Warrell Creek to Nambucca Heads Compliance Tracking Report August 2016 – February 2017

Pacific Highway Upgrade: Warrell Creek to Urunga Stage 2

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Report name	**Warrell Creek to Nambucca Heads compliance tracking report (4)** **August 2016 – February 2017**
Revision Number	**C**

Revision history

Rev	Description	Originator	Reviewed	Approved	Date
A	Initial Draft	N.Rutherford	C Wicks/D.Bone	C.Wicks	24/02/17
B	Second Draft	N.Rutherford/C.Wicks	D.Bone	S.Hardiman	21/03/17
C	Final	C Wicks	S.Hardiman	C.Clark	

Contents

Terms and Abbreviations

AADJV	Arup and Aurecon Design Joint Venture
ACCIONA	ACCIONA Infrastructure Australia Pty Ltd
AFG	Aboriginal Focus Group
AFJV	ACCIONA and Ferrovial Joint Venture
AADJV	Arup Aurecon Design Joint Venture
ASF	Ancillary Site Facility
AS/NZS	Australian and New Zealand Standard
CEMP	Construction Environmental Management Plan
D&C	Design and Construction
DG	Director General – Department of Planning and Environment
DP&E	Department of Planning and Environment
EDMS	Electronic Document Management System (TeamBinder)
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ERG	Environmental Review Group
Ferrovial	Ferrovial Agroman (Australia) Pty Ltd
ID Planning	ID Planning Pty Ltd
IMS	Integrated Management System
ISO	International Standards Organisation
KPI	Key Performance Indicator
MCoA	Ministers Conditions of Approval
NSW	New South Wales
O&M	Operations and Maintenance
OEH	Office of Environment and Heritage
PMT	Project Management Team
PV	Project Verifier

Roads and Maritime	Roads and Maritime Services
SoC	Statement of Commitments
SWTC	Scope of Works and Technical Criteria
WC2NH	Warrell Creek to Nambucca Heads (the Project)

Definitions

Client	An organisation inviting and receiving tenders and letting contracts. For the purposes of this project - Roads and Maritime Services
Contractor	An organisation that contracts with a client to carry out construction and related services. For the purposes of this Project - ACCIONA Ferrovial Joint Venture.
Deed	D&C Project Deed, IC-DC-C91-1, Pacific Highway Warrell Creek to Nambucca Heads
Design Joint Venture	Joint Venture consisting of Arup and Aurecon
Director General	Director General of the Department of Planning and Environment
Government Agency	NSW government department, authority, corporation or entity established by an Act of the NSW Parliament
Persons Conducting a Business or Undertaking	Is an employer, corporation, partnership, unincorporated association that has the primary duty of care for workplace health and safety - (AFJV and Contractors are a PCBU)
Planning Approval	Refers to the Consolidated Instrument for Modification 8 of the Planning Approval which contains the Ministers Conditions of Approval.
Principal Contractor	A person conducting a business or undertaking that commissions a construction project. For the purposes of this project - AFJV
Project	The design and construction of the upgrade to the Pacific Highway between Warrell Creek and Nambucca Heads
Project Verifier	For the purpose of the Project, this is Davis Langdon Australia Pty Ltd
Proof Engineer	For the purpose of the Project, Cardno Pty Ltd
Site	'Site' generally refers approved construction site. 'site' may refer to other sites specifically referred to, such as sensitive area sites, compound sites, on-site activities, site inspections etc.
Subcontractor	Organisation that contracts with a principal contractor as the client to carry out construction and related services
Worker	Is anyone who carries out work for a PCBU and includes: an employee, contractor or sub-contractor or an employee of, labour hire personnel, apprentice or trainee, work experience student

1. Introduction

The Pacific Highway Warrell Creek to Nambucca Heads Upgrade project (the Project) is being designed and constructed by AFJV, a joint venture consisting of ACCIONA Infrastructures Pty Ltd (ACCIONA) and Ferrovial Agroman (Australia) Pty Ltd (Ferrovial), herein referred to as the AFJV - ACCIONA Ferrovial JV (AFJV), with overall project management and site supervision of the project by Roads and Maritime Services (Roads and Maritime).

1.1. Project Background

The Warrell Creek to Nambucca Heads (WC2NH) Upgrade project consists of the detailed design and construction of 19.6 km of new dual carriageway road on the Pacific Highway between the northern end of the existing Allgomera Deviation south of Warrell Creek and the southern end of the Nambucca Heads to Urunga Pacific Highway upgrade project west of Nambucca Heads. The project includes:

- 19.6 km of new divided dual carriageway;
- two grade separated interchanges at Warrell Creek and Bald Hill Road south of Macksville.
- a northbound on-ramp and southbound off-ramp at North Macksville;
- longitudinal bridges across Upper Warrell Creek, Williamson Creek, Warrell Creek, Nambucca River floodplain (2 of) and Nambucca River;
- overbridges on Cockburns Lane, Rosewood Road, Albert Drive, Scotts Heads Quarry access road, Bald Hill Road, Old Coast Road South, Mattick Road and Old Coast Road North;
- underpass underneath North Coast Railway Line near Browns Crossing Road;
- local roads, drainage and fauna crossing structures; and
- associated infrastructure.

1.2. Commencement of Construction

Construction of the Warrell Creek to Nambucca Heads Pacific Highway Upgrade commenced on 8 February 2015.

1.3. Purpose of this report

This report has been prepared to fulfil the requirements of MCoA B25 for the period 9 August 2016 to 8 February 2017. Table 1 details the requirements of MCoA B25 and where each has been addressed in this report.

Table 1 – Compliance reference.

MCoA Reference	Comment	Section Reference
B25 The Proponent shall develop and implement a **Compliance Tracking Program** to track compliance with the requirements of this approval. The Program shall be submitted to the Director General for approval prior to the commencement of construction and relate to both the construction and operational phases of the project, and include, but not necessarily be limited to:	Compliance Tracking Program prepared by Roads and Maritime and approved in March 2013 by the Director General. Document updated in October 2014 for WC2NH Project and resubmitted to the Director General. The Compliance Tracking Program was approved by the Director General on the 16/12/14. Construction Phase of the WC2NH Project commenced on the 9th of February 2015.	NA

MCoA Reference	Comment	Section Reference
(a) provisions for the notification of the Director General of the commencement of works prior to the commencement of construction and prior to the commencement of operation of the project (including prior to each stage, where works are being staged);	Compliance Tracking Program states that 48 hours' notice to be provided to the Director General prior to the commencement of construction. Notification provided to Director General by RMS to commence construction on the 9/2/2015.	NA
(b) provisions for periodic review of project compliance with the requirements of this approval, Statement of Commitments and documents listed under condition A1;	Compliance Tracking Program requires 6 monthly reviews of the MCoA, SoC and other relevant approvals. This report will be produced after the compliance review and reported for the Director General 6 months after the commencement of construction and for every six month period thereafter during the construction phase of the Project. Independent Compliance Audit undertaken 11/10/16 by SNC Lavalin.	This report Section 2
(c) provisions for periodic reporting of compliance status against the requirements of this approval, Statement of Commitments and documents listed under condition A1 to the Director General including at least one month prior to the commencement of construction and operation of the project and at other intervals during the construction and operation, as identified in the Program;	A Compliance Tracking Report will be prepared and submitted to the Director General for the six month period after the commencement of construction and for every six month period thereafter throughout the construction phase of the WC2NH Project.	This report
(d) a program for independent environmental auditing in accordance with *ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing*;	The Compliance Tracking Program and the Project Construction Environmental Management Plan include the requirements for regular independent auditing. Six-monthly independent audits will be undertaken in accordance with ISO 19011:2003 – Guidelines for Quality and/or Environmental Management Systems Auditing and the findings included in the Compliance Tracking Report. Independent Compliance Audit undertaken 11/10/16 by SNC Lavalin.	Section 2
(e) mechanisms for reporting and recording incidents and actions taken	The Compliance Tracking Program refers to the Roads and	Section 6

MCoA Reference	Comment	Section Reference
in response to those incidents;	Maritime's Environmental Incident Classification and Reporting Procedure and includes details on incident reporting in Section 2.5.	
(f) provisions for reporting environmental incidents to the Director General during construction and operation; and	This Compliance Tracking Report will include a brief description of the incidents that have occurred in the reporting period, including the corrective and preventative actions to prevent reoccurrence.	Section 6
(g) procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management.	This Compliance Tracking Report will include a brief description on audits undertaken during the reporting period, a review of the Project's compliance with the MCoA and SoC and any non-compliance raised. This report will also address the corrective/preventative actions undertaken to rectify the non-compliance. The Compliance Tracking Program includes procedures for rectifying non-compliance in Section 2.7.	Section 4

1.4. Scope of Activities undertaken during reporting period

The Construction works undertaken during the reporting period include:

- Ongoing earthworks including cut excavation and embankment filling works;
- Crushing and screening of rock material;
- Installation of cross drainage culverts and transverse drainage;
- Bored and driven piling and ongoing bridgeworks;
- Bridge headstock construction;
- Bridge deck construction;
- Precast and Batch Plant Operation;
- Installation of Second Concrete Batch plant in the southern portion of the Project;
- Installation of Asphalt Batch Plant in the southern portion of the Project;
- Girder manufacture and installation;
- Fauna Fence Installation;
- Installation of permanent rural fencing;
- Environmental Monitoring including water quality, noise, air and ecological monitoring;
- Permanent Landscaping;
- Waterway Crossing installation and removal;
- Installation of permanent noise mounds;
- Installation of longitudinal pavement drainage;
- Commence laying upper zone material in preparation for paving;
- Commencement of both concrete and asphalt paving operations;
- Commencement of work on the pergola near Upper Warrell Creek
- Opening of Mattick Road Bridge to traffic;
- Acid Sulfate Soil Treatment;

- Basin installation, augmentation, decommissioning and dewatering activities.

The following photographs provide some general examples images of activities undertaken during the period.

Photo 1: Paving operations have commenced with both base and sub-base concrete pavement installed

Photo 2: Construction on the railway underpass has commenced, the cut has been excavated and the concrete walls are under construction.

Photo 3: A temporary bridge was used to construct the twin bridges over Lower Warrell Creek; this helped to reduce the impact of construction activities on the creek (including reducing the requirement for rock platform construction).

Photo 4: Nambucca River Bridge deck construction is ongoing.

Photo 5: Permanent landscaping and rehabilitation works have commenced.

1.5. General performance of environmental management

Construction activities were undertaken following the measures outlined in the construction environmental management plan. Controls were generally affective at avoiding or minimising environmental impacts. Erosion and sediment controls, including temporary and permanent water quality control basins, and other erosion and sediment control measures continue to be installed and maintained in accordance with the “Blue Book”. Temporary basins are progressively being removed where no longer required.

Bi monthly inspections are generally conducted by RMS and the Environmental Representative and focus on continual improvement and outcomes of issues such as erosion and sediment controls, spill management and chemical storage, waste management, progressive rehabilitation and fauna connectivity.

Ecological monitoring is ongoing in accordance with the Ecological Monitoring Program. Results of ecological monitoring undertaken in spring and summer of year 2 of construction have shown the construction activities are not having an impact on threatened species located adjacent to the Project construction works. Monitoring undertaken in spring and summer of year 2 of construction (this reporting period) include:

- Microbat monitoring including:
    - roost box monitoring; and
    - persistence and behaviour in the vicinity of Crouches Creek Bridge
- In-situ threatened flora
- Translocated areas
- Nest Box Monitoring
- Grey-Headed Flying Fox population counts
- Nest Box Monitoring (Year 2 Summer)
- Roadkill monitoring in accordance with the Roadkill Monitoring Strategy
- Monthly Weed Monitoring
- Landscape Rehabilitation Monitoring
- Yellow-bellied glider monitoring

An Environmental Work Method Statement (EWMS) has also been prepared for each high risk activity, which is reviewed by Roads and Maritime, the ER and relevant agency representatives. The EWMS includes control measures required to reduce the risk of hazards to the environment and compliance is closely monitored on site by AFJV and Roads and Maritime.

2. Statutory matters

2.1. Project Approval

Roads and Maritime Services completed an environmental assessment of the Warrell Creek to Urunga Pacific Highway Upgrade (the Project EA) in January 2010. The Project EA identified a range of environmental, social and planning issues associated with the construction and operation of the Warrell Creek to Urunga Pacific Highway Upgrade and proposed measures to mitigate or manage those potential impacts.

The Project EA was publicly exhibited from 28 January to 29 March 2010 for a period of 60 days. Following public exhibition, submissions from stakeholders were received and addressed by RMS in the Submissions Report which was lodged with the Director-General in November 2010.

After consideration of the Project EA and Submissions Report, the Minister for Planning approved the Warrell Creek to Urunga Pacific Highway Upgrade under Section 75J of the Environmental Planning and Assessment Act 1979 (EP&A Act) on 19 July 2011 subject to the Minister's Conditions of Approval (CoA) being met.

Approval was also granted under Part 9 of the Environment Protection and Biodiversity Conservation (EPBC) Act 1999 for the Warrell Creek to Nambucca Heads Pacific Highway upgrade (EPBC 2013/7101) on 11 December 2014.

The AFJV - Acciona Ferrovial JV (AFJV) was awarded the contract to construct the Warrell Creek to Nambucca Heads section which is Stage 2 of the overall Warrell Creek to Urunga Pacific Highway Upgrade.

Appendix E of this report present the conditions of the NSW Minister for Planning Project approval and associated Roads and Maritime's statement of commitments, and provides detail on the status of compliance for each. No non-compliances were found during the reporting conditions.

2.2. Licensing, Permits and Reviews

The Warrell Creek to Urunga Pacific Highway Upgrade project was referred to the Commonwealth Minister in accordance with the requirements of the EPBC Act. The Project received Minister's Approval on the 11 December 2014 (2013/7101) subject to a number of conditions.

Acciona holds an environment protection licence (EPL 20533) for the construction activities of the project. This was issued on the 16/12/14.

The Project has also obtained permits to access surface water from Upper and Lower Warrell Creek. Groundwater bore licences have also been obtained. The details of the permits are provided in Table 2.

Table 2 – Groundwater and Surface Water Permits

Type of Permit	Permit Number	Location
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207257	Lot 5 DP258324
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207262	Lot 16 DP1154963
Groundwater Bore Licence – Industrial Use (Road	30BL207263	Lot 5 DP1067522

Type of Permit	Permit Number	Location
Construction and dust suppression)		
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207307	Lot 1 DP1209891
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207307	Lot 1 DP1209891
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207310	Lot 22 DP1185837
Groundwater Bore Licence – Industrial Use (Road Construction and dust suppression)	30BL207308	Lot 2 DP1018234
Surface Water Taking for industrial (road construction and dust suppression)	30PE002487	Warrell Creek Lot 66 DP 1175835
Surface Water Taking for industrial (road construction and dust suppression)	30PE002486	Warrell Creek Lot 108 DP 1181639
Surface Water Taking for industrial (road construction and dust suppression)	30PE002485	Warrell Creek Lot 48 DP 1172072
Surface Water Taking for industrial (road construction and dust suppression)	30PE002488	Warrell Creek Lot 6 DP 1014123

A number of Consistency Assessments have been prepared and approved by RMS and endorsed by the ER for works that are consistent with the Planning Approval and environmental assessment and planning documents during the reporting. A summary is provided below in Table 3.

Table 3 – List of Consistency Assessments approved throughout the reporting period

Consistency Assessment	Date Approved	Reference to Approval Condition
Major Consistency Review – Asphalt Batch Plant	16/12/16	MCoA A6, B30
Major Consistency Review – Permanent Visual Mounds	14/10/16	MCoA A6, B30
Major Consistency Review – Southern Concrete Batch Plant	12/9/16	MCoA A6, B30

Submissions to DP&E have been undertaken during the reporting period including:

1. Pacific Highway Upgrade Warrell Creek to Nambucca Heads – Proposal to place a Concrete Batch Plant within 300m of a residence.

   On the 16 September 2016 the Project sought approval from the Secretary to place a concrete batch plant within 300m of the nearest residence in accordance with Condition C27. The proposal was approved by the Secretary on the 28 September 2016.

2. Update on the Operational Noise Mitigation review in accordance with condition C12

   A proposal was made to DP&E to extend the submission date for the Operational Noise Mitigation Review on the 16th May 2016. The proposal was approved on the 20th May 2016. The Project was granted a 12 month extension to the submission date for the report. The report is now due on the 8th May 2017 An update to DP&E was supplied on 8th February 2017 outlining the current status of implementation of noise mitigation works including at house noise treatments, noise mounds and walls and finalisation of design of the asphalt seal to be used, now extending to Mattick Rd, (whereas it previously was to go from the start of the project to Letitia close in the concept design).

The CEMP and Sub-plans are currently under review, with a number of minor changes currently being addressed by AFJV, RMS and the ER. Updates to the plan are tabled below. These were minor changes to the CEMP accepted by the Project ER under MCoA B29 (g) during the reporting period.

Three sub sections of the approved Flora Fauna Management Plan were amended and endorsed by the ER during this review period as listed in Table 4 below.

Table 4 – CEMP sub plans and appendices updated this review period (ER Endorsement)

CEMP Sub-Plan Amended	Amendment Made	Reference to Approval Condition
FFMP Koala Management Plan	Revised clearing area for North Macksville Ramps as approved MoD 8 to make consistent	MCoA A6, B30 B31b)
FFMP Grey-headed Flying Fox MP	Revised clearing area for North Macksville Ramps as approved MoD 8 to make consistent	MCoA A6, B30 B31b)

2.3. Environment Protection Licence performance

Acciona holds an environment protection licence (EPL 20533) for the construction activities of the project. There were two non-compliances with the EPL during the reporting period. The non-compliances included:

Temporary basin (B43.37) overtopped the spillway after a rainfall event that was less than the 5-day 85th percentile rainfall event that the basin had been designed to capture. The basin was observed discharging through the designed spillway after 36mm of rainfall was received on site. The basin is designed to retain a 5 day rainfall event of 49mm. It is noted that the erosion and sediment control plan for the catchment area was reviewed and all of the necessary control measures were in place. The basin was also adequately designed for the catchment area directed to it. AFJV believe that an isolated storm cell was received that had caused the basin to receive more water than what had been recorded on the automated weather station at the Southern site compound. EPA was advised of the non-compliance of condition L2.5.

On one occasion, AFJV was not able to achieve the water quality limits to permit the dewatering of a sediment basin on site within five days after the cessation of the rainfall event in accordance with the CEMP Construction Water Quality Management Plan and Condition 05.9 of the EPL. On 10 August 2016, following a rainfall event, temporary basin B46.35 was not dewatered within five (5) days of the rainfall event. A misunderstanding occurred between the site workforce and the Environmental Team regarding whether the sediment basin had been decommissioned. The notification to decommission the basin had not yet been submitted to the EPA and the basin had not been removed from the licence. However, the workforce believed the basin had been decommissioned already. The basin was treated on the 09/08/16 and the 10/08/16 with 300kg of gypsum (on each day). The basin was subsequently discharged on day six (6) after the rainfall event (11/8/16). EPA was advised of the matter.

2.4. Outcome of Independent Audits

One (1) independent audit was conducted during the reporting period. The independent audit was undertaken by SNC Lavalin on 11 – 14 October 2016. The audit reviewed the Project's compliance with the Ministers Conditions of Approval (MCoA) and the Statement of Commitments (SoC) as required by the CEMP.

Compliance with the Project approval was assessed over the period April 2016 – October 2016. In accordance with the Compliance Tracking Program Section 2.4 the first independent audit was conducted within 3 months of the commencement of construction activities and therefore ongoing audits are conducted every six months thereafter.

There were no corrective actions raised with the MCoA and SoC that were not already reported in the previous Six-Monthly Compliance Report. The following conclusion was raised:

- There is strong evidence to suggest that environmental management plans as required by the MCoA and the SoC continue to be implemented on site.
- The standard of environmental controls, protection and management is generally high
- Recommendations from previous audits have been addressed and there are some areas where additional initiatives have been implemented to further improve environmental processes and therefore reduce risk
- AFJV have implemented a management programme for tracking compliance with MCoA and SoC and this appears to be effective.
- The Project is in the peak stages of production and it is recognised that during this period, the risk of incident is increased. There are a number of instances where repeat incidents have occurred (particularly hydraulic spills and dust). While corrective actions have been implemented by AFJV, it is recommended that a high level of focus and prioritisation of resources is applied to the management of these issues to minimise the risk of recurrence and a major incident.
- As the project progresses towards completion, phases of the project will also change (e.g. from bulk earthworks to pavement constructing and concreting) and with the change in activities comes the increased risk of incident. AFJV are encouraged to continually review procedures and work practices with regard to the changing circumstances to ensure the high standard of environmental management is maintained through to completion.

2.5. Outcomes of ERG Inspections

The Project has held six Environmental Review Group meetings during the reporting period. The meetings generally have involved the following discussions / briefings:

- Approval Update (CEMP, Sub-plans, Consistency Assessments);
- Design Updates;
- Construction Status Updates and Activities Completed;
- Ecologist Update (Flora and Fauna)
- Monitoring Update (Air Quality, Noise Monitoring, Water Quality etc.);
- Environmental Incidents;
- EWMS Updates; and
- Workshops;

This meeting is then typically followed with a site inspection with RMS, AFJV, EPA and DPI to gain an understanding of the design / construction implications for different aspects of the works as well as to gauge the environmental management and associated processes being delivered by AFJV on the ground during daily operations. Inspections also focus on high risk activities being undertaken onsite during this scheduled meeting including clearing and grubbing, design refinements, basin inspections (including augmentation and decommissioning), stockpile management, utility relocations, erosion and sediment controls for works adjacent to sensitive areas, creek realignments (Williamson Creek/Stoney Creek), widened medians inspections, consistency assessment site inspections and bridge construction. Inspections have also been undertaken during the ERG's on specific mitigation measures contained within the flora and fauna management plans (i.e. Giant Barred Frog Management Plan) where inspections have focused on the installation and monitoring associated with exclusion fencing, translocation of fauna species etc. and this provides an opportunity for both agencies and contractor to discuss these mitigation measures, their effectiveness and monitoring results of works undertaken to date.

Table 5 below provides a summary of the items discussed at each ERG undertaken during the reporting period.

Table 5 – ERG Discussion Notes

Date	Stakeholder Attendees	Summary of Items Discussed
ERG # 28 12/08/2016	Chris Wicks – RMS Jim Steen – RMS Sean Hardiman - RMS Brian Tolhurst – EPA John Fyfe - AFJV David Bone – ER Noelene Rutherford – AFJV Glenn Snow – DP&E Allison Kelly – AFJV Joe Barrett - RMS James Sakker – DPI	• Review of Action Tracker • Approval Update; • Biodiversity Update • Construction Update; • Paving Update; • Review of proposed Southern Concrete Batch Plant; • Review of proposed Asphalt Plant; • Review of Permanent Visual Mound proposal; • Monitoring Update; • Review of proposed changes to groundwater monitoring program; • Out of Hours Works;

Date	Stakeholder Attendees	Summary of Items Discussed
	Craig Dunk – EPA	• Incidents; • Complaints; • Community Consultation Activities
ERG #29 13/09/2016	Chris Wicks – RMS Jim Steen – RMS Sean Hardiman - RMS Brian Tolhurst – EPA Justin McCarthy - AFJV David Bone – ER James Sakker – DPI Craig Dunk – EPA Noelene Rutherford - AFJV	• Approval Update; • Biodiversity Update • Construction Update; • Paving Update; • Asphalt plant Update; • Permanent Visual Mound Update; • Monitoring Update; • Out of Hours Works; • Incidents; • Complaints; • Community Consultation Activities
ERG #30 18/10/16	Chris Wicks – RMS Jim Steen – RMS Chris Clark – RMS Sean Hardiman - RMS Brian Tolhurst – EPA Craig Dunk – EPA David Bone – ER Noelene Rutherford – AFJV James Sakker - DPI	• Approval Update; • Biodiversity Update • Construction Update; • Paving Update; • Saw cutting monitoring results summary; • Monitoring Update; • Out of Hours Works; • Incidents; • Complaints; • Community Consultation Activities
ERG #31 15/11/16	Chris Wicks – RMS Justin McCarthy - AFJV Sean Hardiman - RMS Jim Steen – RMS Brian Tolhurst - EPA Emma Wright - AFJV Craig Dunk – EPA James Sakker – DPI Chris Clark – RMS	• Approval Update; • Biodiversity Update • Final Nest Box calculations; • Landscape Update; • Construction Update; • Paving Update; • Results of independent compliance audit; • Monitoring Update; • Out of Hours Works; • Incidents;

Date	Stakeholder Attendees	Summary of Items Discussed
	Hagan Ganahl – DoE Nathan O-Brien – DoE Michael Young – DP&E Alex Dwyer - AFJV Noelene Rutherford – AFJV David Bone - ER	• Complaints; • Community Consultation Activities
ERG #32 13/12/16	Chris Wicks – RMS Sean Hardiman - RMS Jim Steen – RMS Brian Tolhurst – EPA Craig Dunk – EPA Justin McCarthy – AFJV Noelene Rutherford - AFJV Matthew Francisco – RMS David Bone – ER Emma Wright – AFJV Alex Dwyer - AFJV	• Review of Action Tracker • Approval Update; • Landscape Rehabilitation Update • Biodiversity Update • Construction Update; • Paving Update; • Monitoring Update; • Out of Hours Works; • Incidents; • Complaints; • Community Consultation Activities

It is noted that there was no formal meeting and presentation for the January 2017 ERG, therefore no minutes were taken.

