Club	US1	28.7	7.89	108.2	29.1	No	No	No	Moderate	Brown	Heavy rainfall previous week - increase in turbidity
12/03/2018	Boat Ramp South	US2	26.1	8.39	157.8	27.7	No	No	No	Moderate	Brown	
12/03/2018	Alipou Creek	US3	-	-	-	-	-	-	-	-	-	Not monitored due to heavy rainfall making access unsafe
12/03/2018	Pound Street	DS1	29.1	7.63	132.5	29	No	No	No	Moderate	Brown	
12/03/2018	DS River/Butters Lane	DS2	-	-	-	-	-	-	-	-	-	
12/03/2018	Barge	DS3	28.3	7.69	137.4	28.9	No	No	No	Moderate	Brown	

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

Date Sampled	Monitoring	Sample Location	Depth (m)	Temp (C)	pH	Conductivity (µs/cm)	PAH's	Dissolved Metals	BTEX/TPH	Comments
28/11/2017	5098/1	SW1 South Sentinel	1.59	22.5	6.4	1850	No	No	No	Slight hydrocarbon odour
28/11/2017	5098/2	SW2 Middle Sentinel	2.19	21.6	6.6	942	No	No	No	Turbid, very slight odour
28/11/2017	5098/3	SW3 North Sentinel	5.86	23.9	6.1	596	No	No	No	Turbid, very slight odour
28/11/2017	5098/4	PMW05	4.13	23.3	7.1	1410	No	No	No	Grey, slight hydrocarbon odour
28/11/2017	5098/5	PMW06	5.03	24.9	6.8	1040	Yes	No	Yes	Dark grey, strong hydrocarbon odour
28/11/2017	5098/6	PMW04	5.83	23.4	6.9	1360	No	No	Yes	Grey, slight hydrocarbon odour, visual slick
28/11/2017	5098/7	FD (South Sentinel)	(NT)	22.9	6.4	1880	No	No	No	Slight hydrocarbon odour
28/11/2017	5098/8	PMW01	4.29	23.4	6.6	504	Yes	No	Yes	Grey, hydrocarbon odour, slight visual slick