2.6. Environmental Incidents

Roads and Maritime, and its contractors, take the view that any environmental related unplanned events, whether they impact the environment or not, are reported and recorded as incidents. This type of approach allows for the analysis of trends and encourages a culture within the workforce for continual improvement.

Environmental incidents are identified by the AFJV in accordance with the Roads and Maritime Incident Classification and Reporting Procedure (Feb 2016)..

A total of 25 environmental related unplanned events categorised as environmental incidents occurred on the project during the reporting period. 23 incidents were of a minor nature; with the remaining 2 classified as Category 1 incidents in accordance with the Incident Classification and Reporting Procedure. The procedure states that:

“An environmental incident…need not necessarily be an incident that comprises a breach of legislation. Nonetheless, it is important to capture this information to improve RMS’s environmental practices and contractor performance”.

- Category 1: Generally breaches of environmental legislation, such as pollution of waters, non-compliance with EPL / approval conditions, and unauthorised activities.

- Category 2: Generally less environmental serious with no or minimal offsite environmental impact. E.g. Minor non-compliances with CEMP, small spills."

A breakdown of the Category incidents is provided below.

Table 6 – Category 1 incidents reported during this reporting period.

Date	Description
16/1/17	As detailed in Section 3.1, A sediment basin overtopped following 36mm rain measured at closest project weather station. The basin was designed to capture 49mm (5 day 85%ile).RMS, EPA and Environmental Representative notified of the incident. Review of basin calculations by soil conservationist found to be still applicable for catchment. Review of ERSED plan was also undertaken and found to be satisfactory
8/12/16	Following rainfall, mud tracking occurred on the Pacific Highway opposite gate 6. A complaint was made to the EPA hotline. Traffic stopped from using the gate and the slip lane was immediately cleaned using a sweeper under traffic control. Water cart placed at the exit to clean wheels while the site was still damp. The exit was sheeted with clean gravel and a water cart remained on standby for wet weather events to wash tyres before exiting site.

In accordance with the Roads and Maritime Incident Classification and Reporting Procedure, the AFJV reported a number of minor spills. During the reporting period of 24 working weeks, there were:

- 18 minor oil spills (including fuel and hydraulic oil leaks)
- 1 minor solvent spill
- 3 other minor spills (mud/slurry tracking)
- 1 other minor incidents (basin management not dewatering within 5 days)

All the spills were managed within the site and installed controls. Any contaminated material or soil was collected and disposed of at licensed waste facilities in accordance with the approved CEMP. The table below summarises the general statistics regarding hydrocarbon and solvent spills on site.

Table 7 summaries the details of the hydrocarbon spills reported and shows that 19 hydrocarbon spills occurred during the reporting period of 24 working weeks, one third less than the previous period.

Table 7 – Summary of minor oil/solvent spills reported during this reporting period.

Total No. spills	Average No. spills/week	Total volume spilt (l)	Average volume/spill (l)	Volume range (l)			No. spills >5 litres	Total Volume leaving boundary
				Min	Median	Max		
19	0.8	173.2	9.12	0.1	5	50	8	0

During the reporting period, there was on average, approximately 140 pieces of major plant operating on the project ranging from heavy earthmoving equipment to large haulage trucks and lifting equipment. This does not include a large number of light vehicles, pumps and generators.

In continuing to encourage the reporting of all spills, Roads & Maritime can effectively develop processes for the ongoing improvement of equipment spill management within this part of our operations. These

processes include refining the reporting, response and oversight of spill management in collaboration with Agencies and Regulators.

3. Initiatives and Innovations

AFJV have undertaken a number of initiatives and innovations this reporting period which have enhanced the environment within and surrounding the construction site including:

- Successful translocation of *Maundia triglochinoides*;
- Use of test panels to determine the best rock placement outcomes in a frog passage channel;
- Successful diversion of Stoney Creek to retain the creek length, channel width and to incorporate soft landscaping treatments;

3.1. Translocation of *Maundia triglochinoides* in Williamson Creek

AFJV were provided with the finalised Threatened Flora Management Plan (TFMP) by RMS during the preparation of the Project's Construction Environment Management Plan (CEMP). The Threatened Flora Management Plan (Ver 2) Section 3.5.5 suggested that previous attempts to translocate seedlings of *M. triglochinoides* had not been successful. The management methodology for Maundia on the Project was focused on the protection of the remaining in-situ population rather than on translocation. AFJV, in conjunction with the Plan's author Andrew Benwell, determined that the Project would attempt to relocate the topsoil substrate from Williamson Creek and the Maundia rhizome material within the topsoil from the old creek alignment to the newly aligned creek. The TFMP was updated accordingly to reflect the AFJV proposal (now included in Ver 5).

Delays in the construction of the new creek alignment, which was part of the structural element of the over bridge, prevented the placement of Maundia directly into the new creek alignment. The Maundia was therefore temporarily placed into a redundant sediment basin and regularly watered to ensure its survival.

Photo 6: The redundant sediment basin used to hold Maundia (and other aquatic flora species) until the creek re-alignment was ready for planting.

Once the new creek alignment was finalised, rock riffles were placed in the creek line to reduce the water flow velocity and ensure the creek channel would be suitable for Maundia. The plants and topsoil material was then placed into the new creek alignment where it has been successfully growing and thriving.

Photo 7: Six stands of Maundia triglochinoides growing in Williamsons Creek after being successfully translocated

3.2. Placement of frog friendly fauna passage in Butchers Creek

In September 2015, suspected Giant Barred Frog tadpoles were found in Butchers Creek during work to install the concrete box culverts. The Unexpected Threatened Species Procedure was followed and the design of the culvert was altered to include a 'frog friendly' naturalised base.

To ensure the construction of the naturalised base adequately addressed EPA's expectations, AFJV constructed several test panels. The test panels placed different size and shaped rock and stone pitching in different patterns. The EPA and DPI Fisheries were able to choose their most ideal rock placement for frog friendly passage. The test panel chosen was then incorporated into the low flow channel of the culvert to maximise frog passage through the culvert and provide for a naturalised base.

Photo 8: Test panels used to determine the most ideal rock/stone pitching

Photo 9: Installation of the chosen rock placement

3.3. Stoney Creek Realignment

Stoney Creek is located in the southern portion of the WC2NH Project approximately 200m north of Rosewood Road, Warrell Creek. The creek is a Class 2 waterway and has viable fish passage. The original creek alignment was within agricultural land used for grazing cattle. The creek was degraded and contained minimal native vegetation in the location of the proposed Project. The Project's SWTC required that AFJV maintain the creek length and width were possible. Stoney Creek had a considerable length through the Project alignment due to several large meanders. Therefore, to retain the creeks length, a large diversion was required. In discussion and agreement with RMS, a section of RMS land on the eastern side of the Project alignment was provided to AFJV to construct the diversion. The creek re-alignment was designed with meanders and the same channel width to mimic the pre-existing creek line. Due to the potential velocity of flow through the channel, the design team recommended placing scour rock throughout the diversion, however, in agreement with RMS and in discussion with the EPA and DPI Fisheries, it was agreed that "soft" landscaping treatments would be used instead of harsh scour rock. Soft landscaping treatments used included jute mesh over topsoil within the creek channel, the use of native aquatic flora such as salvaged lomandra's, sedges and reeds to stabilise the channel. Hydromulch was used on the upper banks of the alignment to stabilise the exposed topsoil areas. Large boulders and logs were placed throughout the channel to reduce water flow velocity and provide habitat for aquatic fauna species. Tree mixes are also planned to be planted on the upper banks of the creek to eventually provide shade for the creek line.

The creek diversion has been fenced off from cattle and is expected to become stable and suitable habitat for aquatic fauna species well into the operational phase of the highway.

Photo 10: Stoney Creek after diversion and soft landscaping treatments have been installed

Photo 11: Stoney Creek after landscaping treatments have established, the creek line has withstood several large rainfall events and is stable.

4. Outcome of monitoring undertaken

Preconstruction and background monitoring / ground truthing have been undertaken to set trigger value data for reference once construction commences. This has consisted of surface water and groundwater quality monitoring, ground truthing of vegetation communities and threatened flora locations.

4.1. Surface Water and Groundwater Monitoring

Roads and Maritime have developed water quality parameter trigger levels based on the preconstruction surface water monitoring data for the construction phase as per MCoA Condition B17. Currently, AFJV are comparing construction phase data with these 80th and 20th percentile trigger values provided by RMS in October 2015, as well as ANZECC guidelines where no trigger values were provided in the final interpretive report.

The surface water monitoring has generally shown elevated nitrogen and nitrate levels, lower dissolved oxygen levels and occasionally elevated turbidity in the creeks and rivers adjacent to the Project both upstream and downstream of the Project (not associated with the Project activities). The monitoring has shown metals levels generally consistent with the trigger values or marginally above these levels, particularly Arsenic, Manganese, Zinc, Copper and Iron. The pH is generally low after rainfall and the turbidity is generally higher during rainfall (due to background sources).

Groundwater trigger levels have been developed for comparison with data collected during construction. The groundwater quality is within or only marginally above the trigger levels provided for metals. Elevated conductivity, pH, nutrients, major cations and anions and TDS occur from monitoring results taken from Fill 15. Cut 12 has shown lower pH levels. Cut 11 has shown elevated total dissolved solids. The elevated

levels have not been contributed to by construction activities. Levels recorded outside of the trigger values are likely attributed to seasonal variation and low rainfall.

4.2. Noise and Vibration Monitoring

Noise monitoring has been undertaken in accordance with the approved Noise and Vibration Management Plan (NVMP). Monthly noise monitoring is conducted at eight monitoring locations alongside the Project alignment. Noise levels have been monitored above Noise Management Levels on 20 occasions during the reporting period. The noise levels have been within the predicted levels for the Project. Mitigation measures as outlined in the NVMP have been implemented and noise complaints have been addressed.

Additional noise monitoring in relation to a complaint was undertaken in Letitia Close in November 2016. The noise levels were found to be consistent with the Noise Management Level for the noise catchment area.

Vibration monitoring has been undertaken in response to complaints or when vibratory activities are occurring within 50m of a resident in accordance with RMS specifications. Vibration monitoring has been undertaken on four (4) occasions during the reporting period. The monitoring results have shown levels below or only marginally above the human comfort criteria set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline (DEC 2006)* in accordance with MCoA C8. Results are explained to the resident and reasonable and feasible mitigation measures are agreed upon. Vibration monitoring results have not exceeded the threshold of causing building damage.

Noise monitoring has also been undertaken to verify noise modelling conducted for activities occurring outside of standard construction hours.

Vibration and airblast over pressure monitoring has been undertaken for two (2) production blasts that have been undertaken during the reporting period. The vibration and airblast overpressure results are available in Appendix B. Roads and Maritime obtained approval from DP&E on 17/7/2015 to increase the blast criteria in compliance with Condition C11 of the Planning Approval from 5mm/s to 25mm/s. This has reduced the number of blasts required to 45 from approximately 300. It is noted that the vibration and airblast overpressure monitored was below the criteria provided in Condition C11 for the two (2) production blasts undertaken during the reporting period. The production blasting program for the Project is now completed.

4.3. Air Quality Monitoring

Air Quality Monitoring has been undertaken in accordance with the approved Air Quality Management Plan (AQMP). Fifteen dust deposition gauges are placed at strategic locations alongside the Project alignment, including an additional one installed this reporting period in response to complaints or to further identify sources of dust exceedances. Nine dust deposition gauges were previously placed at strategic locations alongside the Project alignment, with an additional five installed in response to complaints or to further identify sources of dust exceedances as reported in the in the last report period. The air quality monitoring results are available in Appendix C.

The Project has recorded elevated dust levels from the dust deposition gauges on six (6) occasions during this review period down from 11 during the last review period. The dust exceedances have been mainly in the vicinity of Letitia Close, where three of the six exceedances were recorded. Of these, two consecutive months recorded results greater than 4 times over the annual goal (4g/m^2/month). These exceedances were discussed with EPA and DP&E at ERG meetings and it was agreed that the gauges had been tampered with by the addition of earth clods into the depositional glass jars.

To mitigate further exceedances along with the addition of fortnightly local community engagement meetings, AFJV have increased the dust control measures in the vicinity of the dust exceedances including:

- Dedicated water carts for the earthworks activities;
- Stopping earthworks in periods of high winds;

- Adding an additional water fill point near Letitia Close to ensure water carts have easy access to water without having to leave the vicinity of the work area;
- Application of soil binders to the exposed areas and batters;
- Topsoiling and hydromulching batters as soon as possible.

With outliers removed, the 12 month averages monthly dust levels shown below indicate that all gauges are below the annual goal. Dust levels recorded at DDG6 (Letitia Close) discussed earlier decreased significantly following both the increased mitigations in the area and regular focus group meetings with community members initiated in late August 2016.

Nine (9) dust related complaints have been received this reporting period which is a reduction from the 12 reported during the last review period.

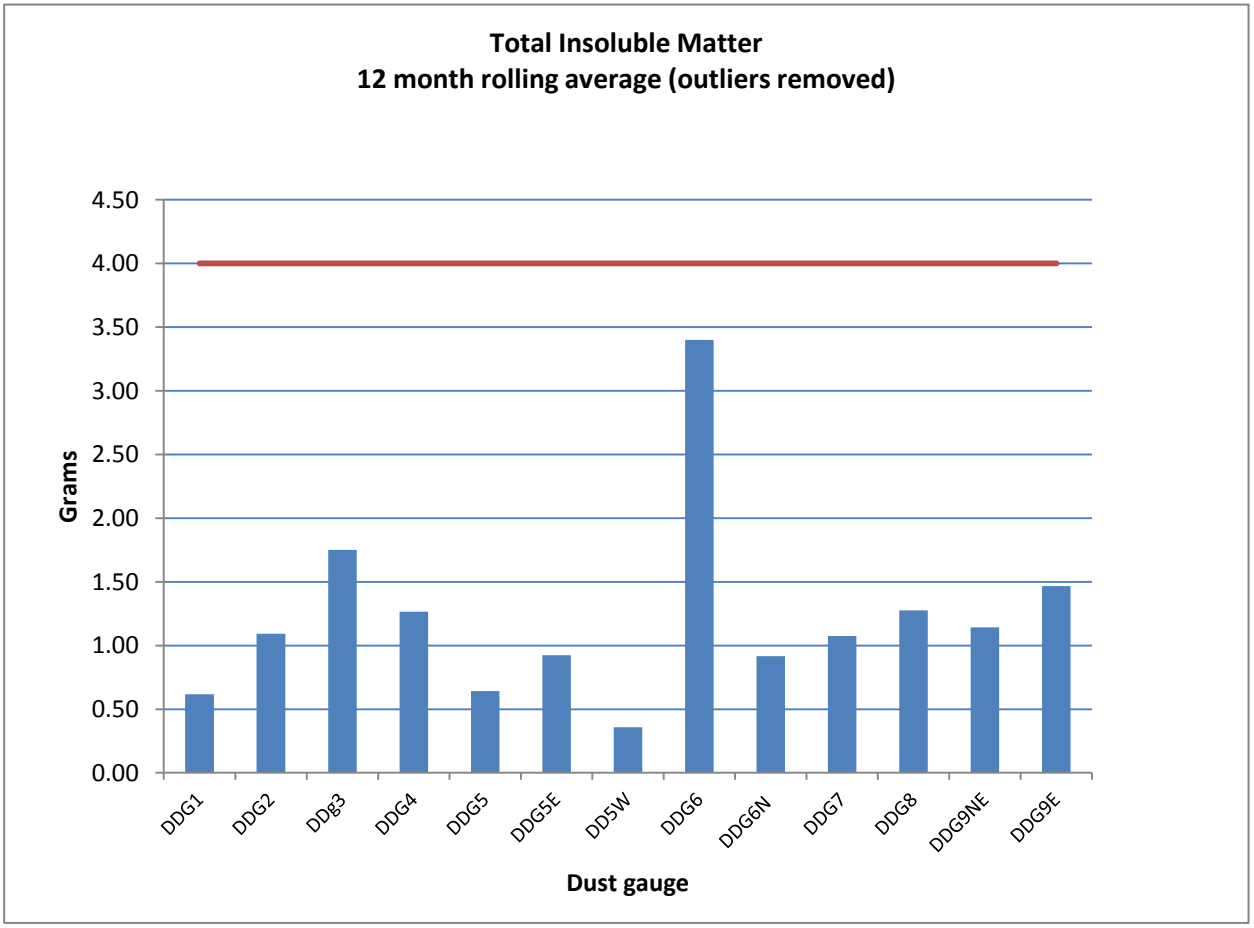

Figure 1: Dust monitoring results12 month rolling average for Total Insoluble Matter (TIM)
Note Outliers removed were those suspected of sabotage > 10gram/m^2/mth

4.4. Ecological Monitoring

Ecological Monitoring has been undertaking during the reporting period in accordance with the approved Ecological Monitoring Program, developed in consultation with the EPA as per MCoA Condition B10. The following monitoring was undertaken between August 2016 – February 2017:

- Grey-Headed Flying Fox – monthly detailed population counts and daily pre works presence checks in accordance with the approved Grey-Headed Flying Fox Management Plan;
- Nest Box Monitoring (Year 2 Summer)

- Microbat Monitoring including roost box and persistence monitoring (Year 2 Spring and Summer Monitoring).
- In situ threatened flora (Year 2 Spring) and translocated flora (Year 2 November and January) monitoring.
- Roadkill monitoring in accordance with the Roadkill Monitoring Strategy
- Monthly Weed Monitoring Reports (Which has now been reduced to 6-monthly in accordance with the approved Weed and Pathogen Management Plan).
- Landscape Rehabilitation Monitoring has also commenced (Year 2 Spring and Summer).
- Yellow-bellied glider monitoring (Year 2 Spring)

The above listed monitoring of key threatened species conducted during the second year of construction activities has confirmed there has been negligible change to habitat usage from construction activities The monitoring has also indicated use of the nest boxes/micro-bat roost boxes and confirmed the relative success of the threatened flora species translocation program compared with similar programs on other RMS Pacific Highway Upgrade Projects.

4.5. Heritage Monitoring

Monitoring of heritage significant areas is undertaken during the weekly Environmental Inspections. No-go zone fencing as placed is inspected and rectified as and where necessary. An Aboriginal Focus Group meeting was held in September 2016 to discuss the Urban Design and Landscape Plan. No non-conformances with the approved heritage management plan occurred this reporting period.

5. Community Engagement

AFJV has an approved Community Involvement Plan (which covers the requirements of the Condition B28 of the MCoA Community Communication Strategy) to provide the mechanisms to facilitate communication between the Roads and Maritime, AFJV, the Environmental Representative, Nambucca Shire Council and the local community (broader and local stakeholders).

The Plan was approved by DP&E on the 16/12/14. AFJV has been maintaining and implementing the Plan throughout construction of the project. The Community Involvement Plan has been reviewed and was being updated during this reporting period. The revised CIP will be sent to DP&E for approval under MCoA B28.

5.1. Community Complaints

There were 22 community complaints raised during the reporting period. Figure 2 below shows the breakdown of the complaints by type and number. It should be noted that on the 18th November, one complainant raised three issues (noise, vibration and dust) when registering their complaint. Inappropriate use of the Council waste station and cattle wandering on the road are the two complaints categorized as other. A full list of complaints and relevant information is provided in Appendix D.

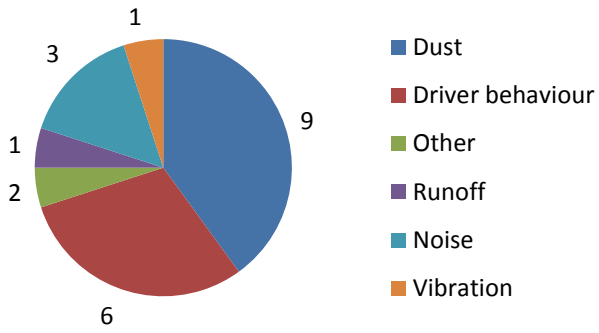

Figure 2. Community complaints by type and number

The nine (9) dust complaints received during the reporting period is a reduction from the 12 received during the previous period and the 19 from that prior. It is expected that these will further reduce through the ongoing consultation with residents and as progress on rehabilitation and paving activities continue.

Complaints from the Letitia close area have reduced. In the last report it was reported eight (8) of the 12 dust complaints during May 2016 were from three residents in the Letitia Close area, impacted from earthworks being undertaken in the vicinity of the North Macksville ramps. This reporting period has seen this decrease to nil. This reduction can be attributed to extra vigilance in controlling dust in the vicinity of these locations has been implemented as per the project approved Air Quality Management Plan which, among other things, includes the following management measures within air quality catchment areas:

AQ8 Construction activities will be modified, reduced or controlled during high or unfavourable wind conditions if they have a potential to increase the generation or emission of dust.

AQ9 Control measures including water carts, mechanical sweepers, sprinklers, sprays, dust screens or the application of geo-binding agents will be utilised where applicable to control dust emissions. The frequency of use will be modified to accommodate prevailing conditions.

As an outcome from the initial meeting for Letitia close and surrounds residents adjacent to Old Coast Rd held in May 2016, it was agreed to continue meeting initially on a fortnightly basis to discuss project updates and other issues including dust. Since January this has been reduced to every three weeks. . A number of mitigation measures including a dust curtain and sprinklers along the boundary were discussed and implemented. A dedicated water cart has been provided in the vicinity of Letitia Close during earthworks activities and the location is regularly inspected by the Environment Team. Additional controls over and above the Air Quality Management Plan have been implemented in the vicinity of Letitia Close including:

- Ongoing meetings and toolbox talks with the Project's earthworks subcontractor regarding vigilance in dust control and management
- Additional supervisory staff have been appointed specifically to this area to ensure dust has been adequately managed
- Daily inspections are being undertaken by the site Environmental Team
- A water source has been located close to this area to ensure the water carts on duty do not need to travel far to obtain water
- Dedicated water cart for all earthworks operations in the area even during periods where no work is being undertaken. For example, on 15/10/15, the AFJV obtained and implemented an Out-of-Hours work permit 029, enabling the use of water carts for dust suppression due to high winds and hot days on weekends and public holidays. The permit is in force until December 2018 and allows this activity within the project boundary as nominated in the EPL. Water cart operators are generally authorised to undertake watering as they see fit and according to the conditions they observe.
- Ceasing works during periods of high wind that have the potential to generate dust. On a number of occasions the AFJV have also elected to either cease works due to hot and windy conditions generating dust in and around Letitia Close or, planning not to undertake works on days when such conditions are forecast.

Complaints' relating to dust in the River Road area have reduced. Although there have been earthworks activities occurring in the Gumma Floodplain, this has not been extensive and the majority of work in the vicinity of River Road has been for the concrete bridge structure across Nambucca River Dust complaints in this vicinity have reduced this reporting period.

During the reporting period there was a complaint from a resident regarding vibration, as well as 3 noise complaints. The following summarises the work activities being undertaken when each complaint was received. Monitoring undertaken recorded vibration levels below the Peak Particle Velocity (PPV) limit of 5mm/s at residential properties and below that for human comfort (0.28mm/s). Noise levels were within the approved management leaves prescribed in the Noise and Vibration management Plan.

Table 8 Noise and vibration complaints recorded this reporting period

ID	Date of Complaint	Works activity	Category of complaint	Distance of works from complainant	Action taken
1	18 Nov 16	Roller working on formation near Albert drive	Vibration	More than 100 m away	Vibration monitoring
2	18 Nov 16	Roller working on formation near Albert drive	Noise	More than 100 m away	Noise monitoring
3	18 Nov 16	Plant and machinery work on formation at Letitia Cl	Noise	More than 100m away	Noise monitoring
4	1 Dec 16	Plant and machinery work on formation at Letitia Cl	Noise	More than 100 m away	Noise monitoring

Vibration and noise monitoring was undertaken on Nov 2016 at the complainants' residence off Albert drive as well as for the complaint at Letitia Close which was part of a specific community consultation strategy adopted for the Letitia Close area as reported in the last reporting period adopted site wide to mitigate residents' concerns. Vibration monitoring results were below human comfort criteria each occasion and noise was within approved noise management levels as detailed in section 6.2

The positive action of initially holding fortnightly and then tri - weekly meetings with the Letitia Close residents including those in the vicinity of Old Coast Rd. and Mattick Road who also have other concerns with construction activities (e.g. dust traffic access), has helped mitigated further community concerns through the active involvement and engagement of these sensitive residents.

5.2. Community Engagement

During the reporting period the AFJV Community Team published and distributed:

- 25 community notifications; and
- 2 quarterly community project updates

The project held community information and drop-in sessions on the following dates:

- 10 and 11 August (regular Community Information Sessions)
- 12 and 13 October 2016 (proposed temporary asphalt plant information sessions)
- 7 and 8 December 2016 (regular quarterly Community Information Sessions) and
- that planned for 14 March 2017

Relevant and timely community relations topics were provided to the Construction Team through "Toolbox Talks" every week during this period.

Feedback from the Community to the Project team can be made at the following locations:

- Site compound at 124 Albert Drive, Warrell Creek
- Nambucca Shire Council
- via the project phone No1800 074 588 or
- via email community@afjv.com.au

6. Summary of Compliance Status

Appendix E (Compliance Tracking Tables) provides details of the compliance status of the Ministers Conditions of Approval (MCoA) and Statement of Commitments (SoC's), in summary of the: .

- 68 MCoA, 10 are closed and 3 are not applicable to this stage.
- 49 SoC's all are still open at this stage.

The finding being ongoing compliance to the project conditions and commitments is generally maintained.

APPENDIX A – Surface Water and Groundwater Monitoring

Monitoring Results August 2016 – February 2017

Table 1a – Surface Water Testing Results August 2016 – 2nd Wet Event

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Low er Warrell Creek			Low er Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Upstream			Dow nstream			Upstream			Dow nstream		
Freshw ater / Estuarine		ANZECC 2000 95% species protected		Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Estuarine			Estuarine		
Date of Sampling				26-Aug-16			26-Aug-16			26-Aug-16			26-Aug-16			26-Aug-16			26-Aug-16			26-Aug-16			26-Aug-16			26-Aug-16			26-Aug-16			26-Aug-16		
Time of Sampling		Freshw ater	Marine	2:55 PM			3:05 PM			2:38 PM			2:20 PM			4:35 PM			4:47 PM			3:55 PM			3:45 PM			3:38 PM			4:20 PM			4:05 PM		
Comments																													Unable to sample - w ater level too low			Wind chop - sediment stirred up			Wind chop - sediment stirred up		
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Lab Physical data (no field data available)																																			
Temperature	°C	-	-	24.3	16.27	13.3	24.52	16.79	14.01	23.98	17.36	14.09	24.7	17.65	14.95	25.9	19.5	15.46	25.9	19.5	15.82	25.84	19.1	16.68	25.84	19.1	13.12	25.84	19.1	17.35	26.56	21.32	18.42	26.56	21.32	18.21
pH	pH	-	6.5-8	7.478	6.23	6.87	7.192	6.42	6.88	7.138	6.61	6.83	6.98	6.21	7.13	6.86	6.46	8.0	6.86	6.46	7.56	6.9	6.08	6.56	6.9	6.08	6.78	6.9	6.08	6.79	7.56	6.58	7.61	7.56	6.58	7.15
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.267	0.3242	0.19076	0.313	0.313	0.2024	0.231	0.309	0.20188	0.205	20.918	0.50928	0.674	20.918	0.50928	0.672	0.842	0.334	0.482	0.842	0.334	0.328	0.842	0.334	0.395	48.42	12.65	33.8	48.42	12.65	33.2
Turbidity	NTU	50	10	26.16	5.94	30	27.32	3.72	7.8	14.98	3.34	1.6	17.16	4.59	9.4	26.1	2.4	0.7	26.1	2.4	2	66.8	11.6	35.1	66.8	11.6	28.3	66.8	11.6	28.2	19.04	5.81	7.1	19.04	5.81	18.4
Dissolved Oxygen	mg/L	5	5	7.43	1.5	4.64	6.88	2.28	4.08	8.472	5.08	5.68	7.59	2.63	8.99	6.65	5.02	3.7	6.65	5.02	3.78	7.3	1.78	3.81	7.3	1.78	2.4	7.3	1.78	3.23	8.47	6.88	4.24	8.47	6.88	4.96
Dissolved Oxygen	%			-		45.8	-		41	-		57.1	-		92.1	-		38.3	-		39.5	-		40.4	-		23.6	-		34.7	-		52.5	-		61.2
TDS	g/L	-	-	-		0.181	-		0.203	-		0.15	-		0.138	-		0.431	-		0.43	-		0.32	-		0.224	-		0.267	-		20.5	-		20.6

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 1b – Surface Water Sampling Results August 2016 – Dry Event

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Low er Warrell Creek			Low er Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Upstream			Dow nstream			Upstream			Dow nstream		
Freshw ater / Estuarine		ANZECC 2000 95% species protected		Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Estuarine			Estuarine		
Date of Sampling				30-Aug-16			30-Aug-16			30-Aug-16			30-Aug-16			30-Aug-16			30-Aug-16			30-Aug-16			30-Aug-16			30-Aug-16			30-Aug-16			30-Aug-16		
Time of Sampling		Freshw ater	Marine	5:05 PM			4:55 PM			5:25 PM			5:15 PM			2:55 PM			2:50 PM			4:15 PM			4:39 PM			4:00 PM			3:30 PM			3:20 PM		
Comments																															Wind chop			Wind chop		
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Field Physical data																																			
Temperature	°C	-	-	24.86	14.99	13.43	25.1	16.3	13.97	24.4	16	15.67	26.46	15.94	16.85	27.9	18.4	18.27	27.9	18.4	18.35	26.5	16.3	17.25	26.5	16.3	15.18	26.5	16.3	19.36	27.9	18.1	20.4	27.9	18.1	20.4
pH	pH	-	6.5-8	7.25	6.48	6.73	7.3	6.4	6.86	7.5	6.6	6.88	7.33	6.26	6.83	7.02	6.57	7.24	7.02	6.57	7.09	7	6.1	7.03	7	6.1	6.81	7	6.1	7.34	7	7	7.87	7	7	7.99
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.295	0.348	0.227	0.297	0.348	0.227	0.237	0.3338	0.2168	0.233	20.946	0.679	0.63	20.946	0.679	0.179	0.808	0.4234	0.522	0.808	0.4234	0.347	0.808	0.4234	0.413	47.32	29.44	28.2	47.32	29.44	27.4
Turbidity	NTU	50	10	10.96	4	1.7	9.9	3.5	1.9	9.9	3.5	11.8	5.97	3.74	6.1	6.82	1.83	10.5	6.82	1.83	2.5	52.78	11.3	15.9	52.78	11.3	15.2	52.78	11.3	31.5	19.3	6.7	13.1	19.3	6.7	33.3
Dissolved Oxygen	mg/L	5	5	4.98	1.91	3.48	4.8	2.6	3.93	4.8	2.6	3.7	6.34	3.52	5	7.98	5.07	5.60	7.98	5.07	4.57	6.4	1.75	2.59	6.4	1.75	1.11	6.4	1.75	3.02	9.1	7.4	5.71	9.1	7.4	5.37
Dissolved Oxygen	%			-	-	34.5	-	-	39.4	-	-	38.5	-	-	53.2	-	-	61.4	-	-	50.1	-	-	27.9	-	-	11.5	-	-	33.8	-	-	71.7	-	-	67.3
TDS	g/L	-	-	-		0.92	-		0.193	-		0.154	-		0.151	-		0.403	-		0.121	-		0.334	-		0.225	-		0.272	-		17.5	-		17

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 1c – Surface Water Testing Results September 2016 – Dry Event

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				7-Sep-16			7-Sep-16			7-Sep-16			7-Sep-16			7-Sep-16			7-Sep-16			7-Sep-16			7-Sep-16			7-Sep-16			7-Sep-16			7-Sep-16		
Time of Sampling		Freshwater	Marine	2:40 PM			3:00 PM			3:35 PM			3:25 PM			4:00 PM			4:10 PM			5:00 PM			5:30 PM			5:15 PM			4:45 PM			4:35 PM		
Comments																															Wind chop			Wind chop		
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Laboratory data																																			
Metals																																			
Aluminium	mg/L	0.055	-	0.06	0.01	0.04	0.05	0.01	0.05	0.05	0.01	0.02	0.04	0.01	0.03	0.06	0.01	0.08	0.06	0.01	0.1	0.1	0.01	0.02	0.1	0.01	0.01	0.1	0.01	0.02	0.02	0.01	<0.01	0.02	0.01	<0.01
Arsenic	mg/L	0.024	0.0023	-	-	<0.001	-	-	<0.001	-	-	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	<0.001	0.002	0.001	<0.001	0.002	0.001	0.002	0.002	0.001	<0.001	0.002	0.001	<0.001
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001
Copper	mg/L	0.0014	0.0013	-	-	0.001	-	-	0.002	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	0.001	-	-	<0.001	-	-	0.001	0.001	0.001	0.002	0.001	0.001	<0.001
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001
Manganese	mg/L	1.9	0.08	0.21	0.02	0.013	0.2	0.03	0.023	0.06	0.02	0.026	0.052	0.013	0.048	0.26	0.08	0.042	0.26	0.08	0.043	0.23	0.019	0.14	0.23	0.019	0.004	0.23	0.019	0.211	0.03	0.002	0.031	0.03	0.002	0.027
Nickel	mg/L	0.011	0.07	-	-	<0.001	-	-	0.003	-	-	<0.001	-	-	<0.001	0.001	0.001	0.001	0.001	0.001	<0.001	0.001	0.001	0.002	0.001	0.001	0.002	0.001	0.001	0.006	-	-	<0.001	-	-	<0.001
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001
Zinc	mg/L	0.008	0.015	-	-	0.016	-	-	0.014	0.005	0.005	0.006	0.005	0.005	<0.005	0.006	0.005	0.008	0.006	0.005	0.011	0.005	0.005	0.008	0.005	0.005	0.01	0.005	0.005	0.022	0.005	0.005	0.017	0.005	0.005	0.008
Iron	mg/L	-	-	0.99	0.46	0.52	0.93	0.31	0.48	0.82	0.42	0.42	0.78	0.37	0.39	0.83	0.05	0.44	0.83	0.05	0.48	2.01	0.25	1.01	2.01	0.25	0.2	2.01	0.25	0.71	-	-	<0.05	-	-	<0.05
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001
Total Recoverable Hydrocarbons																																			
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
BTEX																																			
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	700		NA	700		NA
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Nutrients																																			
Total Phosphorus	mg/L	0.05	0.03	0.04	0.01	<0.01	0.03	0.01	0.01	0.04	0.01	<0.01	0.02	0.01	<0.01	0.04	0.01	0.01	0.04	0.01	0.02	0.12	0.03	0.01	0.12	0.03	0.03	0.12	0.03	0.02	0.04	0.02	<0.05	0.04	0.02	<0.05
Phosphate (reactive phosphorus)	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.01	0.0044	<0.01	0.01	0.0044	<0.01	0.01	0.005	<0.01	0.01	0.005	<0.01	0.01	0.005	<0.01	0.01	0.008	<0.01	0.01	0.008	<0.01
Total Nitrogen	mg/L	0.5	0.3	0.62	0.2	0.3	0.6	0.2	0.2	0.3	0.1	0.3	0.41	0.1	<0.1	0.5	0.2	0.6	0.5	0.2	0.8	2.8	1.1	0.7	2.8	1.1	0.9	2.8	1.1	1.1	0.5	0.2	<0.5	0.5	0.2	1
Total Kjeldahl Nitrogen	mg/L	-	-	0.6	0.2	0.2	0.6	0.2	<0.1	0.3	0.1	0.2	0.4	0.1	<0.1	0.5	0.2	0.5	0.5	0.2	0.6	2.4	1	0.6	2.4	1	0.9	2.4	1	1	0.5	0.2	<0.5	0.5	0.2	0.9
Nitrate	mg/L	0.7	-	0.04	0.01	0.07	0.03	0.01	0.21	0.03	0.01	0.08	0.03	0.01	0.01	0.04	0.01	0.08	0.04	0.01	0.18	0.04	0.01	0.11	0.04	0.01	0.04	0.04	0.01	0.1	0.02	0.01	0.01	0.02	0.01	0.13
Nitrite	mg/L	-	-	-	-	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.16	0.06	0.02	0.16	0.06	0.08	0.04	0.01	<0.01	0.04	0.01	<0.01	0.04	0.01	<0.01	0.03	0.01	<0.05	0.03	0.01	<0.05
TSS																																				
TSS	mg/L	<40	<10	14.8	5	<5	8	5	<5	9	5	<5	5.8	5	<5	17.6	5	<5	17.6	5	8	290	15	10	290	15	18	290	15	20	71	19	12	71	19	5
Field Physical data																																			
Temperature	°C	-	-	24.86	14.99	15.04	25.1	16.3	15.47	24.4	16	16.25	26.46	15.94	17.86	27.9	18.4	18.43	27.9	18.4	19.16	26.5	16.3	16.91	26.5	16.3	15.69	26.5	16.3	19.21	27.9	18.1	19.87	27.9	18.1	19.87
pH	pH	-	6.5-8	7.25	6.48	6.95	7.3	6.4	6.84	7.5	6.6	6.36	7.33	6.26	6.91	7.02	6.57	6.67	7.02	6.57	6.89	7	6.1	6.84	7	6.1	6.56	7	6.1	6.77	7	7	7.73	7	7	7.42
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.296	0.348	0.227	0.29	0.348	0.227	0.24	0.3338	0.2168	0.27	20.946	0.679	0.665	20.946	0.679	0.677	0.808	0.4234	0.526	0.808	0.4234	0.377	0.808	0.4234	0.518	47.32	29.44	34.2	47.32	29.44	34.2
Turbidity	NTU	50	10	10.96	4	1.7	9.9	3.5	3.8	9.9	3.5	3.2	5.97	3.74	5.5	6.82	1.83	5.2	6.82	1.83	4.6	52.78	11.3	31.4	52.78	11.3	17.6	52.78	11.3	44.7	19.3	6.7	7	19.3	6.7	10.8
Dissolved Oxygen	mg/L	5	5	4.98	1.91	7.39	4.8	2.6	4.9	4.8	2.6	3.92	6.34	3.52	7.41	7.98	5.07	5.31	7.98	5.07	4.97	6.4	1.75	2.12	6.4	1.75	0.62	6.4	1.75	3.41	9.1	7.4	6.25	9.1	7.4	6.25
Dissolved Oxygen	%			-	-	75.9	-	-	50.7	-	-	41.1	-	-	80.5	-	-	58.4	-	-	55.4	-	-	22.6	-	-	6.5	-	-	38	-	-	79.7	-	-	79.8
TDS	g/L	-	-	-		0.192	-		0.189	-		0.156	-		0.176	-		0.426	-		0.434	-		0.336	-		0.245	-		0.332	-		20.9	-		20.9

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 1d – Surface Water Testing Results September 2016 – Wet Event

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Low er Warrell Creek			Low er Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Upstream			Dow nstream			Upstream			Dow nstream		
Freshw ater / Estuarine		ANZECC 2000 95% species protected		Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Estuarine			Estuarine		
Date of Sampling				16-Sep-16			16-Sep-16			16-Sep-16			16-Sep-16			16-Sep-16			16-Sep-16			16-Sep-16			16-Sep-16			16-Sep-16			16-Sep-16			16-Sep-16		
Time of Sampling		Freshw ater	Marine	8:50 AM			9:20 AM			11:00 AM			10:45 AM			12:15 PM			12:30 PM			11:30 AM			12:00 PM			11:49 AM			12:45 PM			1:00 PM		
Comments																															Wind chop - sediment stirred up			Wind chop - sediment stirred up		
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Laboratory data																																				
Metals																																				
Aluminium	mg/L	0.055	-	0.244	0.0162	0.04	0.194	0.016	<0.01	0.098	0.02	<0.01	0.114	0.01	<0.01	0.28	0.01	0.02	0.28	0.01	0.02	0.25	0.02	0.01	0.25	0.02	<0.01	0.25	0.02	<0.01	0.11	0.01	<0.10	0.11	0.01	<0.10
Arsenic	mg/L	0.024	0.0023	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	<0.001	0.002	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	0.001	0.002	0.001	0.004	0.002	0.001	0.003	0.002	0.001	<0.010	0.002	0.001	<0.010
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0002	0.0001	<0.0001	0.0002	0.0001	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0010	-	-	<0.0010
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.010	0.001	0.001	<0.010
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Manganese	mg/L	1.9	0.08	0.3	0.01	0.074	0.158	0.0178	0.055	0.0726	0.0218	0.069	0.083	0.0164	0.107	0.35	0.087	0.048	0.35	0.087	0.053	0.49	0.011	0.246	0.49	0.011	0.502	0.49	0.011	0.954	0.076	0.006	0.043	0.076	0.006	0.048
Nickel	mg/L	0.011	0.07	-	-	<0.001	-	-	0.001	-	-	<0.001	-	-	0.001	0.0034	0.001	0.001	0.0034	0.001	0.001	0.002	0.001	0.002	0.002	0.001	0.003	0.002	0.001	0.008	-	-	<0.010	-	-	<0.010
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.10	-	-	<0.10
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Zinc	mg/L	0.008	0.015	0.007	0.005	0.006	0.0062	0.0042	<0.005	0.0064	0.005	<0.005	0.006	0.005	<0.005	0.018	0.005	0.005	0.018	0.005	0.006	0.011	0.005	0.006	0.011	0.005	<0.005	0.011	0.005	0.01	0.005	0.005	<0.050	0.005	0.005	<0.050
Iron	mg/L	-	-	1.38	0.48	0.2	0.99	0.366	0.05	1.4	0.41	0.1	1.48	0.35	<0.05	0.52	0.05	0.07	0.52	0.05	0.1	1.65	0.37	0.09	1.65	0.37	0.13	1.65	0.37	0.06	0.26	0.05	<0.50	0.26	0.05	<0.50
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
BTEX																																				
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	700		NA	700		NA
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.05	0.02	0.02	0.044	0.016	0.01	0.03	0.016	0.02	0.034	0.01	<0.01	0.04	0.01	0.02	0.04	0.01	0.02	0.11	0.03	0.02	0.11	0.03	0.07	0.11	0.03	0.03	0.07	0.02	0.03	0.07	0.02	0.03
Phosphate (reactive phosphorus)	mg/L	-	-	0.01	0.0034	<0.01	0.01	0.004	<0.01	0.018	0.0022	<0.01	0.01	0.003	<0.01	0.011	0.006	<0.01	0.011	0.006	<0.01	0.013	0.005	<0.01	0.013	0.005	<0.01	0.013	0.005	<0.01	0.029	0.01	<0.01	0.029	0.01	<0.01
Total Nitrogen	mg/L	0.5	0.3	0.56	0.3	0.4	0.52	0.2	0.5	0.48	0.2	0.4	0.63	0.2	0.2	0.54	0.31	0.5	0.54	0.31	0.5	3.1	0.9	0.6	3.1	0.9	0.7	3.1	0.9	0.8	0.46	0.2	<0.2	0.46	0.2	0.2
Total Kjeldahl Nitrogen	mg/L	-	-	0.5	0.3	0.4	0.5	0.2	0.4	0.34	0.2	0.3	0.6	0.2	0.2	0.5	0.2	0.4	0.5	0.2	0.4	2.8	0.8	0.6	2.8	0.8	0.7	2.8	0.8	0.7	0.3	0.2	<0.2	0.3	0.2	0.2
Nitrate	mg/L	0.7	-	0.102	0.01	0.04	0.054	0.01	0.06	0.208	0.01	0.06	0.2	0.01	0.05	0.05	0.01	0.14	0.05	0.01	0.06	0.03	0.01	<0.01	0.03	0.01	<0.01	0.03	0.01	0.12	0.04	0.01	<0.01	0.04	0.01	0.02
Nitrite	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	0.036	0.01	<0.01	0.02	0.01	<0.01	0.046	0.02	<0.01	0.062	0.012	0.01	0.116	0.022	0.05	0.116	0.022	0.14	0.06	0.01	<0.01	0.06	0.01	<0.01	0.06	0.01	0.12	0.15	0.024	0.08	0.15	0.024	0.08
TSS																																				
TSS	mg/L	<40	<10	19	5	<5	12.8	5	<5	14.8	5	<5	8.7	5	<5	25	5.5	<5	25	5.5	<5	350	9	9	350	9	10	350	9	20			<5			<5
Lab Physical data (no field data available)																																				
Temperature	°C	-	-	24.3	16.27	16.42	24.52	16.79	16.75	23.98	17.36	17.93	24.7	17.65	17.03	25.9	19.5	20.48	25.9	19.5	20.55	25.84	19.1	20.36	25.84	19.1	22.39	25.84	19.1	22.87	26.56	21.32	22.19	26.56	21.32	22.19
team	pH	-	6.5-8	7.478	6.23	6	7.192	6.42	6.37	7.138	6.61	6.12	6.98	6.21	5.88	6.86	6.46	6.7	6.86	6.46	6.7	6.9	6.08	6.1	6.9	6.08	6.38	6.9	6.08	6.34	7.56	6.58	7.21	7.56	6.58	7.52
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.296	0.3242	0.19076	0.293	0.313	0.2024	0.201	0.309	0.20188	0.196	20.918	0.50928	0.614	20.918	0.50928	0.634	0.842	0.334	0.436	0.842	0.334	0.343	0.842	0.334	1.87	48.42	12.65	31.5	48.42	12.65	31.4
Turbidity	NTU	50	10	26.16	5.94	3.1	27.32	3.72	3.2	14.98	3.34	6.8	17.16	4.59	7.2	26.1	2.4	9.2	26.1	2.4	12.8	66.8	11.6	25.1	66.8	11.6	45.5	66.8	11.6	46.5	19.04	5.81	14.8	19.04	5.81	17.2
Dissolved Oxygen	mg/L	5	5	7.43	1.5	1.58	6.88	2.28	0.85	8.472	5.08	2.15	7.59	2.63	5.09	6.65	5.02	3.09	6.65	5.02	2.1	7.3	1.78	0	7.3	1.78	0.22	7.3	1.78	10.79	8.47	6.88	5.06	8.47	6.88	5.34
Dissolved Oxygen	%			-		16.7	-		9	-		23.3	-		54.4	-		35.3	-		24	-		0	-		2.6	-		129.1	-		66.5	-		70.1
TDS	g/L	-	-	-		0.192	-		0.19	-		0.13	-		0.127	-		0.393	-		0.4	-		0.283	-		0.223	-		1.2	-		19.2	-		19.2

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 1e – Surface Water Testing Results October 2016 – Dry Event