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



# APPENDIX C

## Noise and Vibration Monitoring Results

### C-1: Noise monitoring completed during the reporting period

Monitoring Type	Date	Time (24 hr)	Works Activity	Works Location	Monitoring Location	NML (RBL+5)	LA <sub>eq15</sub>	LA <sub>max</sub>	LA <sub>min</sub>	LA <sub>10</sub>	LA <sub>90</sub>	Compliant	Additional Comments
Out of hours	24/10/17	6:03	Pier 3-02 Pour	Pier 3	Pound Street Jetty	40	52.1	73.6	47.1	53.6	49.1	Yes	Bird's dominant noise source 52-54 dBA up to 68 dBA (lorikeets). Construction work audible but not intrusive. Concrete pump engine 51-52 dBA when revving. Background 49 dBA
Out of hours	24/10/17	6:21	Pier 3-02 Pour	Pier 3	8 Greaves Street	40	54.7	72.5	47.7	57.9	49.9	Yes	Bird's dominant noise source. Bridge traffic audible. Construction works barely audible over background.
Spot check (background)	26/10/17	13:32	Installation of pile cages	Pier 7	8 Greaves Street	54	56.3	67.2	44.6	59.6	48.5	Yes	Background monitoring prior to use of vibration head for pile driving. Only excavator operating. Spiking to 63 dBA as excavator tracked passed. Background 50 dBA
Spot check (activity)	26/10/17	13:48	Installation of pile cages	Pier 7	8 Greaves Street	54	55.8	67.8	42.7	59.1	45	Yes	Monitoring undertaken during use of 110M vibration pile driving head. Banging of head inaudible, no change from background sample
Periodic (monthly)	27/10/17	13:00	Load and haul of fill	Fill 1	Butters lane residents	49	47.7	66.3	41.5	49.9	43.5	Yes	Background 45 dBA. Bird's dominant noise source 46-48 dBA up to 61 dBA. Plane overhead 59 dBA. Occasional tail slam from trucks onsite audible (twice throughout sample)
Periodic (monthly)	27/10/17	13:30	Construction of segment moulds	Casting Yard	28 Through Street	69	64.4	77.7	49.6	68.1	54.6	Yes	Background 57 dBA. Dominant noise source passing traffic, up to 74 dBA. Occasional hammering audible from site - 59 dBA
Periodic (monthly)	27/10/17	13:48	Piling at pier 4 and pile spoil removal	Southern bank of the Clarence River	3 Riverside Drive	69	55.6	82.8	47.6	57	50.2	Yes	Background 49 dBA. Dominant noise source bridge traffic - 52-54 dBA. Birds 54 dBA. People passing with radio on bikes 81 dBA. Construction inaudible over background
Periodic (monthly)	27/10/17	14:45	Service relocation works	Clarence Street	16 Clarence Street	58	58.4	76.2	49.7	62.8	51.9	Yes	Background 54 dBA. Construction and traffic dominant noise source. Cars passing up to 66 dBA
Periodic (monthly)	27/10/17	14:28	Load and Haul of fill	Greaves and Kent Street	10 pound Street	54	48.4	70.9	40.5	49.6	42.9	Yes	Background 42 dBA. Dominant noise source birds - up to 56 dBA. Construction works barely audible over background and only occasionally. Trucks on bridge 61 dBA
Periodic (monthly)	27/10/17	14:10	Load and Haul of fill and service relocation	Greaves and Kent Street	5 Kent Street	63	59.5	78.5	51.5	63.1	54.4	Yes	Background 54 dBA. Construction dominant noise source. Excavator operating 55 dBA. Reverse quacker of bobcat 57 dBA. Grinder/cutting machine 63 dBA. Trucks on bridge 61 dBA. Trucks making conscious effort not to slam tailgate after unloading fill

Out of hours	8/11/17	3:10	Welding and connecting cages, concrete pump	Pier 7	1 Fitzroy Street	36	44.4	79	36	43.6	38.2	Yes	See minuted detail. Compliant - agreement with community
Out of hours	8/11/17	3:57	Final preparations prior to concrete onsite	Pier 7	22 Pound Street	40	55.9	79.5	33.2	53.6	43.2	Yes	See minuted detail. Compliant - agreement with community
Out of hours	8/11/17	4:17	Concrete pumping and placing works	Pier 7	Cnr Greaves and Pound	40	48.7	70.6	43.1	50.9	45.6	Yes	See minuted detail. Compliant - agreement with community
Out of hours	8/11/17	4:35	Pumping concrete, trucks onsite	Pier 7	5 Kent Street	36	67.2	89	44.3	70.1	49.4	Yes	See minuted detail. Compliant - agreement with community
Out of hours	8/11/17	2:50	Set up and testing of concrete pump	Pier 7	7 Greaves Street	40	50.1	64.1	45.9	52.6	47.1	Yes	See minuted detail. Compliant - agreement with community
Out of hours	12/11/17	23:45	No works	Greaves and Kent Street	5 Kent Street	36	39.8	49.1	33.7	45.8	35.9	Yes	See minuted detail. Compliant - agreement with community
Out of hours	13/11/17	0:04	No works	Greaves and Kent Street	20 Pound Street	40	40.5	53	34.8	42.5	36.5	Yes	See minuted detail. Compliant - agreement with community
Out of hours	13/11/17	0:20	No works	Greaves and Kent Street	7 Greaves Street	40	54.4	82.9	31.8	60.6	33.3	Yes	See minuted detail. Compliant - agreement with community
Out of hours	13/11/17	1:03	Pile pour preparation	Pier 7	5 Kent Street	36	53.9	74.2	48.3	58.7	49.6	Yes	See minuted detail. Compliant - agreement with community
Out of hours	13/11/17	1:25	Pile pour preparation	Pier 7	8 Greaves Street	40	55.3	69.7	51.4	57.2	52.7	Yes	See minuted detail. Compliant - agreement with community
Out of hours	13/11/17	1:43	Pile pour preparation	Pier 7	7 Greaves Street	40	55.1	70.6	50.8	56.9	52.4	Yes	See minuted detail. Compliant - agreement with community
Out of hours	13/11/17	2:01	Pile pour preparation	Pier 7	10 pound Street	40	42.3	59.8	37.3	44.4	38.7	Yes	See minuted detail. Compliant - agreement with community
Out of hours	15/11/17	1:35	Drilling and preparation of pile	Pier 7	18 Pound Street	40	57.5	72.9	42.9	64.3	44.7	Yes	See minuted detail. Compliant - agreement with community
Out of hours	15/11/17	1:18	Drilling and preparation of pile	Pier 7	Cnr of Pound and Kent Street	40	43.6	61.4	37.6	45.1	39.7	Yes	See minuted detail. Compliant - agreement with community
Out of hours	15/11/17	1:55	Drilling and preparation of pile	Pier 7	10 Greaves Street	40	55.7	65.4	52.2	56.8	53.6	Yes	See minuted detail. Compliant - agreement with community
Out of hours	15/11/17	3:44	Pile Pour	Pier 7	Cnr of Pound and Kent Street	40	63.4	75.8	45.7	68.3	47.8	Yes	See minuted detail. Compliant - agreement with community
Out of hours	15/11/17	4:04	Pile Pour	Pier 7	10 pound Street	40	51.9	69.4	46.2	53.8	49.4	Yes	See minuted detail. Compliant - agreement with community
Out of hours	15/11/17	4:21	Pile Pour	Pier 7	7 Greaves Street	40	63.4	70.9	59.6	65	61.9	Yes	See minuted detail. Compliant - agreement with community