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Low er Warrell Creek			Low er Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Upstream			Dow nstream			Upstream			Dow nstream		
Freshw ater / Estuarine		ANZECC 2000 95% species protected		Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Estuarine			Estuarine		
Date of Sampling				17-Oct-16			17-Oct-16			17-Oct-16			17-Oct-16			17-Oct-16			17-Oct-16			17-Oct-16			17-Oct-16			17-Oct-16			17-Oct-16			17-Oct-16		
Time of Sampling		Freshw ater	Marine	10:55 AM			10:45 AM			9:45 AM			8:45 AM			12:55 PM			1:10 PM			12:10 PM			11:40 AM			12:05 AM			1:23 PM			1:35 PM		
Comments																															Wind chop			Wind chop		
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Field Physical data																																				
Temperature	°C	-	-	24.86	14.99	18.35	25.1	16.3	19.02	24.4	16	17.93	26.46	15.94	17.84	27.9	18.4	21.65	27.9	18.4	21.64	26.5	16.3	19.36	26.5	16.3	17.51	26.5	16.3	20.14	27.9	18.1	21.43	27.9	18.1	21.49
pH	pH	-	6.5-8	7.25	6.48	6.43	7.3	6.4	6.41	7.5	6.6	6.54	7.33	6.26	6.52	7.02	6.57	6.58	7.02	6.57	6.71	7	6.1	6.43	7	6.1	5.96	7	6.1	6.42	7	7	7.46	7	7	7.64
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.275	0.348	0.227	0.277	0.348	0.227	0.246	0.3338	0.2168	0.241	20.946	0.679	5.29	20.946	0.679	5.18	0.808	0.4234	0.56	0.808	0.4234	0.364	0.808	0.4234	0.858	47.32	29.44	44.6	47.32	29.44	44
Turbidity	NTU	50	10	10.96	4	4.7	9.9	3.5	9.1	9.9	3.5	5.7	5.97	3.74	0.3	6.82	1.83	4.4	6.82	1.83	3.2	52.78	11.3	10.1	52.78	11.3	42.8	52.78	11.3	4.1	19.3	6.7	1.4	19.3	6.7	2.5
Dissolved Oxygen	mg/L	5	5	4.98	1.91	4.52	4.8	2.6	4.22	4.8	2.6	5.9	6.34	3.52	7.22	7.98	5.07	4.84	7.98	5.07	4.43	6.4	1.75	2.23	6.4	1.75	0.4	6.4	1.75	4.71	9.1	7.4	5.6	9.1	7.4	5.29
Dissolved Oxygen	%			-	-	49.6	-	-	46.8	-	-	64.2	-	-	78.4	-	-	57.3	-	-	52.4	-	-	24.9	-	-	4.3	-	-	53.5	-	-	76.9	-	-	72.5
TDS	g/L	-	-	-		0.179	-		0.18	-		0.16	-		0.157	-		3.330	-		3.26	-		0.359	-		0.237	-		0.549	-		27.2	-		26.9

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 1f – Surface Water Testing Results November 2016 – Wet Event

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Low er Warrell Creek			Low er Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Upstream			Dow nstream			Upstream			Dow nstream		
Freshw ater / Estuarine		ANZECC 2000 95% species protected		Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Estuarine			Estuarine		
Date of Sampling				10-Nov-16			10-Nov-16			10-Nov-16			10-Nov-16			10-Nov-16			10-Nov-16			10-Nov-16			10-Nov-16			10-Nov-16			10-Nov-16			10-Nov-16		
Time of Sampling		Freshw ater	Marine	10:40 AM			11:00 AM			10:00 AM			9:30 AM			11:30 AM			11:35 AM			12:50 PM			1:30 PM			1:15 PM			12:04 PM			12:20 PM		
Comments																															Wind chop - sediment stirred up			Wind chop - sediment stirred up		
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Laboratory data																																				
Metals																																				
Aluminium	mg/L	0.055	-	0.244	0.0162	0.01	0.194	0.016	0.02	0.098	0.02	0.01	0.114	0.01	<0.01	0.28	0.01	<0.01	0.28	0.01	0.11	0.25	0.02	<0.01	0.25	0.02	0.02	0.25	0.02	<0.01	0.11	0.01	<0.10	0.11	0.01	<0.10
Arsenic	mg/L	0.024	0.0023	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	0.001	0.002	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.002	0.001	0.001	0.002	0.001	0.002	0.002	0.001	<0.010	0.002	0.001	<0.010
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0002	0.0001	<0.0001	0.0002	0.0001	0.0014	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0010	-	-	<0.0010
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	0.002	-	-	<0.001			<0.001			<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.010	0.001	0.001	<0.010
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Manganese	mg/L	1.9	0.08	0.3	0.01	0.175	0.158	0.0178	0.328	0.0726	0.0218	0.085	0.083	0.0164	0.086	0.35	0.087	0.241	0.35	0.087	1.29	0.49	0.011	0.107	0.49	0.011	0.088	0.49	0.011	0.319	0.076	0.006	0.062	0.076	0.006	0.041
Nickel	mg/L	0.011	0.07	-	-	<0.001	-	-	0.002	-	-	0.001	-	-	<0.001	0.0034	0.001	0.002	0.0034	0.001	0.029	0.002	0.001	<0.001	0.002	0.001	0.002	0.002	0.001	0.002	-	-	<0.010	-	-	<0.010
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.10	-	-	<0.10
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.010	-	-	<0.010
Zinc	mg/L	0.008	0.015	0.007	0.005	0.064	0.0062	0.0042	0.045	0.0064	0.005	0.211	0.006	0.005	0.036	0.018	0.005	0.011	0.018	0.005	0.145	0.011	0.005	0.015	0.011	0.005	0.066	0.011	0.005	<0.005	0.005	0.005	<0.050	0.005	0.005	<0.050
Iron	mg/L	-	-	1.38	0.48	0.31	0.99	0.366	0.16	1.4	0.41	0.16	1.48	0.35	<0.05	0.52	0.05	0.06	0.52	0.05	2.35	1.65	0.37	0.05	1.65	0.37	0.26	1.65	0.37	0.14	0.26	0.05	<0.50	0.26	0.05	<0.10
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
BTEX																																				
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	700		NA	700		NA
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.05	0.02	0.04	0.044	0.016	0.02	0.03	0.016	0.02	0.034	0.01	0.02	0.04	0.01	<0.01	0.04	0.01	0.02	0.11	0.03	0.02	0.11	0.03	0.04	0.11	0.03	0.02	0.07	0.02	0.14	0.07	0.02	0.07
Phosphate (reactive phosphorus)	mg/L	-	-	0.01	0.0034	<0.01	0.01	0.004	<0.01	0.018	0.0022	<0.01	0.01	0.003	<0.01	0.011	0.006	<0.01	0.011	0.006	<0.01	0.013	0.005	<0.01	0.013	0.005	<0.01	0.013	0.005	<0.01	0.029	0.01	<0.01	0.029	0.01	0.01
Total Nitrogen	mg/L	0.5	0.3	0.56	0.3	0.4	0.52	0.2	0.3	0.48	0.2	0.6	0.63	0.2	0.3	0.54	0.31	0.4	0.54	0.31	1.2	3.1	0.9	0.7	3.1	0.9	1.1	3.1	0.9	0.8	0.46	0.2	0.9	0.46	0.2	1.1
Total Kjeldahl Nitrogen	mg/L	-	-	0.5	0.3	0.4	0.5	0.2	0.3	0.34	0.2	0.5	0.6	0.2	0.3	0.5	0.2	0.4	0.5	0.2	0.6	2.8	0.8	0.7	2.8	0.8	1.1	2.8	0.8	0.8	0.3	0.2	0.9	0.3	0.2	1.1
Nitrate	mg/L	0.7	-	0.102	0.01	<0.01	0.054	0.01	<0.01	0.208	0.01	<0.01	0.2	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.03	0.01	<0.01	0.03	0.01	<0.01	0.03	0.01	<0.01	0.04	0.01	<0.01	0.04	0.01	<0.01
Nitrite	mg/L	-	-	-	-	<0.01	-	-	0.02	-	-	0.07	0.02	0.01	0.03	0.02	0.01	0.04	0.02	0.01	0.55	0.02	0.01	0.01	0.02	0.01	0.04	0.02	0.01	<0.01	0.02	0.01	0.04	0.02	0.01	0.01
Ammonia	mg/L	0.9	-	0.036	0.01	0.01	0.02	0.01	0.01	0.046	0.02	0.02	0.062	0.012	<0.01	0.116	0.022	0.03	0.116	0.022	0.19	0.06	0.01	<0.01	0.06	0.01	0.05	0.06	0.01	<0.01	0.15	0.024	0.1	0.15	0.024	0.09
TSS																																				
TSS	mg/L	<40	<10	19	5	8	12.8	5	6	14.8	5	8	8.7	5	12	25	5.5	9	25	5.5	9	350	9	12	350	9	38	350	9	10			198			220
Lab Physical data (no field data available)																																				
Temperature	°C	-	-	24.3	16.27	22.74	24.52	16.79	22.54	23.98	17.36	21.38	24.7	17.65	21.77	25.9	19.5	26.05	25.9	19.5	25.97	25.84	19.1	29.84	25.84	19.1	24.98	25.84	19.1	33.21	26.56	21.32	26.79	26.56	21.32	26.53
pH	pH	-	6.5-8	7.478	6.23	6.79	7.192	6.42	6.58	7.138	6.61	6.66	6.98	6.21	6.84	6.86	6.46	6.62	6.86	6.46	6.74	6.9	6.08	7.47	6.9	6.08	6.67	6.9	6.08	6.87	7.56	6.58	7.37	7.56	6.58	7.64
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.252	0.3242	0.19076	0.256	0.313	0.2024	0.25	0.309	0.20188	0.246	20.918	0.50928	8.64	20.918	0.50928	7.3	0.842	0.334	0.802	0.842	0.334	0.138	0.842	0.334	1.16	48.42	12.65	41.7	48.42	12.65	41.3
Turbidity	NTU	50	10	26.16	5.94	0.8	27.32	3.72	0.9	14.98	3.34	8	17.16	4.59	4.7	26.1	2.4	9.1	26.1	2.4	6.04	66.8	11.6	12	66.8	11.6	8.1	66.8	11.6	30.9	19.04	5.81	92	19.04	5.81	20.1
Dissolved Oxygen	mg/L	5	5	7.43	1.5	1.49	6.88	2.28	1.07	8.472	5.08	1.89	7.59	2.63	4.93	6.65	5.02	1.74	6.65	5.02	1.67	7.3	1.78	2.36	7.3	1.78	1.53	7.3	1.78	2.1	8.47	6.88	2.59	8.47	6.88	2.68
Dissolved Oxygen	%			-		17.7	-		12.6	-		21.9	-		57.5	-		22.4	-		21.3	-		31.4	-		18.9	-		29.2	-		38.3	-		39.5
TDS	g/L	-	-	-		0.164	-		0.166	-		0.162	-		0.16	-		5.44	-		3.8	-		0.513	-		0.207	-		0.741	-		25.4	-		25.2

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 1g – Surface Water Testing Results November 2016 – Dry Event

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				23-Nov-16			23-Nov-16			23-Nov-16			23-Nov-16			23-Nov-16			23-Nov-16			23-Nov-16			23-Nov-16			23-Nov-16			23-Nov-16			23-Nov-16		
Time of Sampling		Freshwater	Marine	12:20 PM			12:40 PM			12:05 PM			11:35 AM			2:50 PM			3:10 PM			1:25 PM			1:50 PM			1:35 PM			3:30 PM			3:40 PM		
Comments																													Water level too low to sample			Wind chop			Wind chop		
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Laboratory data																																					
Metals																																					
Aluminium	mg/L	0.055	-	0.06	0.01	0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.04	0.01	<0.01	0.06	0.01	<0.01	0.06	0.01	<0.01	0.1	0.01	0.01	0.1	0.01	0.02	0.1	0.01	-	0.02	0.01	<0.10	0.02	0.01	<0.10
Arsenic	mg/L	0.024	0.0023	-	-	<0.001	-	-	<0.001	-	-	0.002	0.001	0.001	<0.001	0.001	0.001	0.002	0.001	0.001	0.002	0.002	0.001	0.002	0.002	0.001	0.001	0.002	0.001	-	0.002	0.001	<0.010	0.002	0.001	<0.010
Cadmium	mg/L	0.0002	0.0055	-	-	0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	-	-	-	<0.0010	-	-	<0.0010
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.010	-	-	<0.010
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	0.004	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	0.001	0.001	<0.010	0.001	0.001	<0.010
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.010	-	-	<0.010
Manganese	mg/L	1.9	0.08	0.21	0.02	0.22	0.2	0.03	0.082	0.06	0.02	0.132	0.052	0.013	0.169	0.26	0.08	0.175	0.26	0.08	0.165	0.23	0.019	0.098	0.23	0.019	0.114	0.23	0.019	-	0.03	0.002	0.019	0.03	0.002	0.015
Nickel	mg/L	0.011	0.07	-	-	0.001	-	-	0.002	-	-	<0.001	-	-	<0.001	0.001	0.001	0.002	0.001	0.001	0.002	0.001	0.001	<0.001	0.001	0.001	0.002	0.001	0.001	-	-	-	<0.010	-	-	<0.010
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	-	-	-	<0.10	-	-	<0.10
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	<0.010	-	-	<0.010
Zinc	mg/L	0.008	0.015	-	-	0.026	-	-	0.019	0.005	0.005	0.005	0.005	0.005	<0.005	0.006	0.005	<0.005	0.006	0.005	0.007	0.005	0.005	0.007	0.005	0.005	0.009	0.005	0.005	-	0.005	0.005	<0.050	0.005	0.005	<0.050
Iron	mg/L	-	-	0.99	0.46	0.14	0.93	0.31	0.14	0.82	0.42	0.05	0.78	0.37	<0.05	0.83	0.05	<0.05	0.83	0.05	<0.05	2.01	0.25	0.88	2.01	0.25	0.18	2.01	0.25	-	-	-	<0.50	-	-	<0.50
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	-	-	-	<0.0001	-	-	<0.0001
Total Recoverable Hydrocarbons																																					
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		-	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
BTEX																																					
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		-	700		NA	700		NA
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		-	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		-	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		-	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		NA	-		NA
Nutrients																																					
Total Phosphorus	mg/L	0.05	0.03	0.04	0.01	0.04	0.03	0.01	0.01	0.04	0.01	0.03	0.02	0.01	0.05	0.04	0.01	0.02	0.04	0.01	0.02	0.12	0.03	0.05	0.12	0.03	0.35	0.12	0.03	-	0.04	0.02	0.09	0.04	0.02	0.06
Phosphate (reactive phosphorus)	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.01	0.0044	<0.01	0.01	0.0044	<0.01	0.01	0.005	<0.01	0.01	0.005	<0.01	0.01	0.005	-	0.01	0.008	<0.01	0.01	0.008	<0.01
																														-						
Total Nitrogen	mg/L	0.5	0.3	0.62	0.2	0.7	0.6	0.2	0.4	0.3	0.1	0.6	0.41	0.1	0.3	0.5	0.2	0.4	0.5	0.2	0.4	2.8	1.1	1.1	2.8	1.1	3.6	2.8	1.1	-	0.5	0.2	0.7	0.5	0.2	0.6
Total Kjeldahl Nitrogen	mg/L	-	-	0.6	0.2	0.7	0.6	0.2	0.4	0.3	0.1	0.5	0.4	0.1	0.3	0.5	0.2	0.4	0.5	0.2	0.4	2.4	1	1.1	2.4	1	3.6	2.4	1	-	0.5	0.2	0.7	0.5	0.2	0.6
																														-						
Nitrate	mg/L	0.7	-	0.04	0.01	0.02	0.03	0.01	0.03	0.03	0.01	0.07	0.03	0.01	<0.01	0.04	0.01	0.02	0.04	0.01	0.03	0.04	0.01	0.04	0.04	0.01	0.03	0.04	0.01	-	0.02	0.01	0.04	0.02	0.01	0.04
Nitrite	mg/L	-	-	-	-	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	-	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.16	0.06	0.01	0.16	0.06	<0.01	0.04	0.01	<0.01	0.04	0.01	0.03	0.04	0.01	-	0.03	0.01	<0.05	0.03	0.01	<0.05
TSS																																					
TSS	mg/L	<40	<10	14.8	5	<5	8	5	<5	9	5	<5	5.8	5	13	17.6	5	19	17.6	5	9	290	15	12	290	15	99	290	15	-	71	19	51	71	19	96
Field Physical data																																					
Temperature	°C	-	-	24.86	14.99	24.13	25.1	16.3	28.36	24.4	16	23.66	26.46	15.94	22.16	27.9	18.4	28.72	27.9	18.4	28.51	26.5	16.3	24.7	26.5	16.3	22.69	26.5	16.3	-	27.9	18.1	27.39	27.9	18.1	27.17
pH	pH	-	6.5-8	7.25	6.48	6.7	7.3	6.4	6.97	7.5	6.6	6.75	7.33	6.26	7.27	7.02	6.57	6.98	7.02	6.57	7.28	7	6.1	6.71	7	6.1	6.47	7	6.1	-	7	7	7.76	7	7	7.85
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.254	0.348	0.227	0.249	0.348	0.227	0.24	0.3338	0.2168	0.239	20.946	0.679	11.40	20.946	0.679	11.7	0.808	0.4234	0.624	0.808	0.4234	0.394	0.808	0.4234	-	47.32	29.44	41.2	47.32	29.44	41.3
Turbidity	NTU	50	10	10.96	4	1	9.9	3.5	4.1	9.9	3.5	9.1	5.97	3.74	10.2	6.82	1.83	39.2	6.82	1.83	19.4	52.78	11.3	22.3	52.78	11.3	5.9	52.78	11.3	-	19.3	6.7	65.2	19.3	6.7	74.6
Dissolved Oxygen	mg/L	5	5	4.98	1.91	1.08	4.8	2.6	4.38	4.8	2.6	3.09	6.34	3.52	3.03	7.98	5.07	4.20	7.98	5.07	3.84	6.4	1.75	2.8	6.4	1.75	2.11	6.4	1.75	-	9.1	7.4	4.49	9.1	7.4	4.8
Dissolved Oxygen	%			-	-	13.2	-	-	56.9	-	-	37.3	-	-	35.7	-	-	56.8	-	-	51.8	-	-	34.4	-	-	25.1	-	-	-	-	-	67	-	-	71.3
TDS	g/L	-	-	-	-	0.165	-	-	0.162	-	-	0.156	-	-	0.155	-	-	7.090	-	-	7.24	-	-	0.399	-	-	0.256	-	-	-	-	-	25.1	-	-	25.2

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 1h – Surface Water Testing Results December 2016 – Dry Event

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Lower Warrell Creek			Lower Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Downstream			Upstream			Downstream			Upstream			Downstream			Upstream			Upstream			Downstream			Upstream			Downstream		
Freshwater / Estuarine		ANZECC 2000 95% species protected		Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Freshwater			Estuarine			Estuarine		
Date of Sampling				15-Dec-16			15-Dec-16			15-Dec-16			15-Dec-16			15-Dec-16			15-Dec-16			15-Dec-16			15-Dec-16			15-Dec-16			15-Dec-16			15-Dec-16		
Time of Sampling		Freshwater	Marine	2:45 PM			2:30 PM			1:50 PM			1:45 PM			3:00 PM			2:55 PM			4:30 PM			4:20 PM			4:10 PM			3:23 PM			3:30 PM		
Comments																													Water level too low to sample			Wind chop			Wind chop		
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Field Physical data																																					
Temperature	°C	-	-	24.86	14.99	27.39	25.1	16.3	27.57	24.4	16	25.05	26.46	15.94	25.6	27.9	18.4	28.59	27.9	18.4	28.54	26.5	16.3	25	26.5	16.3	23.95	26.5	16.3	-	27.9	18.1	26.6	27.9	18.1	26.72
pH	pH	-	6.5-8	7.25	6.48	7	7.3	6.4	7.04	7.5	6.6	6.6	7.33	6.26	7.06	7.02	6.57	7.44	7.02	6.57	7.27	7	6.1	6.76	7	6.1	6.47	7	6.1	-	7	7	8.13	7	7	8.18
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.269	0.348	0.227	0.27	0.348	0.227	0.171	0.3338	0.2168	0.264	20.946	0.679	17.70	20.946	0.679	17.5	0.808	0.4234	0.773	0.808	0.4234	0.548	0.808	0.4234	-	47.32	29.44	49.1	47.32	29.44	49.2
Turbidity	NTU	50	10	10.96	4	14.7	9.9	3.5	6.5	9.9	3.5	3	5.97	3.74	2.7	6.82	1.83	3.1	6.82	1.83	4	52.78	11.3	129	52.78	11.3	582	52.78	11.3	-	19.3	6.7	32.3	19.3	6.7	39
Dissolved Oxygen	mg/L	5	5	4.98	1.91	4.21	4.8	2.6	4.06	4.8	2.6	8.64	6.34	3.52	5.02	7.98	5.07	4.67	7.98	5.07	3.85	6.4	1.75	0.45	6.4	1.75	2.28	6.4	1.75	-	9.1	7.4	4.72	9.1	7.4	5.01
Dissolved Oxygen	%			-	-	53.9	-	-	52.2	-	-	96.6	-	-	83	-	-	64.4	-	-	53	-	-	5.6	-	-	27.6	-	-	-	-	-	72.1	-	-	76.6
TDS	g/L	-	-	-		0.175	-		0.179	-		0.176	-		0.172	-		11.000	-		10.8	-		0.495	-		0.351	-		-	-		30	-		30

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 1i – Surface Water Testing Results January 2017 – Dry Event