Out of hours	15/11/17	4:41	Pile Pour	Pier 7	5 Kent Street	40	55.9	68.7	50.7	57.7	53.4	Yes	See minuted detail. Compliant - agreement with community
Out of hours	23/11/17	5:04	Pile Pour	Pier 4	Pound Street Jetty	40	54.2	76.8	45.2	56	49.7	Yes	See minuted detail. Compliant - agreement with community
Out of hours	23/11/17	5:25	Pile Pour	Pier 4	3 Riverside Drive	41	54.3	83.5	40.2	54.7	44.7	Yes	See minuted detail. Compliant - agreement with community
Out of hours	11/12/17	4:41	Pile pour	Pier 5	3 Riverside Drive	41	52.1	69.5	41	55.5	43.8	Yes	See minuted detail. Compliant - CoA D4
Out of hours	11/12/17	5:04	Pile pour	Pier 5	Pound Street Jetty	40	56.5	69.6	48.7	60.2	50.5	Yes	See minuted detail. Compliant - CoA D4
Periodic (monthly)	13/12/17	13:51	No works	Fill 1	Butters lane residents	49	58.5	84.7	38.3	52	40.6	Yes	See minuted detail - Compliant (no works)
Periodic (monthly)	13/12/17	14:10	Preparation of moulds for segments	Casting Yard	28 Through Street	69	63	75.4	49.3	66.4	53.4	Yes	See minuted detail - Compliant. Construction works inaudible above background.
Periodic (monthly)	13/12/17	14:29	Piers 5 and 6 preparation	Southern bank of the Clarence River	3 Riverside Drive	69	54.7	67.3	49	56.7	51.3	Yes	See minuted detail - Compliant
Periodic (monthly)	13/12/17	15:20	No works	Clarence Street	16 Clarence Street	58	58.1	73.1	47.8	61.7	49.2	Yes	See minuted detail - Compliant (no works)
Periodic (monthly)	13/12/17	15:40	Earthworks for Abutment B	Greaves and Kent Street	10 pound Street	54	53.3	68.7	46.3	55	48.2	Yes	See minuted detail - Compliant
Periodic (monthly)	13/12/17	14:54	Earthworks for Abutment B	Greaves and Kent Street	5 Kent Street	58	56.9	65.6	51.6	58.9	53.3	Yes	See minuted detail - Compliant
Out of hours	21/12/17	5:09	Pile pour	Pier 5	3 Riverside Drive	41	52.8	64.2	43.9	59.3	45.3	Yes	See minuted detail. Compliant - CoA D4
Out of hours	21/12/17	5:35	Pile pour	Pier 5	18 Pound Street	40	54.7	66	47.9	57.4	49.4	Yes	See minuted detail. Compliant - CoA D4
Out of hours	21/12/17	5:53	Pile pour	Pier 5	10 Greaves Street	40	59.7	66.7	54.6	62.7	57.1	Yes	See minuted detail. Compliant - CoA D4
Out of hours	16/1/18	0:02	Dewatering of pump station	Pump Station	18 Pound Street	40	56.8	70.1	37.9	63.3	38.8	Yes	See minuted detail. Compliant
Out of hours	16/1/18	0:38	Dewatering of pump station	Pump Station	5 Kent Street	40	42	53.2	35.5	45.6	38.2	Yes	See minuted detail. Compliant
Out of hours	16/1/18	0:19	Dewatering of pump station	Pump Station	8 Greaves Street	40	41.8	49.3	37.2	43.8	39.1	Yes	See minuted detail. Compliant
Periodic (monthly)	24/1/18	14:20	No Works	Fill 1	Butters lane residents	49	48.6	57.4	42.5	51.2	45	Yes	See minuted detail. Compliant
Periodic (monthly)	24/1/18	14:40	Preparation for segment pour	Casting Yard	28 Through Street	69	61.6	71	49.4	64.9	53.6	Yes	See minuted detail. Compliant
Periodic (monthly)	24/1/18	15:30	Forming of pile	Pier 2	3 Riverside Drive	69	59.9	67.9	55.5	61.7	57.6	Yes	See minuted detail. Compliant
Periodic (monthly)	24/1/18	15:51	Setting of pump station	Pump Station	16 Clarence Street	58	58.3	68.9	51	60.6	53.7	Yes	See minuted detail. Compliant
Periodic (monthly)	25/1/18	11:04	Import of fill	Abutment B	10 pound Street	54	50.1	61.8	45.5	52.1	47.1	Yes	See minuted detail. Compliant

Periodic (monthly)	25/1/18	11:21	Import of fill	Pound Street towards rail viaduct	5 Kent Street	58	60.8	75	50.6	64.3	52.6	Yes	See minuted detail. Compliant
Out of hours	25/1/18	6:15	Pile pour	Pier 6	14 Greaves Street	40	58.5	65.5	55.6	62.2	56.1	Yes	See minuted detail. Compliant - CoA D4
Out of hours	25/1/18	6:32	Pile pour	Pier 6	Cnr of Pound and Kent Street	40	59.8	73.1	48	63	50.8	Yes	See minuted detail. Compliant - CoA D4
Out of hours	2/2/18	5:02	Pile Pour	Pier 6	10 greaves Street	40	58.3	60.3	56.8	59	57.5	Yes	See minuted detail. Compliant - CoA D4
Periodic (monthly)	22/2/18	10:12	No works	Fill 1	Butters lane residents	49	46.6	62	42	48	43.9	Yes	See minuted detail. Compliant
Periodic (monthly)	22/2/18	10:30	Mould preparation	Casting Yard	28 Through Street	69	61.7	77.7	49.7	64.7	53.4	Yes	See minuted detail. Compliant
Periodic (monthly)	22/2/18	10:50	Crane Pad rectification	Southern bank of the Clarence River	3 Riverside Drive	69	62.2	74.2	49.1	64.7	57.5	Yes	See minuted detail. Compliant
Periodic (monthly)	22/2/18	12:39	Drainage Installation	Clarence Street	16 Clarence Street	58	62.7	81.7	52	64.1	54	Yes	See minuted detail. Compliant
Periodic (monthly)	22/2/18	12:20	Load and Haul	Fill 3 & Pound Street	10 pound Street	54	49.2	59.8	41.8	51.7	43.8	Yes	See minuted detail. Compliant
Periodic (monthly)	22/2/18	13:00	Coring of 08-02	Pier 8	5 Kent Street	58	55.5	65.2	49	58.1	51.7	Yes	See minuted detail. Compliant
Periodic (monthly)	23/3/18	10:04	No works	Fill 1	Butters lane residents	49	50.9	70.5	43	50.5	46	Yes	See minuted detail. Compliant
Periodic (monthly)	23/3/18	10:43	Segment Pour Preparation	Casting Yard	28 Through Street	69	64.6	80.2	50.2	67.9	55.1	Yes	See minuted detail. Compliant
Periodic (monthly)	23/3/18	11:04	Pier Construction	Pier 2 and 3	3 Riverside Drive	69	61.4	73.9	53.9	63.9	57.2	Yes	See minuted detail. Compliant
Periodic (monthly)	26/3/18	13:44	Excavation of pound street	Pound Street	16 Clarence Street	58	61.6	76.8	51.4	64.6	52.6	Yes	See minuted detail. Compliant
Periodic (monthly)	26/3/18	13:18	No Works	No Works	10 pound Street	54	44.9	65.8	40.9	45.9	41.8	Yes	See minuted detail. Compliant
Periodic (monthly)	26/3/18	12:53	Construction of culvert headwall	Kent Street	5 Kent Street	58	56.1	76.5	48	56	50.8	Yes	See minuted detail. Compliant