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Low er Warrell Creek			Low er Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Upstream			Dow nstream			Upstream			Dow nstream		
Freshw ater / Estuarine		ANZECC 2000 95% species protected		Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Estuarine			Estuarine		
Date of Sampling				10-Jan-17			10-Jan-17			10-Jan-17			10-Jan-17			10-Jan-17			10-Jan-17			10-Jan-17			10-Jan-17			10-Jan-17			10-Jan-17			10-Jan-17		
Time of Sampling		Freshw ater	Marine	10:00 AM			9:35 AM			8:59 AM			8:32 AM			11:54 AM			11:50 AM			10:38 AM			10:31 AM			10:27 AM			11:27 AM			11:06 AM		
Comments																									Unable to sample - w ater level too low			Unable to sample - w ater level too low								
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Laboratory data																																				
Metals																																				
Aluminium	mg/L	0.055	-	0.06	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	<0.01	0.04	0.01	0.01	0.06	0.01	<0.01	0.06	0.01	<0.01	0.1	0.01	0.01	0.1	0.01	-	0.1	0.01	-	0.02	0.01	<0.10	0.02	0.01	<0.10
Arsenic	mg/L	0.024	0.0023	-	-	0.001	-	-	<0.001	-	-	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	0.004	0.002	0.001	-	0.002	0.001	-	0.002	0.001	<0.010	0.002	0.001	<0.010
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	<0.0001	-	-	<0.0001	-	-	-	-	-	-	-	-	<0.0010	-	-	<0.0010
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	-	-	-	<0.010	-	-	<0.010
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	-	0.001	0.001	<0.010	0.001	0.001	<0.010
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	-	-	-	<0.010	-	-	<0.010
Manganese	mg/L	1.9	0.08	0.21	0.02	1.02	0.2	0.03	0.127	0.06	0.02	0.116	0.052	0.013	0.127	0.26	0.08	0.272	0.26	0.08	0.25	0.23	0.019	0.435	0.23	0.019	-	0.23	0.019	-	0.03	0.002	<0.010	0.03	0.002	<0.010
Nickel	mg/L	0.011	0.07	-	-	0.003	-	-	0.015	-	-	<0.001	-	-	<0.001	0.001	0.001	<0.001	0.001	0.001	0.004	0.001	0.001	<0.001	0.001	0.001	-	0.001	0.001	-	-	-	<0.010	-	-	<0.010
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	<0.10	-	-	<0.10
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	-	-	-	<0.010	-	-	<0.010
Zinc	mg/L	0.008	0.015	-	-	<0.005	-	-	<0.005	0.005	0.005	<0.005	0.005	0.005	<0.005	0.006	0.005	<0.005	0.006	0.005	<0.005	0.005	0.005	<0.005	0.005	0.005	-	0.005	0.005	-	0.005	0.005	<0.050	0.005	0.005	<0.050
Iron	mg/L	-	-	0.99	0.46	0.52	0.93	0.31	0.1	0.82	0.42	1.06	0.78	0.37	1.11	0.83	0.05	<0.05	0.83	0.05	0.05	2.01	0.25	1.29	2.01	0.25	-	2.01	0.25	-	-	-	<0.10	-	-	<0.10
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	-	-	-	-	-	-	<0.0001	-	-	<0.0001
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		-	16		-	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
BTEX																																				
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		-	950		-	700		NA	700		NA
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		-	180		-	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		-	80		-	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		-	350		-	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.04	0.01	0.11	0.03	0.01	<0.01	0.04	0.01	<0.01	0.02	0.01	0.02	0.04	0.01	<0.05	0.04	0.01	<0.05	0.12	0.03	0.04	0.12	0.03	-	0.12	0.03	-	0.04	0.02	<0.05	0.04	0.02	<0.02
Phosphate (reactive phosphorus)	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.01	0.0044	<0.01	0.01	0.0044	<0.01	0.01	0.005	<0.01	0.01	0.005	-	0.01	0.005	-	0.01	0.008	0.01	0.01	0.008	<0.01
																											-			-						
Total Nitrogen	mg/L	0.5	0.3	0.62	0.2	0.7	0.6	0.2	0.3	0.3	0.1	0.8	0.41	0.1	0.3	0.5	0.2	<0.5	0.5	0.2	<0.5	2.8	1.1	1.5	2.8	1.1	-	2.8	1.1	-	0.5	0.2	0.7	0.5	0.2	<0.2
Total Kjeldahl Nitrogen	mg/L	-	-	0.6	0.2	0.7	0.6	0.2	0.3	0.3	0.1	0.8	0.4	0.1	0.3	0.5	0.2	<0.5	0.5	0.2	<0.5	2.4	1	1.4	2.4	1	-	2.4	1	-	0.5	0.2	0.7	0.5	0.2	<0.2
																											-			-						
Nitrate	mg/L	0.7	-	0.04	0.01	<0.01	0.03	0.01	<0.01	0.03	0.01	<0.01	0.03	0.01	<0.01	0.04	0.01	0.01	0.04	0.01	<0.01	0.04	0.01	0.08	0.04	0.01	-	0.04	0.01	-	0.02	0.01	<0.01	0.02	0.01	<0.01
Nitrite	mg/L	-	-	-	-	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.01	0.01	<0.01	0.05	0.01	<0.01	0.05	0.01	-	0.05	0.01	-	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	-	-	<0.01	-	-	0.01	-	-	0.04	-	-	<0.01	0.16	0.06	0.04	0.16	0.06	0.04	0.04	0.01	0.06	0.04	0.01	-	0.04	0.01	-	0.03	0.01	<0.05	0.03	0.01	0.15
TSS																																				
TSS	mg/L	<40	<10	14.8	5	16	8	5	7	9	5	8	5.8	5	6	17.6	5	8	17.6	5	<5	290	15	31	290	15	-	290	15	-	71	19	101	71	19	<5
Field Physical data																																				
Temperature	°C	-	-	24.86	14.99	24.13	25.1	16.3	25.48	24.4	16	22.83	26.46	15.94	21.98	27.9	18.4	28.01	27.9	18.4	28.8	26.5	16.3	26.87	26.5	16.3	-	26.5	16.3	-	27.9	18.1	27.59	27.9	18.1	27.46
pH	pH	-	6.5-8	7.25	6.48	8.27	7.3	6.4	8.15	7.5	6.6	8.22	7.33	6.26	7.8	7.02	6.57	7.48	7.02	6.57	7.46	7	6.1	6.84	7	6.1	-	7	6.1	-	7	7	7.97	7	7	7.98
Conductivity	mS/cm	0.125-2.2	-	0.316	0.232	0.278	0.348	0.227	0.214	0.348	0.227	0.252	0.3338	0.2168	0.254	20.946	0.679	23.30	20.946	0.679	23.2	0.808	0.4234	0.755	0.808	0.4234	-	0.808	0.4234	-	47.32	29.44	48.2	47.32	29.44	48.2
Turbidity	NTU	50	10	10.96	4	16.9	9.9	3.5	25.8	9.9	3.5	9.6	5.97	3.74	3.3	6.82	1.83	1.9	6.82	1.83	5.4	52.78	11.3	67.9	52.78	11.3	-	52.78	11.3	-	19.3	6.7	39.3	19.3	6.7	7.4
Dissolved Oxygen	mg/L	5	5	4.98	1.91	5.64	4.8	2.6	5.84	4.8	2.6	8.54	6.34	3.52	6	7.98	5.07	5.71	7.98	5.07	3.01	6.4	1.75	2.89	6.4	1.75	-	6.4	1.75	-	9.1	7.4	3.65	9.1	7.4	3.92
Dissolved Oxygen	%			-	-	68.5	-	-	72.5	-	-	98	-	-	70.7	-	-	80.1	-	-	42.6	-	-	36.8	-	-	-	-	-	-	-	-	56.3	-	-	60.4
TDS	g/L	-	-	-		0.147	-		0.146	-		0.169	-		0.165	-		14.500	-		14.4	-		0.508	-		-	-		-	-		29.4	-		29.4

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

Table 1j – Surface Water Testing Results January 2017 – Wet Event

Location	Units	Levels of Concern		Upper Warrell Creek			Upper Warrell Creek			Stony Creek			Stony Creek			Low er Warrell Creek			Low er Warrell Creek			Unnamed Creek Gumma West			Unnamed Creek Gumma East			Unnamed Creek Gumma North			Nambucca River South			Nambucca River South		
				Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Dow nstream			Upstream			Upstream			Dow nstream			Upstream			Dow nstream		
Freshw ater / Estuarine		ANZECC 2000 95% species protected		Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Freshw ater			Estuarine			Estuarine		
Date of Sampling				16-Jan-17			16-Jan-17			16-Jan-17			16-Jan-17			16-Jan-17			16-Jan-17			16-Jan-17			16-Jan-17			16-Jan-17			16-Jan-17			16-Jan-17		
Time of Sampling		Freshw ater	Marine	2:36 PM			2:20 PM			1:59 PM			1:39 PM			3:52 PM			3:40 PM			3:00 PM			3:10 PM			2:50 PM			4:20 PM			4:11 PM		
Comments																									Unable to sample - w ater level too low			Unable to sample - w ater level too low			Wind chop - sediment stirred up			Wind chop - sediment stirred up		
Type				80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result	80th %ile	20th %ile	Result
Laboratory data																																				
Metals																																				
Aluminium	mg/L	0.055	-	0.244	0.0162	0.03	0.194	0.016	0.02	0.098	0.02	0.01	0.114	0.01	<0.01	0.28	0.01	<0.01	0.28	0.01	<0.01	0.25	0.02	0.02	0.25	0.02	-	0.25	0.02	-	0.11	0.01	<0.10	0.11	0.01	<0.10
Arsenic	mg/L	0.024	0.0023	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.003	0.002	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.002	0.001	0.007	0.002	0.001	-	0.002	0.001	-	0.002	0.001	<0.010	0.002	0.001	<0.010
Cadmium	mg/L	0.0002	0.0055	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	0.0002	0.0001	0.0002	0.0002	0.0001	<0.0001	-	-	<0.0001	-	-	-	-	-	-	-	-	<0.0010	-	-	<0.0010
Chromium	mg/L	0.001	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	-	-	-	-	-	-	<0.010	-	-	<0.010
Copper	mg/L	0.0014	0.0013	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	0.001	0.001	<0.001	0.001	0.001	-	0.001	0.001	-	0.001	0.001	<0.010	0.001	0.001	<0.010
Lead	mg/L	0.0034	0.0044	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001			<0.001			<0.001	-	-	<0.001	-	-	-	-	-	-	-	-	<0.010	-	-	<0.010
Manganese	mg/L	1.9	0.08	0.3	0.01	0.608	0.158	0.0178	0.148	0.0726	0.0218	0.089	0.083	0.0164	0.118	0.35	0.087	0.435	0.35	0.087	0.29	0.49	0.011	0.528	0.49	0.011	-	0.49	0.011	-	0.076	0.006	0.025	0.076	0.006	0.016
Nickel	mg/L	0.011	0.07	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	0.0034	0.001	0.007	0.0034	0.001	0.001	0.002	0.001	<0.001	0.002	0.001	-	0.002	0.001	-	-	-	<0.010	-	-	<0.010
Selenium	mg/L	11	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	<0.01	-	-	-	-	-	-	-	-	<0.10	-	-	<0.10
Silver	mg/L	0.00005	0.0014	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-	-	-	-	-	-	-	<0.010	-	-	<0.010
Zinc	mg/L	0.008	0.015	0.007	0.005	<0.005	0.0062	0.0042	<0.005	0.0064	0.005	<0.005	0.006	0.005	<0.005	0.018	0.005	0.018	0.018	0.005	<0.005	0.011	0.005	<0.005	0.011	0.005	-	0.011	0.005	-	0.005	0.005	<0.050	0.005	0.005	<0.050
Iron	mg/L	-	-	1.38	0.48	1.44	0.99	0.366	0.75	1.4	0.41	2.29	1.48	0.35	<0.05	0.52	0.05	0.1	0.52	0.05	0.09	1.65	0.37	3.82	1.65	0.37	-	1.65	0.37	-	0.26	0.05	<0.50	0.26	0.05	<0.50
Mercury	mg/L	0.0006	0.0004	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001	-	-	<0.0001			<0.0001			<0.0001	-	-	<0.0001	-	-	-	-	-	-	-	-	<0.0001	-	-	<0.0001
Total Recoverable Hydrocarbons																																				
Naphthalene	µg/L	16	50	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		NA	16		-	16		-	50		NA	50		NA
C6 - C10 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
C6 - C10 Fraction minus BTEX (F1)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
>C10 - C16 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
>C16 - C34 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
>C34 - C40 Fraction	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
>C10 - C40 Fraction (sum)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
>C10 - C16 Fraction minus Naphthalene (F2)	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
BTEX																																				
Benzene	µg/L	950	700	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		NA	950		-	950		-	700		NA	700		NA
Toluene	µg/L	180	180	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		NA	180		-	180		-	180		NA	180		NA
Ethylbenzene	µg/L	80	5	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		NA	80		-	80		-	5		NA	5		NA
m&p-Xylenes	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
o-Xylene	µg/L	350	350	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		NA	350		-	350		-	350		NA	350		NA
Xylenes - Total	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
Sum of BTEX	µg/L	-	-	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		NA	-		-	-		-	-		NA	-		NA
Nutrients																																				
Total Phosphorus	mg/L	0.05	0.03	0.05	0.02	0.04	0.044	0.016	0.07	0.03	0.016	0.03	0.034	0.01	0.01	0.04	0.01	<0.02	0.04	0.01	0.04	0.11	0.03	0.32	0.11	0.03	-	0.11	0.03	-	0.07	0.02	<0.05	0.07	0.02	<0.05
Phosphate (reactive phosphorus)	mg/L	-	-	0.01	0.0034	<0.01	0.01	0.004	<0.01	0.018	0.0022	<0.01	0.01	0.003	<0.01	0.011	0.006	<0.01	0.011	0.006	<0.01	0.013	0.005	<0.01	0.013	0.005	-	0.013	0.005	-	0.029	0.01	0.01	0.029	0.01	0.01
																											-			-						
Total Nitrogen	mg/L	0.5	0.3	0.56	0.3	0.4	0.52	0.2	0.5	0.48	0.2	0.2	0.63	0.2	0.2	0.54	0.31	0.3	0.54	0.31	0.1	3.1	0.9	6.7	3.1	0.9	-	3.1	0.9	-	0.46	0.2	<0.5	0.46	0.2	<0.5
Total Kjeldahl Nitrogen	mg/L	-	-	0.5	0.3	0.4	0.5	0.2	0.5	0.34	0.2	0.2	0.6	0.2	0.2	0.5	0.2	0.3	0.5	0.2	0.1	2.8	0.8	6.7	2.8	0.8	-	2.8	0.8	-	0.3	0.2	<0.5	0.3	0.2	<0.5
																											-			-						
Nitrate	mg/L	0.7	-	0.102	0.01	0.02	0.054	0.01	0.01	0.208	0.01	0.01	0.2	0.01	0.02	0.05	0.01	0.01	0.05	0.01	<0.01	0.03	0.01	<0.01	0.03	0.01	-	0.03	0.01	-	0.04	0.01	<0.01	0.04	0.01	<0.01
Nitrite	mg/L	-	-	-	-	<0.01	-	-	<0.01	-	-	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	<0.01	0.02	0.01	-	0.02	0.01	-	0.02	0.01	<0.01	0.02	0.01	<0.01
Ammonia	mg/L	0.9	-	0.036	0.01	0.04	0.02	0.01	0.03	0.046	0.02	0.02	0.062	0.012	0.04	0.116	0.022	0.04	0.116	0.022	0.06	0.06	0.01	0.16	0.06	0.01	-	0.06	0.01	-	0.15	0.024	0.03	0.15	0.024	0.12
TSS																																				
TSS	mg/L	<40	<10	19	5	7	12.8	5	21	14.8	5	12	8.7	5	7	25	5.5	17	25	5.5	<5	350	9	22	350	9	-	350	9	-			48			21
Lab Physical data (no field data available)																																				
Temperature	°C	-	-	24.3	16.27	25.66	24.52	16.79	26.41	23.98	17.36	23.68	24.7	17.65	24.31	25.9	19.5	28.37	25.9	19.5	28.7	25.84	19.1	27.42	25.84	19.1	-	25.84	19.1	-	26.56	21.32	27.88	26.56	21.32	27.97
pH	pH	-	6.5-8	7.478	6.23	6.8	7.192	6.42	7.15	7.138	6.61	6.35	6.98	6.21	6.54	6.86	6.46	7.33	6.86	6.46	7.37	6.9	6.08	6.78	6.9	6.08	-	6.9	6.08	-	7.56	6.58	7.93	7.56	6.58	7.99
Conductivity	mS/cm	0.125-2.2	-	0.3204	0.20184	0.232	0.3242	0.19076	0.253	0.313	0.2024	0.252	0.309	0.20188	0.302	20.918	0.50928	19	20.918	0.50928	23	0.842	0.334	0.819	0.842	0.334	-	0.842	0.334	-	48.42	12.65	29.4	48.42	12.65	45.5
Turbidity	NTU	50	10	26.16	5.94	6.4	27.32	3.72	18.7	14.98	3.34	2.7	17.16	4.59	11.6	26.1	2.4	33	26.1	2.4	4.4	66.8	11.6	130	66.8	11.6	-	66.8	11.6	-	19.04	5.81	44.5	19.04	5.81	31.2
Dissolved Oxygen	mg/L	5	5	7.43	1.5	1.11	6.88	2.28	2.45	8.472	5.08	2.03	7.59	2.63	2.07	6.65	5.02	2.34	6.65	5.02	3.28	7.3	1.78	1.97	7.3	1.78	-	7.3	1.78	-	8.47	6.88	3.48	8.47	6.88	3.07
Dissolved Oxygen	%			-		13.8	-		30.9	-		24.5	-		25.2	-		31.9	-		45.9	-		25.3	-		-	-		-	-		48.1	-		45.9
TDS	g/L	-	-	-		0.151	-		0.167	-		0.164	-		0.2	-		12.4	-		14.4	-		0.545	-		-	-		-	-		18.8	-		28.5

Taken from ANZECC guidelines 95% protected species levels where no 80/20 trigger values provided

Taken from alternative trigger levels provided in ANZECC Water Guidelines Volume 1 and Volume 2 where insufficient data was available for 95%

Exceedances of trigger values

APPENDIX B – Noise and Vibration Monitoring

Table 4a – Noise Monitoring Results – August 2016

Date	Time	Location	Rec ID	NCA	NML	Activity	Predicted levels for activity	LAeq	LAFMAX	LAFMIN	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions	Notes
23/08/2016	3:07 PM	Albert Drive	74	1	50	Cut	62	47.5	74.5	34.8	47.2	43.3	39.8	Excavator	NA	NA	Other sources: highway, birds
22/08/2016	7:45 AM	Cockburns Lane	16	1	50	Cut	65	48.5	65.9	44.5	50.3	47.8	46.3	Excavator	NA	NA	Other sources: mill, birds
23/08/2016	2:30 PM	Bald Hill Rd	197	3	50	Cut	72	54.2	76.8	45.1	53.7	50.6	47.9	Excavator (rock breaker)	NA	NA	Other sources: highway, local traffic
22/08/2016	9:14 AM	Letitia Rd	406	4	59	Cut	74	63.3	80.5	43.8	68.4	54	48.9	Scrapers loading + dumping	NA	NA	Other sources: Highway
22/08/2016	8:41 AM	Mattick Rd	442	6	44	Cut	62	51.7	77.4	44.3	54.3	49.9	47	Moxy, excavator, grader	NA	NA	Other sources: Traffic
22/08/2016	9:45 AM	Nursery Rd	415	4	59	Bridgeworks	NA	57.4	77.8	41.6	51.1	45.6	43.1	Concreting	NA	NA	Construction not audible
22/08/2016	8:15 AM	Wallace St	148	3	50	Cut	NA	59.6	74.2	48.8	63.3	54.1	51.4	Excavators	NA	NA	Construction not audible
22/08/2016	12:30 PM	Gumma Rd	383	3	50	Bridgeworks	67	60	69.2	53.2	63.7	57.5	54.7	Crane, hammer drill	NA	NA	Other sources: Traffic

Table 4b – Monthly Noise Monitoring Results – September 2016

Date	Time	Location	Rec ID	NCA	NML	Activity	Predicted levels for activity	LAeq	LAFMAX	LAFMIN	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions	Notes
1/09/2016	2:35 PM	Albert Drive	74	1	50	Cut	62	47.8	69.7	41.1	49.1	45.7	43.6	Crusher, excavator	NA	NA	Within predicted levels. Other sources: highway, birds
1/09/2016	3:09 PM	Cockburns Lane	16	1	50	Cut	65	47.4	69.8	41.6	48.5	45.6	43.7	NA	NA	NA	Construction not audible
1/09/2016	3:50 PM	Bald Hill Rd	197	3	50	Cut	72	55.8	72.2	48.4	58.3	54.2	51.2	Excavator moving + loading, moxy, tipper truck	NA	NA	Within predicted levels. Other sources: local traffic
1/09/2016	11:45 AM	Letitia Rd	406	4	59	Cut	74	59.9	83	41.9	59.4	49.6	45.8	Dozer, scraper emptying, street sweeper	NA	NA	Within predicted levels. Other sources:
1/09/2016	11:15 AM	Mattick Rd	442	6	44	Cut	62	50.6	66.7	40.7	51.6	48.3	44.5	Excavators, FEL, drill	NA	NA	Within predicted levels. Other sources: dogs barking, van reversing
1/09/2016	12:09 PM	Nursery Rd	415	4	59	Bridgeworks	45	46.7	57.9	39.9	49.6	45.8	43.2	NA	NA	NA	Construction not audible. Other sources: highway, plane
1/09/2016	3:30 PM	Wallace St	148	3	50	Cut	47	59.9	74.8	45.7	62.8	54.9	49.1	NA	NA	NA	Construction not audible. Sources: highway, local traffic
1/09/2016	12:28 PM	Gumma Rd	383	3	50	Bridgeworks	67	55.3	68.5	44.1	59.3	52.8	49.2	Crane, excavator, moxy, hand tools	NA	NA	Within predicted levels. Other sources: hand tools at residence

Table 4c – Monthly Noise Monitoring Results – October 2016

Date	Time	Location	Rec ID	NCA	NML	Activity	Predicted levels for activity	LAeq	LAFMAX	LAFMIN	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions	Notes
6/10/2016	12:49 PM	Albert Drive	74	1	50	Cut	62	48.5	63.3	41.9	50.7	47.8	45.5	Excavator loading moxy	NA	NA	Within predicted levels
6/10/2016	1:55 PM	Cockburns Lane	16	1	50	Cut	65	45.1	63.5	39.4	47.1	44.5	42.1	Excavators	NA	NA	Construction not audible
6/10/2016	12:21 PM	Bald Hill Rd	197	3	50	Cut	72	61.7	77.6	41.8	52.6	47.9	44.9	Hand tools, grader, roller, water cart	NA	NA	Within predicted levels
5/10/2016	4:53 PM	Letitia Rd	406	4	59	Cut	74	59.5	73.5	44	63.5	55.7	47.9	Grader, water cart, scrapers, dozer	NA	NA	Within predicted levels
5/10/2016	4:27 PM	Mattick Rd	442	6	44	Cut	62	48.6	68.8	41.7	50.6	46.9	44.5	FEL loading SMZ, excavator	NA	NA	Within predicted levels
6/10/2016	11:12 AM	Nursery Rd	415	4	59	Cut	53	52.5	74.1	39.9	53.6	47.7	43.4	Dozer	NA	NA	Construction not dominant source. Within predicted levels - other noise sources hiehgway, local traffic, birds
6/10/2016	2:17 PM	Wallace St	148	3	50	Cut	47	56	67.1	49.4	58.4	54.3	51.9	Excavators, moxy	NA	NA	Construction not audible
6/10/2016	11:50 AM	Gumma Rd	383	3	50	Bridgeworks	67	50.6	66.4	40.9	52.9	49	45.4	Crane, hand tools	NA	NA	Within predicted levels

Table 4d – Monthly Noise Monitoring Results – November 2016

Date	Time	Location	Rec ID	NCA	NML	Activity	Predicted levels for activity	LAeq	LAFMAX	LAFMIN	LAF10	LAF50	LAF90	Principal sources/ operations	Measurements exceeding criteria, plant/ operations causing	Corrective actions	Notes
15/11/2016	4:00 PM	Albert Drive	74	1	50	Cut	62	46.3	63.7	41.2	48.2	45.3	43.5	Excavator, moxy			Other noise sources: highway, birds. Within predicted levels
7/11/2016	10:34 AM	Cockburns Lane	16	1	50	Cut	65	48.6	72.5	39.3	47.2	44	41.5	Truck, LV	N/A		Within predicted levels
7/11/2016	11:51 AM	Bald Hill Rd	197	3	50	Cut	72	56.2	77.4	42.5	59.9	50.7	45.6	Dozer, roller, concrete vibrators	N/A		Within predicted levels
7/11/2016	12:20 PM	Letitia Rd	406	4	59	Cut	74	63.8	84.6	51.3	67.1	61	56.3	Compactor, grader, side tippers, water truck	N/A		Within predicted levels
7/11/2016	11:40 AM	Mattick Rd	442	6	44	Cut	62	52.7	78.6	43.8	56.5	48.8	45.9	Moxy, excavators, FEL, trucks	N/A		Within predicted levels
7/11/2016	12:45 PM	Nursery Rd	415	4	59	Cut	53	62.6	84.1	49.9	58.4	54.8	52.5	Highway traffic, local traffic, lawn mowing			Construction not audible
7/11/2016	11:13 AM	Wallace St	148	3	50	Cut	47	59.4	75.1	45.4	63.9	52.6	47.9	Local + Highway traffic	N/A		Construction not audible
7/11/2016	1:10 PM	Gumma Rd	383	3	50	Bridgeworks	67	64.2	81.3	51.8	66.6	63.3	60.1	Bridge deck works	N/A		Other noise sources: local traffic. Within predicted levels

Table 4e – Monthly Noise Monitoring Results – December 2016

Date	Time	Location	Rec ID	NCA	NML	Activity	Predicted levels for activity	LAeq	LAFMAX	LAFMIN	LAF10	LAF50	LAF90	Plant monitored	Construction noise dominant?	Corrective actions	Notes
20/12/2016	3:30 PM	Albert Drive	74	1	50	Cut	62	48.9	69.7	42.3	50.6	47.8	45	Truck	N	N/A	Highway dominant noise source
20/12/2016	3:50 PM	Cockburns Lane	16	1	50	Cut	65	49.8	64.1	42.5	52.2	48.4	44.9	Excavator	N	N/A	Highway, dog barking, saw mill dominant noise source
20/12/2016	3:00 PM	Bald Hill Rd	197	3	50	Cut	72	54	68.6	44.2	57.1	50.3	47.3	Excavator loading moxy	Y	N/A	Within predicted levels. Other noise sources - dog barking
15/12/2016	10:56 AM	Letitia Rd	406	4	59	Cut	74	65.9	85.6	52.3	68.2	63.1	57	Scrapers, grader, compactor, side tippers, water cart	Y	N/A	Within predicted levels
14/12/2016	3:56 PM	Mattick Rd	442	6	44	Cut	62	53.8	69.6	45.7	56.3	51.1	48.6	Excavator	Y	N/A	Within predicted levels. Other noise sources - local traffic, dog barking
15/12/2016	12:05 PM	Nursery Rd	415	4	59	Cut	53	57.3	79	45.8	59.2	52.7	48.5	Hand tools	N	N/A	Construction not audible. Highway traffic dominant noise source
20/12/2016	4:18 PM	Wallace St	148	3	50	Cut	47	59.8	76.1	48.7	60.9	54.1	51.3	Excavator	N	N/A	Construction not audible. Highway, local traffic dominant noise source
20/12/2016	4:40 PM	Gumma Rd	383	3	50	Bridgeworks	67	49.9	67.5	41.8	51.8	45.6	43.3	EWP, hand tools	N	N/A	Local traffic dominant noise source

Table 4f – Monthly Noise Monitoring Results – January 2017

Date	Time	Location	Rec ID	NCA	NML	Activity	Predicted levels for activity	LAeq	LAFMAX	LAFMIN	LAF10	LAF50	LAF90	Principal sources/ operations	Construction noise dominant?	Corrective actions	Notes
12/01/2017	2:55 PM	Albert Drive	74	1	50	Cut	62	58.5	74.8	46.9	74.9	57.3	54.4	Excavators, tipper	Y	N/A	Within predicted levels
12/01/2017	3:18 PM	Cockburns Lane	16	1	50	Cut	65	49.7	78.7	36.6	53	42.6	39.9	Hand tools	N	N/A	Construction not audible. Noise sources: highway traffic, dog barking, birds
12/01/2017	4:02 PM	Bald Hill Rd	197	3	50	Cut	72	57.3	80	45.4	57.3	53	50.4	Excavator, grader, side tippers	Y	N/A	Within predicted levels
19/01/2017	3:22 PM	Letitia Rd	406	4	59	Cut	74	65.3	78.4	59.6	67.2	64.4	62.2	Excavator loading moxy, graders levelling material	Y	N/A	Within predicted levels
19/01/2017	3:47 PM	Mattick Rd	442	6	44	Cut	62	58.5	76.7	50.5	59.7	55.4	53.1	Excavator, roller, moxy	Y	N/A	Within predicted levels
19/01/2017	2:57 PM	Nursery Rd	415	4	59	Cut	53	53.1	75.6	39.2	49.1	45.7	43.1	Excavator	N	N/A	Construction not audible. Noise sources: highway + local traffic, birds
12/01/2017	3:51 PM	Wallace St	148	3	50	Cut	47	59	70.5	46.7	62.7	54.5	50.2	Excavator	N	N/A	Construction not audible. Noise sources: local + highway traffic
12/01/2017	4:40 PM	Gumma Rd	383	3	50	Bridgeworks	67	48.3	62.7	36.2	51.8	43.8	39.4	Hand tools, excavator, side tippers	Y	N/A	Within predicted levels. Other noise sources: local traffic, highway

Table 5a – Vibration Monitoring 21st November 2016

DATE	TIME	Location	Rec ID	Vector Sum	Comment
[Date]	[Time]			[mm/s]	
21/11/2016	10:35:00	Main St, Donnellyville	93	0.38	Background (no roller)
21/11/2016	11:20:00	Main St, Donnellyville	93	0.39	During rolling (light vibe)
21/11/2016	11:45:00	Albert Drive, Donnellyville	83	0.73	Peak from roller stopping + reversing (light vibe)
21/11/2016	12:00:00	Albert Drive, Donnellyville	83	0.86	Peak from roller stopping + reversing (heavy vibe)

Table 5b – Vibration Monitoring 12th December 2016

DATE	TIME	Location	Rec ID	Vector Sum	Description
[Date]	[Time]			[mm/s]	
2016-12-12	15:20:00	Old Coast Road	397	0.188	Background
2016-12-12	16:26:00	Old Coast Road	397	0.301	Roller ~100m away, heavy vibe
2016-12-12	16:34:00	Old Coast Road	397	1.858	Roller ~20m away, heaby vibe

Table 5c - Vibration Monitoring 11th January 2017

DATE	TIME	Location	Receiver ID	Vector Sum	Description
[Date]	[Time]			[mm/s]	
2017-01-11	13:29:30	Old Coast Road	397	0.198	Background
2017-01-11	13:30:00	Old Coast Road	397	1.598	Roller ~20m away, heavy vibe
2017-01-11	13:30:30	Old Coast Road	397	1.543	Roller ~20m away, heavy vibe
2017-01-11	13:31:00	Old Coast Road	397	1.825	Roller ~20m away, heavy vibe
2017-01-11	13:31:30	Old Coast Road	397	1.769	Roller ~20m away, heavy vibe
2017-01-11	13:32:00	Old Coast Road	397	2.109	Roller ~20m away, heavy vibe
2017-01-11	13:32:30	Old Coast Road	397	1.145	Roller ~20m away, heavy vibe
2017-01-11	13:33:00	Old Coast Road	397	0.224	Background
2017-01-11	13:33:30	Old Coast Road	397	0.194	Background
2017-01-11	13:34:00	Old Coast Road	397	0.181	Background

Table 5e – Vibration Monitoring 1st February 2017

DATE	TIME	Location	Rec ID	Vector Sum	Comment
[Date]	[Time]			[mm/s]	
2017-02-01	08:02:30	49 OCR	397	0.198	Background (no roller)
2017-02-01	08:03:00	49 OCR	397	2.24	20T Padfoot roller vibe starting 25m
2017-02-01	08:03:30	49 OCR	397	0.558	Padfoot roller vibe 50m
2017-02-01	08:04:00	49 OCR	397	0.274	Roller vibe ~100m
2017-02-01	08:04:30	49 OCR	397	0.218	Roller vibe ~100m
2017-02-01	08:05:00	49 OCR	397	0.285	Roller vibe ~100m
2017-02-01	08:05:30	49 OCR	397	0.411	Roller vibe ~50m
2017-02-01	08:06:00	49 OCR	397	1.638	Roller vibe ~25m
2017-02-01	08:06:30	49 OCR	397	1.605	Roller vibe ~25m
2017-02-01	08:07:00	49 OCR	397	1.441	Roller vibe ~25m
2017-02-01	08:07:30	49 OCR	397	1.47	Roller vibe ~25m
2017-02-01	08:08:00	49 OCR	397	0.555	Roller vibe ~50m
2017-02-01	08:08:30	49 OCR	397	0.315	Roller vibe ~100m
2017-02-01	08:09:00	49 OCR	397	0.227	Roller vibe ~100m
2017-02-01	08:09:30	49 OCR	397	0.249	Roller vibe ~100m
2017-02-01	08:10:00	49 OCR	397	0.309	Roller vibe ~100m
2017-02-01	08:10:30	49 OCR	397	0.854	Roller vibe ~50m
2017-02-01	08:11:00	49 OCR	397	1.661	Roller vibe ~25m
2017-02-01	08:11:30	49 OCR	397	1.379	Roller vibe ~25m
2017-02-01	08:12:00	49 OCR	397	1.471	Roller vibe ~25m
2017-02-01	08:12:30	49 OCR	397	1.51	Roller vibe ~25m
2017-02-01	08:13:00	49 OCR	397	0.341	Roller vibe ~100m
2017-02-01	08:13:30	49 OCR	397	0.293	Roller vibe ~100m
2017-02-01	08:14:00	49 OCR	397	0.223	Roller vibe ~100m
2017-02-01	08:25:30	51 OCR	396	0.307	Roller vibe ~50m
2017-02-01	08:26:00	51 OCR	396	0.312	Roller vibe ~100m
2017-02-01	08:26:30	51 OCR	396	0.272	Roller vibe ~100m
2017-02-01	08:27:00	51 OCR	396	0.256	Roller vibe ~100m
2017-02-01	08:27:30	51 OCR	396	0.242	Roller vibe ~100m
2017-02-01	08:28:00	51 OCR	396	0.281	Roller vibe ~100m
2017-02-01	08:28:30	51 OCR	396	0.521	Roller vibe ~50m
2017-02-01	08:29:00	51 OCR	396	0.757	Roller vibe ~50m
2017-02-01	08:29:30	51 OCR	396	1.516	Roller vibe ~25m
2017-02-01	08:30:00	51 OCR	396	0.791	Roller vibe ~50m
2017-02-01	08:30:30	51 OCR	396	0.392	Roller vibe ~50m
2017-02-01	08:34:30	51 OCR	396	0.694	Roller vibe ~50m
2017-02-01	08:35:00	51 OCR	396	1.985	Roller vibe (heaviest setting) 25m
2017-02-02	10:41:00	51 OCR	396	0.382	Smooth Roller (static) ~25m, padfoot (vibe) ~100m
2017-02-02	10:42:00	51 OCR	396	0.34	Smooth Roller (static) ~50m, padfoot (vibe) ~100m
2017-02-02	10:43:00	51 OCR	396	0.278	Smooth roller (static) ~100m, padfoot (vibe) ~100m
2017-02-02	10:44:00	51 OCR	396	0.396	Smooth Roller (static) ~25m, padfoot (vibe) ~100m
2017-02-02	10:45:00	51 OCR	396	0.837	Smooth Roller (static) ~25m, padfoot (vibe) ~50m
2017-02-02	10:46:00	51 OCR	396	0.913	Smooth Roller (static) ~50m, padfoot (vibe) ~50m
2017-02-02	10:47:00	51 OCR	396	2.036	Smooth roller (static) ~50m, padfoot (vibe) ~25m
2017-02-02	10:48:00	51 OCR	396	2.277	Smooth roller (static) ~50m, padfoot (vibe) ~25m
2017-02-02	10:49:00	51 OCR	396	0.907	Smooth roller (static) ~50m, padfoot (vibe) ~50m
2017-02-02	10:50:00	51 OCR	396	0.309	Smooth roller (static) ~50m, padfoot (vibe) ~100m
2017-02-02	10:51:00	51 OCR	396	0.345	Smooth roller (static) ~50m, padfoot (vibe) ~100m
2017-02-02	10:53:00	51 OCR	396	0.218	Background (no rollers)
2017-02-02	10:58:00	51 OCR	396	2.632	Both rollers (vibe) ~25m

APPENDIX C – Air Quality Monitoring

WC2NH Air Quality Results August 2016 – February 2017

Table 3a – Air Quality Results August 2016

			DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG5E	DDG5W	DDG6	DDG7	DDG8	DDG9NE	DDG9E	DDG A1	DDG A2
			Start date of sampling		2/08/2016	2/08/2016	2/08/2016	2/08/2016	2/08/2016	2/08/2016	2/08/2016	2/08/2016	2/08/2016	2/08/2016	2/08/2016	2/08/2016	2/08/2016	2/08/2016
			Finish date of sampling		31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016
Analyte	Time Period	Unit	Levels of Concern	LOR														
Ash Content	Current Month	g/m².month	4	0.1	0.2	0.7	0.9	1.1	0.5	0.3	1.1	29	0.3	0.5	1.8	2.2	----	----
		mg	N/A	1	3	12	16	19	9	5	19	495	5	8	31	37	----	----
	Previous Month	g/m².month			0.1	0.3	0.8	0.1	0.7	0.2	0.2	6.1	0.4	0.3	0.8	0.3	----	----
	Change	g/m².month	Increase of 2		0.1	0.4	0.1	1	-0.2	0.1	0.9	22.9	-0.1	0.2	1	1.9	----	----
Combustible Matter	Current Month	g/m².month	N/A	0.1	0.2	0.5	0.7	0.3	0.4	0.4	0.4	8.2	0.2	0.3	0.6	1.9	----	----
		mg	N/A	1	3	8	11	5	6	7	6	141	4	5	10	33	----	----
Total Insoluble Matter (TIM)	Current Month	g/m².month	4	0.1	0.4	1.2	1.6	1.4	0.9	0.7	1.5	37.2	0.5	0.8	2.4	4.1	----	----
		mg	N/A	1	6	20	27	24	15	12	25	636	9	13	41	70	----	----
	Previous Month	g/m².month		0.1	0.2	0.4	1.6	0.4	0.9	0.4	0.2	7.2	0.4	0.5	1	0.4	----	----
	Change	g/m².month	Increase of 2	0.1	0.2	0.8	0	1	0	0.3	1.3	30	0.1	0.3	1.4	3.7	----	----
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----	----	----	----	----	<0.001	<0.001
Comments					Overtopped	Bird activity in funnel	Overtopped	Overtopped		Overtopped	Overtopped	Overtopped - large quantity of vegetative material in gauge, large quantity of dirt in funnel		Overtopped	Insects in gauge	Insects in gauge		Overtopped

Table 3b – Air Quality Results August/September 2016

			DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG5E	DDG5W	DDG6	DDG7	DDG8	DDG9NE	DDG9E	DDG A1	DDG A2
			Start date of sampling		31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016	31/08/2016
			Finish date of sampling		29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016
Analyte	Time Period	Unit	Levels of Concern	LOR														
Ash Content	Current Month	g/m².month	4	0.1	0.3	0.5	1.2	0.8	0.5	0.8	0.4	9.7	1.8	0.7	0.3	2.9	----	----
		mg	N/A	1	5	9	21	14	8	14	6	166	31	12	5	50	----	----
	Previous Month	g/m².month			0.2	0.7	0.9	1.1	0.5	0.3	1.1	29	0.3	0.5	1.8	2.2	----	----
	Change	g/m².month	Increase of 2		0.1	-0.2	0.3	-0.3	0	0.5	-0.7	-19.3	1.5	0.2	-1.5	0.7	----	----
Combustible Matter	Current Month	g/m².month	N/A	0.1	0.9	0.6	0.7	0.4	<0.1	0.4	0.2	1.9	1.2	0.4	0.2	0.9	----	----
		mg	N/A	1	16	10	11	7	<1	6	4	33	21	6	4	15	----	----
Total Insoluble Matter (TIM)	Current Month	g/m².month	4	0.1	1.2	1.1	1.9	1.2	0.5	1.2	0.6	11.6	3	1.1	0.5	3.8	----	----
		mg	N/A	1	21	19	32	21	8	20	10	199	52	18	9	65	----	----
	Previous Month	g/m².month		0.1	0.4	1.2	1.6	1.4	0.9	0.7	1.5	37.2	0.5	0.8	2.4	4.1	----	----
	Change	g/m².month	Increase of 2	0.1	0.8	-0.1	0.3	-0.2	-0.4	0.5	-0.9	-25.6	2.5	0.3	-1.9	-0.3	----	----
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----	----	----	----	----	----	<0.001
Comments												Grass in gauge	Grass in gauge			Insects in gauge	Gauge broken	

Table 3c – Air Quality Results September/October 2016

			DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG5E	DDG5W	DDG6	DDG6N	DDG7	DDG8	DDG9NE	DDG9E	DDG A1	DDG A2
			Start date of sampling		29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016	29/09/2016
			Finish date of sampling		31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016
Analyte	Time Period	Unit	Levels of Concern	LOR															
Ash Content	Current Month	g/m².month	4	0.1	0.4	0.7	4.4	1.5	1	0.7	0.3	1.4	0.3	0.8	1.4	0.4	1.9	----	----
		mg	N/A	1	7	13	83	29	19	14	6	27	6	15	27	8	36	----	----
	Previous Month	g/m².month			0.3	0.5	1.2	0.8	0.5	0.8	0.4	9.7		1.8	0.7	0.3	2.9	----	----
	Change	g/m².month	Increase of 2		0.1	0.2	3.2	0.7	0.5	-0.1	-0.1	-8.3		-1	0.7	0.1	-1	----	----
Combustible Matter	Current Month	g/m².month	N/A	0.1	0.5	0.5	1.2	0.5	0.4	0.4	0.2	0.5	0.1	0.5	0.5	0.3	0.6	----	----
		mg	N/A	1	10	9	22	8	8	7	3	8	2	9	8	6	11	----	----
Total Insoluble Matter (TIM)	Current Month	g/m².month	4	0.1	0.9	1.2	5.6	2	1.4	1.1	0.5	1.9	0.4	1.3	1.9	0.7	2.5	----	----
		mg	N/A	1	17	22	105	37	27	21	9	35	8	24	35	14	47	----	----
	Previous Month	g/m².month		0.1	1.2	1.1	1.9	1.2	0.5	1.2	0.6	11.6		3	1.1	0.5	3.8	----	----
	Change	g/m².month	Increase of 2	0.1	-0.3	0.1	3.7	0.8	0.9	-0.1	-0.1	-9.7		-1.7	0.8	0.2	-1.3	----	----
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----	----	----	----	----	----	0.001	0.001
Comments					Small amount of grass in gauge		Lawn mowed around gauge - grass in gauge			Removed	Removed	Grass in gauge	Funnel missing	Insects in gauge (ants)			Insects and grass in gauge		

Table 3d – Air Quality Results October/November/December 2016

			DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG6N	DDG7	DDG8	DDG9NE	DDG9E	DDG A1	DDG A2
			Start date of sampling		31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016	31/10/2016
			Finish date of sampling		5/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016
Analyte	Time Period	Unit	Levels of Concern	LOR													
Ash Content	Current Month	g/m².month	4	0.1	0.3	0.8	1	0.7	0.7	4.2	5.7	0.7	1.4	1.4	0.6	----	----
		mg	N/A	1	6	15	18	13	14	79	107	13	27	27	11	----	----
	Previous Month	g/m².month			0.4	0.7	4.4	1.5	1	1.4	0.3	0.8	1.4	0.4	1.9	----	----
	Change	g/m².month	Increase of 2		-0.1	0.1	-3.4	-0.8	-0.3	2.8	5.4	-0.1	0	1	-1.3	----	----
Combustible Matter	Current Month	g/m².month	N/A	0.1	0.3	0.6	0.3	0.4	0.4	3	1	0.3	0.9	0.5	1.2	----	----
		mg	N/A	1	7	11	7	8	6	56	20	6	16	9	23	----	----
Total Insoluble Matter (TIM)	Current Month	g/m².month	4	0.1	0.6	1.4	1.3	1.1	1.1	7.2	6.7	1	2.3	1.9	1.8	----	----
		mg	N/A	1	13	26	25	21	20	135	127	19	43	36	34	----	----
	Previous Month	g/m².month		0.1	0.9	1.2	5.6	2	1.4	1.9	0.4	1.3	1.9	0.7	2.5	----	----
	Change	g/m².month	Increase of 2	0.1	-0.3	0.2	-4.3	-0.9	-0.3	5.3	6.3	-0.3	0.4	1.2	-0.7	----	----
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----	----	----	----	<0.001	<0.001
Comments																	

Table 2e – Air Quality Results December 2016/January 2017

			DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG6N	DDG7	DDG8	DDG9NE	DDG9E	DDG A1	DDG A2
			Start date of sampling		5/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016
			Finish date of sampling		3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017
Analyte	Time Period	Unit	Levels of Concern	LOR													
Ash Content	Current Month	g/m².month	4	0.1	0.4	1.1	0.4	0.4	0.3	1.5	1.4	1	NA	0.7	0.4	----	----
		mg	N/A	1	6	20	7	8	6	29	27	19	NA	13	7	----	----
	Previous Month	g/m².month			0.3	0.8	1	0.7	0.7	4.2	5.7	0.7	1.4	1.4	0.6	----	----
	Change	g/m².month	Increase of 2		0.1	0.3	-0.6	-0.3	-0.4	-2.7	-4.3	0.3	NA	-0.7	-0.2	----	----
Combustible Matter	Current Month	g/m².month	N/A	0.1	0.1	1.9	<0.1	<0.1	<0.1	0.4	0.7	0.3	NA	1.5	0.8	----	----
		mg	N/A	1	3	37	1	<1	<1	6	12	5	NA	29	16	----	----
Total Insoluble Matter (TIM)	Current Month	g/m².month	4	0.1	0.5	3	0.4	0.4	0.3	1.9	2.1	1.3	NA	2.2	1.2	----	----
		mg	N/A	1	9	57	8	8	6	35	39	24	NA	42	23	----	----
	Previous Month	g/m².month		0.1	0.6	1.4	1.3	1.1	1.1	7.2	6.7	1	2.3	1.9	1.8	----	----
	Change	g/m².month	Increase of 2	0.1	-0.1	1.6	-0.9	-0.7	-0.8	-5.3	-4.6	0.3	NA	0.3	-0.6	----	----
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----	----	----	----	<0.001	<0.001
Comments					Beetles in gauge	Beetles in gauge	Driveway gravelled (not sealed anymore). Grass growing around gauge			Beetles in gauge	Beetles + bees in gauge		Numerous flying ants in gauge. Gauge broken in transit to lab	Grass mowed around gauge. Beetles in gauge	Grass mowed around gauge. Numerous beetles in gauge	Beetles in gauge	Beetles in gauge

Table 3f – Air Quality Results January/February 2017

			DDG ID		DDG1	DDG2	DDG3	DDG4	DDG5	DDG6	DDG6N	DDG7	DDG8	DDG9NE	DDG9E	DDG A1	DDG A2
			Start date of sampling		3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017	3/01/2017
			Finish date of sampling		2/02/2017	2/02/2017	2/02/2017	2/02/2017	2/02/2017	2/02/2017	2/02/2017	2/02/2017	2/02/2017	2/02/2017	2/02/2017	2/02/2017	2/02/2017
Analyte	Time Period	Unit	Levels of Concern	LOR													
Ash Content	Current Month	g/m².month	4	0.1	0.3	0.6	0.6	0.5	0.5	1.8	1.2	0.5	0.9	0.3	0.2	----	----
		mg	N/A	1	6	11	11	8	8	32	22	9	16	6	4	----	----
	Previous Month	g/m².month			0.4	1.1	0.4	0.4	0.3	1.5	1.4	1	NA	0.7	0.4	----	----
	Change	g/m².month	Increase of 2		-0.1	-0.5	0.2	0.1	0.2	0.3	-0.2	-0.5	NA	-0.4	-0.2	----	----
Combustible Matter	Current Month	g/m².month	N/A	0.1	0.7	0.5	0.4	0.2	0.2	1.7	0.6	0.5	0.5	0.3	0.3	----	----
		mg	N/A	1	11	9	6	5	4	30	10	8	9	5	4	----	----
Total Insoluble Matter (TIM)	Current Month	g/m².month	4	0.1	1	1.1	1	0.7	0.7	3.5	1.8	1	1.4	0.6	0.5	----	----
		mg	N/A	1	17	20	17	13	12	62	32	17	25	11	8	----	----
	Previous Month	g/m².month		0.1	0.5	3	0.4	0.4	0.3	1.9	2.1	1.3	NA	2.2	1.2	----	----
	Change	g/m².month	Increase of 2	0.1	0.5	-1.9	0.6	0.3	0.4	1.6	-0.3	-0.3	NA	-1.6	-0.7	----	----
Arsenic	Current Month	mg/L		0.001	----	----	----	----	----	----	----	----	----	----	----	<0.001	<0.001
Comments							Ants in gauge			Funnel broken - glass in gauge				Moths in gauge	Beetles in gauge	Bark in gauge	

APPENDIX D – Community Complaints

This Appendix provides information relating to community complaints received by the project.