## C-2: Vibration monitoring completed during the reporting period

Date	Construction Activity	Monitoring location	Structure	Building Structure Requirement (mm/s)	Human Response Criteria (mm/s)	Recorded Peak (mm/s)	Compliant	Additional Comments
24/10/17	Piling	8 Greaves Street	Residential	20	200	1.04	Yes	Drill rig using 7T vibration hammer to install pile casings
25/10/17	Piling	8 Greaves Street	Residential	20	200	1.71	Yes	Drill rig using 7T vibration hammer to install pile casings
26/10/17	Piling	8 Greaves Street	Residential	20	200	3.06	Yes	110M vibration hammer installing pile casings at Pier 7
27/10/17	Piling	8 Greaves Street	Residential	20	200	0.49	Yes	110M vibration hammer installing pile casings at Pier 7
31/10/17	Piling	8 Greaves Street	Residential	20	200	1.52	Yes	110M vibration hammer installing pile casings at Pier 7
1/11/17	Piling	8 Greaves Street	Residential	20	200	0.14	Yes	110M vibration hammer installing pile casings at Pier 7
2/11/17	Piling	8 Greaves Street	Residential	20	200	0.23	Yes	Splicing and installation of pile cages
3/11/17	Piling	8 Greaves Street	Residential	20	200	1.31	Yes	Drilling Pier 7
4/11/17	Piling	8 Greaves Street	Residential	20	200	0.95	Yes	Drilling Pier 7
5/11/17	Background (No works)	8 Greaves Street	Residential	20	200	0.24	Yes	Background check - no activity (weekend)
6/11/17	Piling	8 Greaves Street	Residential	20	200	1.52	Yes	Drilling Pier 7
7/11/17	Piling	8 Greaves Street	Residential	20	200	0.89	Yes	Drilling Pier 7
8/11/17	Pile Pour	8 Greaves Street	Residential	20	200	0.75	Yes	Pile pour
9/11/17	Piling	8 Greaves Street	Residential	20	200	0.53	Yes	Splicing and installation of pile cages, pile drilling
10/11/17	Piling	8 Greaves Street	Residential	20	200	1.22	Yes	Drilling Pier 7
11/11/17	Piling	8 Greaves Street	Residential	20	200	1.90	Yes	Drilling Pier 7
12/11/17	Background (No works)	8 Greaves Street	Residential	20	200	0.24	Yes	Background check - no activity (weekend)
13/11/17	Pile Pour preparation	8 Greaves Street	Residential	20	200	0.98	Yes	Pour did not occur, preparation works were undertaken