Date of Complaint	Mean of first contact	Category of complaint	AREA OF RESIDENCE	Reason for contacting Community Team	Related to project?	Description + Action taken	Date of first response by Community team
10 Aug 16	CIS	Dust	Warrell Creek	The complainant said that over time, dust from the project had been deposited in their rainwater tank and that dust inside the house was an ongoing problem.	Yes	This stakeholder advised they would soon be leaving on an extended holiday, saying that they may make contact later to request cleaning the rainwater tank. This was noted and they were advised that earthworks would soon be completed in that vicinity. In early November, a neighbour advised they were still on holiday. No additional requests have come from this stakeholder. Their request for the rainwater tank to be cleaned on completion of earthworks has been denied by Pacifico because the tanks are located some distance from the project alignment.	10 Aug
10 Aug 16	CIS	Dust	Warrell creek	Raised dust generated from the project as an ongoing issue and discussed provision of house cleaning and a first flush system for their rainwater tanks.	Yes	Discussed with the project team during a scheduled community drop-in session. Pacifico have agreed that at some point after completion of the earthworks, they would arrange to clean water tanks and provide house cleaning for the complainant.	10 Aug
24 Aug 16	Phone	Driver behaviour	Pacific Highway	Trucks turning out of Albert Drive onto highway are not being careful	Yes	Reported near miss to Traffic Manager immediately and all truck drivers toolboxed on this activity the following day	25 August
14 Sept 16	Email	Driver behaviour	Old Coast Road	Unhappy about workers leaving amber beacons on whilst driving on public roads	Yes	All workers were toolboxed on this matter with mentions also at various pre-starts along the alignment.	14 Sept
29 Sept 16	Email	Driver behaviour	Pacific Highway/Old Coast Road intersection	Empty trucks merging too quickly onto highway after exiting Old Coast Rd, making southbound traffic quickly stop and take evasive action.	Yes	Traffic Manager alerted and then all truck drivers and other workers were toolboxed on this matter with mentions also at various pre-starts along the alignment.	29 September
7 Nov 16	Email	Dust	Old Coast Road	On a very windy day this complaint was about dust coming from the construction alignment.	Yes	Northern superintendent was advised immediately and additional water trucks assigned to suppress dust. This complainant has been referred to RMS for ongoing management & resolution. A formal response from the General manager, Pacific Highway, was provided to the complainant on 13/12/16.	7 November
9 Nov 16	Phone	Safety	Nambucca Shire Waste Facility	The local manager of the waste management facility found some project truck drivers had dumped tree stumps at the facility which was hidden inside geo fabric causing a safety concern for his workers	Yes	All superintendents advised and instructed crews and drivers to inspect loads prior to transporting to the waste facility	9 November
9 Nov 16	Email	Poor driver behaviour	Old Coast Road	Stakeholder identified several project vehicles driving along, or parked on, public roads in the area, with their flashing beacons on	Yes	The issue was included in the weekly toolbox presentation earlier in the day of the complaint, and all superintendents asked to instruct project workers to desist from the practice.	9 November
9 Nov 16	Phone	Run-off	Kerr Drive	Following a significant rainfall event, a small amount of sediment laden water drained onto a section of the complainant's property which is adjacent to the project.	Yes	Both Pacifico and RMS inspected the property the following day and noted that all appropriate environmental controls were in place and had worked well during the previous night's rainfall event. Some minor works were carried out the day of the inspection.	9 November
13 Nov 16	Phone	Worker behaviour (not Pacifico)	Pacific Highway	Cattle loose in close proximity to existing highway. Boral quarry workers had left quarry gates open and cattle had wandered outside of fenced in area until cattle owner's neighbour called the 1800 number.	No	Pacifico have addressed the issue by installing new fencing and repairing existing fencing around the perimeter of the quarry to ensure cattle have no access to the new southern concrete batch plant within quarry boundaries.	13 November
14 Nov 16	Email	Vehicle incident	Browns Crossing Road	Project street sweeper collided with private vehicle at turning point on Browns Crossing Road – nobody harmed, some property damage	Yes	Pacifico have apologized to the community member and her family for the incident and have agreed to pay for damages to the vehicle.	14 November
17 Nov 16	Phone	Poor driver behaviour	Old Coast Road	Workers leaving flashing beacons on while driving on public roads	Yes	To address the issue, Pacifico have counselled the drivers identified by the complainant. Pacifico have also undertaken a workforce education campaign with the issue featuring prominently in three consecutive weekly toolboxes talks. Suppliers and sub-contractors have been reminded of the project road rules and requirements and the issue is emphasized to new workers at the project induction. Pacifico is investigating technical aids such as strategically placed advisory road signs and in-vehicle dash board indication when flashing lights and beacons are on.	17 November

te of Complaint	Mean of first contact	Category of complaint	AREA OF RESIDENCE	Reason for contacting Community Team	Related to project?	Description + Action taken	Date of first response by Community team
18 Nov 16	Phone	Vibration, noise, dust	Main Street Donnellyville	Vibration and noise impacts from rollers working near Albert Drive. Dust emanating from active stockpile near quarry entrance to the north on a particularly windy day.	Yes	The Superintendent increased the number of water carts operating to suppress dust in the area. Further discussion with the complainant eliminated noise as an issue as they confirmed it was actually vibration they were concerned about. Vibration monitoring occurred 21/11/2016 and the results which were well within the guidelines, were explained to the residents at a meeting 22/11/2016	18 November
18 Nov 16	Phone	Noise	Letitia Close	Noise impacts from project equipment working in close proximity for Letitia Close new roundabout	Yes	Call received 5pm Friday, with noise monitoring conducted on Monday 21/11/2016 when the same plant and equipment was operating. The results, which were within the guidelines, were later discussed with the resident.	18 November
28 Nov 16	Phone	Dust	Old Coast Road	Dust coming from near pre-cast facility	Yes	Earthworks were suspended for the day due to hot conditions and strong north easterly winds. However, these conditions generated substantial dust from around the pre-cast facility that impacted on the complainant downwind of the project. Pacifico had previously provided house cleaning and the stakeholder was keen to keep his house clean. The complainant also asked about at-house-noise treatment and was advised again that it is not in Pacifico's scope of work. Their comments were passed onto RMS. Stakeholder added he did not want the project to stop because of his call as he wanted to see progress and project completion.	28 November
1 Dec 16	Phone	Noise	Letitia Close	Plant and machinery noise over allowable noise limits	Yes	Noise from plant and machinery appeared to be louder to the complainant today, with water carts, scrapers and rollers "chasing each other". Soon after, Pacifico's Environment team undertook noise monitoring while the plant and equipment were operating. Overall noise levels were slightly above NML, noting the influence of winds in excess of 26kph. The stakeholder was immediately advised of the results at the conclusion of monitoring and encouraged to make further contact with any future concerns.	1 December
2 Dec 16	Phone	Dust	River St	Dust coming from near bridgeworks	Yes	Dust coming from nearby bridgeworks during continuing hot and windy conditions. Community team called Superintendent, notified Environment Manager and inspected the site. Community team waited with stakeholder until the water truck arrived to ensure that dust suppression was to their satisfaction. A water truck will be permanently assigned stationed to this area until earthworks are completed. The Environment Manager and Superintendent addressed the workers at the pre-start toolbox talk the following day to emphasize the importance of better dust management.	2 December
12 Dec 16	Phone	Dust	River St	Dust from nearby alignment works	Yes	Dust coming from nearby works during hot conditions with strong, north-easterly winds. Water carts had been operating in the area earlier in the morning. The Community team inspected the area and the Superintendent suspended the activities with workers relocated to another area. The Community team observed ongoing dust suppression by the water cart which is permanently assigned to this area.	12 December
17 Dec 16	Phone	Dust	Pacific Highway	White dust had entered property previous day potentially damaging property and impacting health.	Yes	Supervisor advised that the activity had only occurred previous day. The 'white dust" was came from the lime stabilization works as part of the road construction methods at this location. It was also explained that lime stabilization also generates large clouds of steam as part of the process. The complainant was encouraged to call the 1800 number if they had any further concerns.	17-Dec-16
23 Jan-17	Phone	Dust	River Street	Dust had blown onto property from nearby work – dust impacted cattle paddock behind house.	Yes	Community team immediately attended the property with the area supervisor. A water truck is permanently assigned to the area and the Superintendent and Environment Manager will ensure more proactive watering down is conducted before works commence each day. Stakeholder has previously been provided supervisor and superintendent's direct phone numbers for immediate dust management but has never called either.	23-Jan-17

APPENDIX E – Compliance Tracking Tables

Appendix E.1 Minister's Conditions of Approval

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
Part A – Administrative conditions					
	Terms of approval				
A1	The Proponent shall carry out the project generally in accordance with the: *a* Major Projects Application 07_0112; *b* Upgrading the Pacific Highway – Warrell Creek to Urunga – Environmental Assessment (Volumes 1 and 2), prepared by Sinclair Knight Merz Pty Ltd for the NSW Roads and Traffic Authority and dated January 2010; *c* Upgrading the Pacific Highway – Warrell Creek to Urunga – Environmental Assessment Submissions and Preferred Project Report, prepared by the NSW Roads and Traffic Authority and dated November 2010; *d* Letter from the NSW Roads and Traffic Authority titled Pacific Highway Upgrade – Warrell Creek to Urunga Upgrade Addendum to Submissions Report – Fauna Crossing Structures, dated 25 May 2011 and accompanying attachments and Letter from the NSW Roads and Traffic Authority titled Pacific Highway Upgrade – Warrell Creek to Urunga Upgrade Addendum to Submissions Report – Fauna Crossing Structures, dated 1 June 2011 and accompanying attachment; *e* The Roads and Maritime Services modification request and letter dated 23 October 2012 (07_0112 MOD1); *f* The Roads and Maritime Services modification	Stage 1 and 2	Preconstruction, Construction and Operation	Open	Status of Compliance with this condition is detailed in this document. The Scope of Work and Technical Criteria (SWTC) requires compliance with these documents. The Project has prepared three (3) Consistency Reviews this reporting period that compare the proposed detailed design to the concept design. Details of the Consistency Reviews are provided in Section 9 above.

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
	request and letter dated 23 November 2012 to correct a minor error in condition C28 (07_0112 MOD2); *g* The Roads and Maritime Services modification request and letter dated 18 January 2013 to correct minor errors in condition A1 (07_0112 MOD3); *h* The Roads and Maritime Services modification request and letter dated 13 February 2013 to amend the definition of construction in Schedule 1 (07_0112 MOD4); *i* The Roads and Maritime Services modification request and letter dated 9 September 2013 to amend the heritage management requirements in conditions C16 and C27 (07_0112 MOD5); j The Roads and Maritime Services modification request and letter dated 12 February 2014 to delete reference to 'vegetation group remnant forest' conservation area in condition C15 (07_0112 MOD6); k The Roads and Maritime Services modification request and letter dated 29 October 2014 to delete reference to four cultural sites in condition C14 (07_0112 MOD7); l The Roads and Roads and Maritime Services modification request and letter dated 21 March 2016 and Pacific Highway Upgrade – Warrell Creek to Nambucca Heads North Macksville Ramps – Modification Environmental Assessment, prepared by Arup Aurecon Design Joint Venture and dated March 2016; and				

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
	m The conditions of this approval.				
A2	In the event of an inconsistency between: *a* the conditions of this approval and any document listed from condition A1(a) to A1(j) inclusive, the conditions of this approval shall prevail to the extent of the inconsistency; and; *b* any document listed from condition A1 (a) to A1 (j) inclusive, and any other document listed from condition A1 (a) and A1 (j) inclusive, the most recent document shall prevail to the extent of the inconsistency.	Stage 1 and 2	Preconstruction, Construction and Operation	Open	No issues were prevalent during the reporting period.
A3	The Proponent shall comply with any reasonable requirement(s) of the Director General arising from the Department's assessment of: *a* any reports, plans or correspondence that are submitted in accordance with this approval; and *b* the implementation of any actions or measures contained within these reports, plans or correspondence.	Stage 1 and 2	Preconstruction, Construction and Operation	Open	No requests have been raised by the Director General in the reporting period.
A4	Subject to confidentiality, the Proponent shall make all	Stage 1 and 2	Preconstruction, Construction	Open	All documents required under the Planning Approval are available for public inspection on the Project Website and

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
	documents required under this approval available for public inspection on request.		and Operation		in the Community Display Centre located at 124 Albert Drive, Warrell Creek. The documents currently available include: - Approved CEMP and Sub-plans - Nest Box Management Plan - Threatened Flora Management Plan - Ecological Monitoring Program - Water Quality Monitoring Program - Community Involvement Plan (Community Communications Strategy). - Construction Compliance Tracking Reports #1, #2 and #3 - Urban Design and Landscape Plan - Nambucca River and Floodplain Flood Modelling Report - Fauna Connectivity Report - Biodiversity Offset Strategy Project Approval documents are available on the RMS Project Website: Link to website with project Documents
	Staging				
A5	The Proponent may elect to construct and/ or operate the project in stages. Where staging of the project is proposed, these conditions of approval are only	Stage 1 and 2	Preconstruction	Closed	Initial staging report issued to DP&E on 12 March 2013 in regards Stage 1 and Stage 2, stage 2 being Warrell Creek to Urunga. Updated staging report for Stage 2 (2.1 and 2.2) issued to DP&E on 19 February 2014. DP&E

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
	required to be complied with at the relevant time and to the extent that they are relevant to the specific stages of works. Where staging is proposed, the Proponent shall submit a Staging Report to the Director General prior to the commencement of the first proposed stage, which provide details of: *a* how the project 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* 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 project. The Proponent shall ensure that an updated Staging Report (or advice that no changes to staging are proposed) is submitted to the Director General prior to the commencement of each stage, identifying any changes to proposed staging or applicable conditions. The Proponent shall ensure that relevant plans, sub-plans and other management documents required by the conditions of this approval relevant to each stage (as identified in the Staging Report) are submitted to the Director General. no later than one month prior to the commencement of the relevant stages, unless an alternative timeframe is agreed to by the Director General.				responded 23 May 2014 noting the staging report satisfactorily addressed requirements of MCoA A5.

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
	Statutory requirements				
A6	The Proponent shall ensure that all necessary licences, permits and approvals required for the development of the project are obtained and maintained as required throughout the life of the project. No condition of this approval removes the obligation for the Proponent to obtain, renew or comply with such necessary licences, permits or approvals except as provided under Section 75U of the Act. This shall include relevant certification requirements in accordance with section 109R of the Act.	Stage 1 and 2	Preconstruction, Construction and Operations	Open	AFJV (Acciona Infrastructure) have obtained an Environment Protection Licence (EPL 20533) pursuant to Section 48 of the Protection of the Environment Operations Act 1997 (POEO Act). A copy of the licence is kept on the premises and is publicly available on the Acciona Infrastructure website: Link to Acciona Website and Environmental Documents and RMS Website Link to Project Documents A list of the groundwater bore and surface water permits is available in Section 9 above.
	Limits of approval				
A7	This approval shall lapse ten years after the date on which it is granted, unless construction works the subject of this project approval are physically commenced on or before that date.	Stage 1 and 2	Preconstruction	Closed	Construction for WC2NH commenced on 9 February 2015
A8	The Proponent shall implement the bridge crossing option (Option 2 in the Environmental Assessment) to traverse the floodplain from the northern bank of the Nambucca River to the existing Pacific Highway.	Stage 2	Preconstruction and Construction	Closed	Option 2 has been adopted and has been incorporated into the detailed design of the Nambucca River bridge structure. Construction has commenced on 9 February 2015 with construction commencing on the Nambucca Bridge structure in July 2015.
A9	The proposed trailer exchange facility located in the vicinity of the Nambucca Heads rest area does not form part of this approval.	Stage 2	NA	NA	Not included in the scope of this Project

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
	Part B – Prior to Construction				
	Biodiversity – Mitigation measures – Fauna and Waterway Crossings				
B1	The Proponent shall implement the fauna and waterway crossings identified in the documents listed under condition A1 (d) at the locations and in accordance with the minimum design dimensions identified in the documents listed under condition A1 (d), unless otherwise agreed to by the Director General.	Stage 1 and 2	Preconstruction and Construction	Open	Fauna crossing structures and waterway crossings have been designed to address the minimum requirements in the letter "*Pacific Highway Upgrade – Warrell Creek to Urunga Upgrade Addendum to Submission Report – Fauna Crossing Structures (25/5/11)"* referred to in condition A1 (d) and progressed by AFJV in detailed design with ecological input. Consultation has been undertaken with EPA, DPI and DoE. Structures have been refined in consultation with EPA and DPI (Fisheries); several locations of the combined and dedicated structures have been moved as a result of this consultation. Specific fauna crossings/ fish passage requirements outlined within SWTC App 4.5 and Table 4.1 as well as SWTC App 5. Initial fauna and fish design discussions were held with EPA and DPI on 18 June 2014 (ERG 2). Onsite investigation / walkthrough with EPA, DoE and experienced ecologists to determine fauna crossing arrangements was undertaken in Aug 2014. The outcomes of this meeting were used to update the SWTC Table 4.1 to ensure the most appropriate underpass locations were identified and carried through into the design. The Design is based on the updated Table 4.1 of the SWTC. The detailed design has been issued to the EPA and DPI (Fisheries) for comment and has also been discussed at ERG meetings.

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
					The following fauna connectivity culverts have moved to more suitable locations (please note the new location is shown in the new Project chainage): - 13285 (55050) now located at 55120 - 14555 (56320) now located at 56410 - 16630 (58395) now located at 58510 and 58560 (as 1 x 3m x 3m combined culvert and 1 x 3m x 3m Dedicated culvert) - 17205 (58970) now located at 59090 - 17720 (59485) now located at 59550 - 18515 (60280) now located at 60600 NB and 60610 SB - 19350 (61115) now located at 61115 A Fauna Connectivity report was provided to the Director General in accordance with Condition B3 prior to the commencement of construction of the fauna connectivity structures, this was sent to DP&E by RMS on 17/7/2015. A letter confirming compliance was received by DP&E on the 21st April 2016. Construction of the crossings has commenced in accordance with the approved design and above report.
B2	As part of detailed design, the Proponent shall further investigate design refinements to improve fauna connectivity between Chainages 19150 and 19820.	Stage 1 and 2	Preconstruction	Open	Roads and Maritime proposed to increase the widened median area from 2500 m2 to 7500 m2 in ERG 2 (June 2014) and have agency comments in regards to this. The SWTC requires the addition of three crossing points (two glider poles and 1 rope ladder) to be installed within the widened median area. A pre-clearing assessment of the potential glider trees has been undertaken by Geolink. The potential glider trees have been identified to be

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
					retained. Post mainline clearing a Widened Median Detailed Glidability Assessment was completed on the 18/1/16 by Geolink (in consultant with Ross Goldingay) on behalf of AFJV to determine the retained glider trees and number of crossing points. The assessment determined that due to the existing terrain causing the carriageways to remain grade separated, the opportunities for two-way complete alignment crossing points is limited. The retained glider crossing trees allowed movements in a mostly west-east direction with minimal crossing points in an east-west direction. The updated Widened Median Glidability Assessment Report (Ver 5) includes a total of 2 crossing points between chainages 59620 and 61180 utilising vegetation retained in the widened median. In both of these circumstances, movement of gliders is from west to east only. No movement east to west across both carriageways was demonstrated in the calculations. A workshop was held on site (2/6/16) with AFJV, RMS and the EPA to discuss the potential for additional glider crossing points including glider poles and rope bridges. Roads and Maritime are investigating an option to install a total of 3 rope bridges and 4 sets of glider poles creating 7 crossing points. This is an additional 4 crossing points to the original 3 proposed as part of the SWTC. The EPA is supportive of AFJV's proposal. The design of the additional crossing points is being undertaken by AFJV with the support of RMS.

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
					Three additional dedicated fauna connectivity culverts have been installed. The details have been included in the Fauna Connectivity Report provided to DP&E in July 2015. A letter confirming compliance was received from DP&E on the 21st April 2016.
B3	All investigations into fauna crossings design undertaken during detailed design (with respect to the crossing design and locations identified in conditions B1 and B2 shall be undertaken with the input of a qualified and experienced ecologist and in consultation with EPA and DPI (Fisheries) through a process of workshops and on-site ground verification. Where detailed design refinements are made, the Proponent shall prior to the commencement of construction of the relevant crossings, submit a report to the Director General identifying the final design of the fauna crossings and demonstrating consistency with the locations and minimum design parameters identified in the documents listed under condition A1 (d) or where there have been changes, how the new location and/ or design would result in a better biodiversity outcome. The report shall also clearly identify how the fauna crossings structures will work in conjunction with complementary fauna exclusion fencing measures to be implemented for the project. The report must be accompanied by evidence of consultation with EPA and DPI (Fisheries) in relation to the suitability of any changes to the crossings design.	Stage 1 and 2	Preconstruction and Construction	Open	Initial fauna and fish design discussions with EPA and DPI (Fisheries) were held on 18 June 2014 (ERG 2). Onsite investigation / walkthrough with EPA, DoE and experienced ecologists to determine fauna crossing arrangements was undertaken in Aug 2014. The outcomes of this meeting were used to update the SWTC Table 4.1 to ensure the most appropriate underpass locations were identified and carried through into the design. The Design has progressed based on the updated Table 4.1 of the SWTC. The detailed design was provided to the EPA and Fisheries for comment and was also discussed during ERG meetings. There are SWTC App 4.5 / SWTC App 5 requirements in regards to fauna fencing. The fauna fencing locations have been revised based on advice from Roads and Maritime to address comments raised by DoE. The location of revised fauna fencing was discussed at the ERG meeting in August and September 2014. The revised fauna fencing locations were agreed in principle with the EPA during the ERG to progress the detailed design. A review of the locations of the fauna drop down structures was undertaken during this reporting period and final locations have been determined. A refined design of the structure has also been accepted by RMS.

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
					The installation of the structures is ongoing with the installation of the fencing. The Fauna Connectivity Report was submitted to DP&E in accordance with the approval conditions on 17th July 2015. A letter confirming compliance was received from DP&E on the 21st April 2016.
B4	The Proponent shall in consultation with EPA, ensure that the design of the project as far as feasible and reasonable, incorporates provision for glider crossings (such as widened medians and maintenance or enhancement of habitat within the medians and corresponding carriageway boundaries) where the alignment crosses areas of recognised glider habitat.	Stage 1 and 2	Preconstruction	Open	The Project has incorporated a "widened median" design between chainage 59700 – 61100 through an area identified as glider habitat. This has been incorporated into the detailed design. The SWTC requires the addition of three crossing points (two glider poles and 1 rope ladder) to be installed within the widened median area. A pre-clearing assessment of the potential glider trees has been undertaken by Geolink. The potential glider trees have been identified to be retained. Post mainline clearing a Widened Median Detailed Glidability Assessment was completed on the 18/1/16 by Geolink (in consultation with Ross Goldingay) to determine the retained glider trees and number of crossing points. The assessment determined that due to the existing terrain causing the carriageways to remain grade separated, the opportunities for two-way complete alignment crossing points is limited. The retained glider crossing trees allowed movements in a mostly west-east direction with minimal crossing points in an east-west direction. The updated Widened Median Glidability Assessment Report (Ver 5) includes a total of 2 crossing points

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
					between chainages 59620 and 61180 utilising vegetation retained in the widened median. In both of these circumstances, movement of gliders is from west to east only. No movement east to west across both carriageways was demonstrated in the calculations. A workshop was held on site (2/6/16) with AFJV, RMS and the EPA to discuss the potential for additional glider crossing points including glider poles and rope bridges. Roads and Maritime is investigating an option to install proposed a total of 3 rope bridges and 4 sets of glider poles creating 7 crossing points. This is an additional 4 crossing points to the original 3 proposed as part of the SWTC. The EPA is supportive of the proposal. The design of the additional crossing points is being undertaken by AFJV with the support of RMS.
B5	The Proponent shall in consultation with DPI (Fisheries) ensure that all waterway crossings are designed and constructed consistent with the principles of the *Guidelines for Controlled Activities Watercourse Crossings (DWE), Fish Note: Policy and Guidelines for Fish Friendly Waterway Crossings (NSW Fisheries) and Policy and Guidelines for Design and Construction of Bridges, Roads, Causeways, Culverts and Similar Structures (NSl4/ Fisheries)*. As far as feasible and reasonable, culvert replacements as part of the project shall incorporate naturalised bases and where multiple cell culverts are proposed for creek crossings, shall include at least one cell for fish passage, with an invert or bed level that mimics creek flows.	Stage 1 and 2	Preconstruction	Open	Early design consultation with DPI (Fisheries) has been undertaken the culverts requiring fish passage as agreed with Fisheries have been noted in Table 4.1 of the SWTC. All waterway crossings are being designed in accordance with the SWTC which incorporates the requirements of this condition (B5) and DPI Fisheries requirements. DPI Fisheries have been provided with the opportunity to comment on the detailed design of culverts that provide fish passage. The fish passage culverts have been designed to incorporate naturalised bases. Where multiple cell culverts have been proposed, an invert that mimics bed level and natural creek flows has been incorporated. DPI Fisheries have requested that the low flow channel be conveyed through the scour rock at the culvert inlet and outlet. This has been incorporated into the detailed

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
					design. An unexpected find of Giant Barred Frogs occurred at Butchers Creek during the previous reporting period. EPA provided advice regarding natural bases for the culvert cells to provide a robust surface treatment for the base slabs which would be conducive to frog movements. A rock treatment has been provided in this culvert which has been inspected by the EPA. The EPA is supportive of AFJV's approach in this culvert. DPI (Fisheries) and the EPA have also raised the use of alternative "soft treatments" in creek lines and channel realignments in conjunction with the use of scour rock. Soft treatments have been incorporated into the design at several creek lines along the Project alignment including Williamsons Creek, Stony Creek, Butchers Creek and Rosewood tributary. This detail has been included in the Urban Design and Landscaping Drawings (UD02) and has been reviewed by the EPA and DPI (Fisheries) as part of this process. Discussions on the implementation of the soft landscaping treatments will continue during the construction phase of the project via the ERG site inspections and design updates. Issues are being raised at the monthly ERG meetings and closed out through site visits and/or ongoing communication. The installation of soft landscaping treatments has commenced at Stoney Creek, Williamsons Creek, Rosewood Tributary and Butchers Creek.