14/11/17	Piling	8 Greaves Street	Residential	20	200	1.05	Yes	Drilling Pier 7
15/11/17	Pile Pour	8 Greaves Street	Residential	20	200	0.64	Yes	Pile pour for Pier 7
15/11/17	Earthworks construction for abutment B	15 Pound Street	Residential	20	200	4.16	Yes	Beginning of fill placement for Abutment A
22/1/18	Earthworks construction for abutment B	15 Pound Street	Residential	20	200	0.95	Yes	Placement and compaction of fill for Abutment B
23/1/18	Earthworks construction for abutment B	15 Pound Street	Residential	20	200	0.99	Yes	Placement and compaction of fill for Abutment B
24/1/18	Earthworks construction for abutment B	15 Pound Street	Residential	20	200	0.66	Yes	No vibration works
25/1/18	Earthworks construction for abutment B	15 Pound Street	Residential	20	200	0.45	Yes	No vibration works
1/2/18	Earthworks construction for abutment B	15 Pound Street	Residential	20	200	4.30	Yes	Placement and compaction of fill for Abutment B
2/2/18	Earthworks construction for abutment B	15 Pound Street	Residential	20	200	0.24	Yes	No vibration works
3/2/18	Background (No works)	15 Pound Street	Residential	20	200	0.23	Yes	Saturday - no works due to wet weather
4/2/18	Background (No works)	15 Pound Street	Residential	20	200	0.18	Yes	Sunday - no works
5/2/18	Earthworks construction for abutment B	15 Pound Street	Residential	20	200	4.42	Yes	Placement and compaction of fill for Abutment B
6/2/18	Earthworks construction for abutment B	15 Pound Street	Residential	20	200	3.48	Yes	Placement and compaction of fill for Abutment B
7/2/18	Earthworks construction for abutment B	15 Pound Street	Residential	20	200	3.94	Yes	Placement and compaction of fill for Abutment B
28/2/18	Earthworks for road upgrade on Clarence Street	14 Clarence Street	Residential	20	200	0.91	Yes	Compaction of fill for subgrade on Clarence Street road verge - no rolling works, only excavation
1/3/18	Earthworks for road upgrade on Clarence Street	14 Clarence Street	Residential	20	200	4.23	Yes	Compaction of fill for subgrade on Clarence Street road verge
2/3/18	Earthworks for road upgrade on Clarence Street	14 Clarence Street	Residential	20	200	3.45	Yes	Compaction of fill for subgrade on Clarence Street road verge
12/3/18	Earthworks for road upgrade on Clarence Street	18 Clarence Street	Residential	20	200	0.93	Yes	Compaction of fill for subgrade on Clarence Street road verge
13/3/18	Earthworks for road upgrade on Clarence Street	18 Clarence Street	Residential	20	200	3.75	Yes	Compaction of fill for subgrade on Clarence Street road verge

14/3/18	Excavation of road alignment on Pound Street	18 Clarence Street	Residential	20	200	3.75	Yes	Excavation of material for road alignment on Pound Street
14/3/18	Earthworks for road upgrade on Clarence Street	14 Clarence Street	Residential	20	200	4.08	Yes	Compaction of fill for subgrade on Clarence Street road verge
15/3/18	Earthworks for road upgrade on Clarence Street	14 Clarence Street	Residential	20	200	3.79	Yes	Compaction of fill for subgrade on Clarence Street road verge
16/3/18	Earthworks for road upgrade on Clarence Street	14 Clarence Street	Residential	20	200	3.67	Yes	Compaction of fill for subgrade on Clarence Street road verge
19/3/18	Earthworks for road upgrade on Clarence Street	10 Clarence Street	Residential	20	200	2.26	Yes	Compaction of fill for subgrade on Clarence Street road verge
20/3/18	Earthworks for road upgrade on Clarence Street	10 Clarence Street	Residential	20	200	3.19	Yes	Compaction of fill for subgrade on Clarence Street road verge
21/3/18	Background (No works)	10 Clarence Street	Residential	20	200	0.86	Yes	No vibration works