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
	Biodiversity – Mitigation measures – Nest Boxes				
B6	Prior to the commencement of any construction work that would result in the disturbance of any native vegetation (or as otherwise agreed to by the Director General), the Proponent shall in consultation with EPA prepare and submit for the approval of the Director General a Nest Box Plan to provide replacement hollows for displaced fauna consistent with the requirements of SoC F7. The plan shall detail the number and type of nest boxes to be installed which must be justified based on the number and type of hollows removed (based on detailed pre-construction surveys), the density of hollows in the area to be cleared and adjacent forest, and the availability of adjacent food resources. The plan shall also provide details of maintenance protocols for the nest boxes installed including responsibilities, timing and duration.	Stage 1 and 2	Preconstruction and Construction	Open	The Nest Box plan prepared by Roads and Maritime was approved by DP&E on 20/03/2013. In accordance with the Nest Box Management Plan, 92 nest boxes have been installed along the Project alignment between the 26 November and the 11 December 2014 prior to the commencement of vegetation clearing on the Project. The nest boxes were installed by the Project Ecologist David Havilah (Geolink) in appropriate locations mapped within the approved Plan. Nest box monitoring in accordance with the approved Plan was undertaken in Summer 2017 (results pending). As required by the Nest Box Management Plan, AFJV have calculated the final number of nest boxes requiring installation during the post-clearing phase. The revised calculation shows a slight reduction in the overall number of nest boxes required. The original number required was 152 this has now been reduced to 143. All nest boxes have been installed. An update to the Nest Box Management Plan is currently with RMS for review.
	Biodiversity – Mitigation measures – *Amorphospermum whitei* and *Marsdenia longiloba*				
B7	Prior to the commencement of any construction work that would result in the disturbance of *Amorphospermum whitei* and *Marsdenia longiloba*, the Proponent shall in consultation with the EPA develop a management plan for these species which: a investigates the potential for the translocation of plants impacted by the project;	Stage 1 and 2	Preconstruction and Construction	Open	Potential impacts to *Amorphospermum whitei* and Marsdenia longiloba are incorporated into the Threatened Flora Management Plan (Ver 4) (TFMP) which was provided to DP&E and approved on the 16/12/14. The TFMP was further updated on the 24/12/14 to incorporate comments from the Federal Department of Environment (Ver 5). A minor change to the TFMP to incorporate an additional monitoring event for November 2016 (as only 3

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	b if investigation under Condition B7(a) reveals translocation of impacted plants is feasible, includes details of a translocation plan for the plants consistent with the Australian Network for Plant Conservation 2"d Ed 2OO4: Guidelines for the Translocation of Threatened Species in Australia, including details of ongoing maintenance such as responsibilities, timing and duration; c identifies a process for incorporating appropriate compensatory habitat for the impacted plants in the Biodiversity Offset Strategy referred to in Condition B8 should the information obtained during the investigation referred to in Condition B7(a) find that translocation is not feasible or where the monitoring undertaken as part of condition B10 finds that translocation measures have not been successful (as identified through performance criteria); and d includes detail of mitigation measures to be implemented during construction to avoid and minimise impacts to areas identified to contain these species, including excluding construction plant, equipment, materials and unauthorised personnel. Unless otherwise agreed to by the Director General, the Plan shall be submitted for the Director General's approval prior to the commencement of any construction work that would result in the disturbance of *Amorphospermum whitei* and *Marsdenia longiloba*.				monitoring events were completed in year 1 of construction) was accepted by the ER in June 2016. The TFMP recommended translocating *A. whitei* and *M. longiloba* individuals that are either directly or indirectly impacted by the Project works. AFJV has engaged Ecos Environmental (Andrew Benwell) to complete the translocation of these species in accordance with the translocation plan detailed in the approved Plan. The translocation has been completed. • Translocated individuals and individuals noted to be "protected *in situ*" in the Plan have been protected on site using "No-Go Zone fencing" and signage. • Monitoring of the translocated individuals was undertaken in November 2016 and January 2017 in accordance with the Approved Plan. The outcomes of the monitoring are summarised below: • The current survival rate of *M. longiloba* is 82% after 24 months. • The survival rate for *A. whitei* is 88% after 24 months. In situ Threatened Flora Monitoring has also been conducted in Spring 2016: • Due to drier than average weather, surveys have detected a decrease in the cover of Maundia within the Floodplain area. • In-situ Rusty Plums in the Cockburns Lane locality are generally healthy and in good condition, the one exception to this being NW56. This plant shows some signs of discolouration which may be due to its now

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					exposed position. Mitigation measures including placing shade cloth and mulching was undertaken to encourage growth. • Slender Marsdenia plants have shown signs of die back due to the natural biology of the plant, however the species has demonstrated a perseverance at the monitoring locations. • The Tall Knotweed individuals that were reported to have died back in the previous reporting period (through natural biological means) were showing signs of regeneration with several new plants growing in low lying areas on site.
	Biodiversity offsets				
B8	The Proponent shall, in consultation with the EPA and DPI (Fisheries), develop a Biodiversity Offset Strategy that identifies available options for offsetting the biodiversity impacts of the project in perpetuity, with consideration to EPA's *Principles for the Use of Biodiversity Offsets in NSW* (EPA Website, June 2011). Unless otherwise agreed to by EPA, offsets shall be provided on a like-for-like basis and at a minimum ratio of 4:1 'for areas of high conservation value (including EEC and threatened species or their habitat identified in the Environmental Assessment to be impacted by the project and poorly conserved vegetation communities identified as being more than 75% cleared in the catchment management area) and 2:1 for the remainder of native vegetation areas (including mangroves, seagrass, salt marsh and	Stage 1 and 2	Preconstruction and Construction	Open	Comments were received from DP&E on the draft Biodiversity Offset strategy for Warrell Creek to Urunga (12 September 2013, April 2014). The Final Biodiversity Offset Strategy was submitted to DP&E on 23/10/14 for approval. DP&E approved the WC2U Biodiversity Offset Strategy on the 24 November 2014. The DoE comments were received in February 2016 on the Commonwealth Biodiversity Offset Package for WC2NH. A finalised version was submitted on 30 November 2016.

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	riparian vegetation). The Strategy shall include, but not necessarily be limited to: a confirmation of the vegetation communities/ habitat (in hectares) to be offset and the size of offsets required (in hectares); b details of the available offset measures that have been identified to compensate for the biodiversity impacts of the project, such as (but not necessarily limited to): suitable compensatory land options and/ or contributions towards biodiversity programs for high conservation value areas on nearby lands (including research programs). Where the use of State Forest land managed in accordance with an Integrated Forestry Operations Approval is proposed to offset biodiversity impacts, the Proponent shall clearly demonstrate how this would provide the biodiversity outcomes required under this condition including any additional offset requirements to cover residual impacts; c the decision-making framework that would be used to select the final suite of offset measures to achieve the aims and objectives of the Strategy, including the ranking of offset measures; d a process for addressing and incorporating offset measures for changes to impact (where these changes are generally consistent with the biodiversity impacts identified for the project in the documents listed under condition A1, including: *i.* changes to footprint due to design changes; *ii.* changes to predicted impacts resulting from changes to mitigation measures;				

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	iii. identification of additional species/habitat through pre-clearance surveys; and *iv.* additional impacts associated with ancillary facilities; and e options for the securing of biodiversity options in perpetuity. The Biodiversity Offset Strategy shall be submitted to, and approved by, the Director General prior to the commencement of any construction work that would result in the disturbance of any native vegetation, unless otherwise agreed by the Director General. Unless otherwise agreed, the Biodiversity Offset Strategy shall be submitted to the Director General for approval no later than 6 weeks prior to the commencement of any construction that would result in the disturbance of any native vegetation. The Proponent may elect to satisfy the requirements of this condition by implementing a suitable offset package which addresses impacts from multiple Pacific Highway Upgrade projects (including the Warrell Creek to Urunga Project) within the North Coast Bio-region. Any such agreement made with the EPA must be made in consultation with the Department and approved by the Director General within a timeframe agreed to by the Director General.				
B9	Within two years of the approval of the Biodiversity Offset Strategy, unless otherwise agreed by the Director General, the Proponent shall prepare and submit a **Biodiversity Offset Package** which identifies the final suite of offset measures to be implemented for	Stage 1 and 2	Construction and Operations	Open	On 24 November 2016 the Department of Planning and Environment provided an extension until 30 March 2017 for submission of the State offset package. Roads and Maritime have identified six sites to cover the State offset requirements, three of which are owned by

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	the project for the approval of the Director General. The Package shall be developed in consultation with EPA, and shall provide details of: a the final suite of the biodiversity offset measures selected for the project demonstrating how it achieves the requirements and aims of the Biodiversity Offset Strategy (including specified offset ratios); b the final selected means of securing the biodiversity values of the offset package in perpetuity including ongoing management, monitoring and maintenance requirements; and c timing and responsibilities for the implementation of the provisions of the package over time. The requirements of the Package shall be implemented by the responsible parties according to the timeframes set out in the Package.				Roads and Maritime. In principle agreement has been reached with FCNSW for the Boambee Flora Reserve. The Swain site is privately owned and in-principle agreement to enter into a BioBanking Agreement has been made by the landowners. The Bald Hill site is also privately owned and the landowners has offered to sell the property to Roads and Maritime for transfer to the NPWS. Roads and Maritime are on track to submit the State offset package by 30 March 2017.
	Ecological Monitoring				
B10	Prior to the commencement of any construction work that would result in the disturbance of any native vegetation, the Proponent shall develop an Ecological Monitoring Program to monitor the effectiveness of the mitigation measures implemented as part of the project. The program shall be developed in consultation with EPA and prepared by a suitably qualified ecologist and shall include but not necessarily be limited to: a an adaptive monitoring program to assess the effectiveness of the mitigation measures identified	Stage 1 and 2	Preconstruction and Construction	Open	Ecological Monitoring Program for WC2NH has been finalised and submitted to DP&E for approval on the 25/11/14. All EPA comments have been addressed as part of the final Ecological Monitoring Program. The Ecological Monitoring Program was approved by DP&E on the 16/12/14. The Ecological Monitoring Program has been implemented on site with the following monitoring undertaken during the reporting period: • Microbat Roost Box Monitoring and Persistence and

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	in condition B1 to B6, B7(b), B7(d), B21(c) and B31(b)and allow amendment to the measures if necessary. The monitoring program shall nominate appropriate and justified monitoring periods and performance targets against which effectiveness will be measured. The monitoring shall include operational road kill surveys to assess the effectiveness of fauna crossing and exclusion fencing implemented as part of the project; b mechanism for developing additional monitoring protocols to assess the effectiveness of any additional mitigation measures implemented to address additional impacts in the case of design amendments or unexpected threatened species finds during construction (where these additional impacts are generally consistent with the biodiversity impacts identified for the project in the documents listed under condition A1; c monitoring shall be undertaken during construction (for construction-related impacts) and from opening of the project to traffic (for operation/ongoing impacts) until such time as the effectiveness of mitigation measures can be demonstrated to have been achieved over a minimum of five successive monitoring periods (i.e. 5 years) after opening of the project to traffic, unless otherwise agreed to by the Director General. The monitoring period may be reduced with the agreement of the Director General in consultation with EPA, depending on the outcomes of the monitoring; d provision for the assessment of the data to identify				Behaviour Monitoring (Year 2 Spring); • Nest Box monitoring (Year 2 Winter and Summer) • In situ threatened flora and translocated flora (Year 2 Spring and November 2016/January 2017 for translocated flora). • Roadkill monitoring in accordance with the Roadkill Monitoring Strategy. • Flying Fox monitoring over the last 6 months - no present of GHFF noted reports on RMS web site. • Yellow-bellied glider monitoring. • Landscape Rehabilitation monitoring. No negative impacts from construction to habitat usage have been noted. The Project ER endorsed a change to the GHFF Plan to support the change in monitoring frequency from fortnightly to monthly. Final approval of the amended plan by DoE was received in January 2017.

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	changes to habitat usage and if this can be attributed to the project; e details of contingency measures that would be implemented in the event of changes to habitat usage patterns directly attributable to the construction or operation of the project; and f provision for annual reporting of monitoring results to the Director General and EPA, or as otherwise agreed by those agencies. The Program shall be submitted for the Director General's approval prior to the commencement of any construction work that would result in the disturbance of any native vegetation. Unless otherwise agreed, the Program shall be submitted to the Director General for approval no later than 6 weeks prior to the commencement of any construction that would result in the disturbance of any native vegetation.				
	Hydrology and flooding				
B11	The Proponent shall undertake further flood modelling during detailed design to ensure that the Nambucca River crossing is designed and constructed with the aim of not exceeding the afflux and other flood characteristics predicted in the Environmental Assessment and Response to Submissions.	Stage 2	Preconstruction	Closed	AFJV have undertaken flood modelling based on the detailed design. The flood modelling identified that there would be a minor increase in water levels directly upstream of the Nambucca Bridge structure due to the presence of the bridge piers but this effect does not result in any change to the flow distributions through the channel or across the floodplain. Predicted water level increases are within the afflux limit of 15mm specified in the Project EA. This also meets the afflux requirements included in Section 4.28 of Appendix 4 of the SWTC. The Flood Modelling and Hydrology Report for the Nambucca River and Floodplain were provided to DP&E

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					on the 23/04/15 for review. This document aims to demonstrate compliance with Conditions B11, B12, B13, B14 and B15. The ER endorsed the report and confirmed compliance with Conditions B11-B15 on the 23/04/15. RMS provided AFJV with written approval to commence works within the floodplain on the 24/04/15. Comments from DP&E were received on the 22/05/15 which was addressed by AFJV and a revised report submitted to DP&E on 24th July 2015. DP&E approval obtained on 10/8/2015. No changes to the document or the design throughout the reporting period.
B12	Prior to the commencement of construction within areas affected by an increased afflux from the project, the Proponent shall in consultation with the EPA, DPI (Fisheries) and Nambucca Shire Council undertake flood modelling of the Nambucca River and floodplain based on the detailed design of the project, and submit the flood modelling report for the approval of the Director General. The flood modelling shall: a assess the impacts of the project on flood behaviour (in relation to Nambucca River and floodplain; b confirm the location and size of structures for the crossing the Nambucca River and floodplain which meet the performance criteria outlined in Condition B11; c examine flood behaviours through the full range of flood events including but not limited to the 10%, 5%, 2%, 1% 0.5% and 0.2% Annual Exceedance	Stage 2	Preconstruction	Closed	AFJV have undertaken flood modelling based on the detailed design. The flood modelling identified that there would be a minor increase in water levels directly upstream of the Nambucca Bridge structure due to the presence of the bridge piers but this effect does not result in any change to the flow distributions through the channel or across the floodplain. Predicted water level increases are within the afflux limit of 15mm specified in the Project EA. This also meets the afflux requirements included in Section 4.28 of Appendix 4 of the SWTC. The Flood Modelling and Hydrology Report for the Nambucca River and Floodplain were provided to DP&E on the 23/04/15 for review. This document aims to demonstrate compliance with Conditions B11, B12, B13, B14 and B15. The ER endorsed the report and confirmed compliance with Conditions B11-B15 on the 23/04/15. RMS provided AFJV with written approval to commence works within the floodplain on the 24/04/15. Comments from DP&E were received on the 22/05/15,

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	Probability; d examine any changes in the flood behaviour under climate change conditions; and e examine any changes to existing conditions for flood timing, afflux, inundation, flood velocity, scour and siltation flood warning and flood evacuation strategies including stock.				addressed by AFJV and formal response sent on 31/7/2015 (Version 8 of B12 Report). DP&E approved on 10/08/2015. No changes to the document or the design throughout the reporting period.
B13	Prior to commencement of construction within areas affected by an increased afflux from the Nambucca River and Kalang River crossings, the Proponent shall submit a hydrological mitigation report for the approval of the Director General detailing all feasible and reasonable flood mitigation measures for all properties where flood impacts are predicted to increase as a result of the project. The Report shall be based on detailed floor level survey and associated assessment of potentially flood affected properties. The report shall: a identify all properties likely to have an increased flooding impact and detail the predicted increased flooding impact; b identify mitigation measures to be implemented where increased flooding is predicted to adversely affect access, property or infrastructure; c 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 project and cause localised soil erosion and/or pasture damage; d be developed in consultation with EPA, the relevant Council, NSW State Emergency Service	Stage 1 and 2	Preconstruction and Construction	Closed	AFJV have undertaken flood modelling based on the detailed design. The flood modelling identified that there would be a minor increase in water levels directly upstream of the Nambucca Bridge structure due to the presence of the bridge piers but this effect does not result in any change to the flow distributions through the channel or across the floodplain. Predicted water level increases are within the afflux limit of 15mm specified in the Project EA. This also meets the afflux requirements included in Section 4.28 of Appendix 4 of the SWTC. No properties were identified as impacted by increased afflux from the Project works. Therefore, no mitigation measures are proposed for properties. The Flood Modelling and Hydrology Report for the Nambucca River and Floodplain were provided to DP&E on the 23/04/15 for review. This document aims to demonstrate compliance with Conditions B11, B12, B13, B14 and B15. The ER endorsed the report and confirmed compliance with Conditions B11-B15 on the 23/04/15. RMS provided AFJV with written approval to commence works within the floodplain on the 24/04/15. Comments from DP&E were received on the 22/05/15 which was addressed by AFJV and a revised report submitted to DP&E on 24th July 2015. DP&E approval

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	and directly-affected property owners; and e identify operational and maintenance responsibilities for items (a) to (e) inclusive. The Proponent shall not commence construction of the project on or within areas likely to alter flood conditions until such time as works identified in the hydrological mitigation report have been completed, unless otherwise agreed by the Director General.				obtained on 10/8/2015. No changes to the document or the design throughout the reporting period.
B14	Based on the mitigation measures identified in condition B13, the Proponent shall prepare a final schedule of feasible and reasonable flood mitigation measures proposed at each directly affected property in consultation with the property owner. The schedule shall be provided to the relevant property owner(s) no later than two months prior to the implementation of the mitigation works, unless otherwise agreed by the Director General. A copy of each schedule of flood mitigation measures shall be provided to the relevant Council and the Department prior to the implementation / construction of the mitigation measures on the property.	Stage 1 and 2	Preconstruction and Construction	Closed	No properties were identified as impacted by increased afflux from the Project works. Therefore, no mitigation measures are proposed for properties. The Flood Modelling and Hydrology Report for the Nambucca River and Floodplain were provided to DP&E on the 23/04/15 for review. This document aims to demonstrate compliance with Conditions B11, B12, B13, B14 and B15. The ER endorsed the report and confirmed compliance with Conditions B11-B15 on the 23/04/15. RMS provided AFJV with written approval to commence works within the floodplain on the 24/04/15. Comments from DP&E were received on the 22/05/15 which was addressed by AFJV and a revised report submitted to DP&E on 24th July 2015. DP&E approval obtained on 10/8/2015. No changes to the document or the design throughout the reporting period.
B15	In the event that the Proponent and the relevant property owner cannot agree on feasible and reasonable flood mitigation measures to be applied to a property within one month of the first consultation on the measures (as required under Condition B14), the	Stage 1 and 2	Preconstruction and Construction	Closed	WMA still are the project hydrological consultant used for independent review/ comment of designs eg. the B12/B13 report as approved.

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	Proponent shall employ a suitably qualified and experienced independent hydrological engineer (who has been approved by the Director General for the purposes of this condition prior to the commencement of construction) to advise and assist affected property owners in negotiating feasible and reasonable mitigation measures.				
B16	The Proponent shall provide assistance to the relevant Council's and/ or NSW State Emergency Service to prepare any new or necessary update(s) to the relevant plans and documents in relation to flooding, to reflect changes in flooding levels, flows and characteristics as a result of the project, as identified in the documents listed under condition A1 and the modelling undertaken as part of condition B12.	Stage 1 and 2	Preconstruction and Construction	Open .	AFJV provides Roads and Maritime with all the information, details and data as a consequence of the Project Works that Roads and Maritime requires in providing assistance. RMS has provided assistance to NSC and SES for WC2U Stage 2 component as per B16. B12 Report submitted to NSC and SES as part of the consultative component for preparation finalisation of the report. RMS has provided assistance to council to prepare any new or necessary update to relevant plans and documents in relation to flooding to reflect changes in flooding levels, flows and characteristics as a result of the project. Email sent from RMS to DP&E detailing consultation on 31/7/2015. No changes to the document or the design occurred throughout this reporting period. For stage 1 WC2NH: • Roads and Maritime Services funded the flood studies for the Nambucca River and Warrell Creek undertaken in2012/13: • Nambucca Shire Council was represented on the Tender Assessment Panel which recommended WMAwater as the specialist flooding consultant to undertake the flood studies. • OEH and Council were involved in preparation and review of flood studies undertaken by WMAwater. • The Flood Study reports and models have been

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					provided to Council, at no cost to Council, for use in floodplain management planning, in accordance with the NSW Government Floodplain Management Policy.
					• Roads and Maritime understands that Council adopted the Nambucca River and Warrell Creek Flood reports in late 2013.
					• The flood studies for the Nambucca River and Warrell Creek undertaken by WMAwater are being used by AFJV for:
					  ○ Detailed design of the Nambucca River and Warrell Creek crossings, and
					  ○ Assessment of options for the construction of the crossings.
					• In accordance with Conditions of Approval for the project EPA, DPI (Fisheries) and Council is being consulted in regard to the flood modelling.
					• When finalised, the flood modelling report updated to include the crossings of the Nambucca River and Warrell Creek will be provided to Council, at no cost to Council, for use in floodplain management planning.
					• These reports were issued
					• The SES is a member of Nambucca Shire Council's Estuary Management Committee. Roads and Maritime Services has met with the Committee on a number of occasions to discuss flooding in general and changes in flooding levels, flows and characteristics due to proposed crossings of the Nambucca River and Warrell Creek in particular.

	Water Quality				
B17	The Proponent shall prepare and implement a Water Quality Monitoring Program to monitor the impacts of the project on SEPP 14 wetlands, surface water quality and groundwater resources during construction and operation. The Program shall be developed in	Stage 1 and 2	Preconstruction, Construction and Operation	Open	a) Shown in the Geolink approved WQMP plan as approved by DP&E 23 May 2014. The interpretative report recommends refinement of bore locations based on prior monitoring results and the detailed design of cuts and fills. The final plan indicating

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	consultation with EPA and DPI and shall include but not necessarily be limited to: a identification of surface water and groundwater quality monitoring locations which are representative of the potential extent of impacts from the project; b identification of works and activities during construction and operation of the project, including emergencies and spill events, that have the potential to impact on surface water quality and risks to oyster farming in the Nambucca, Bellinger, and Kalang rivers; c representative background monitoring of surface water and groundwater quality parameters for a minimum of six (6) months (considering seasonality) prior to the commencement of construction to establish baseline water conditions; d development and presentation of indicators or standards against which any changes to surface water quality will be assessed, having regard to the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC, 2000); e contingency and ameliorative measures in the event that adverse impacts to surface water quality are identified; f a minimum monitoring period of three years following the completion of construction or until any disturbed waterways/ groundwater resources are certified by an independent expert as being rehabilitated to an acceptable condition. The monitoring shall also confirm the establishment of				refinements are issued to DP&E as an addendum to the 3 May 2014 approved WQMP once completed end of September 2015. b) Outlined in the approved WQMP as approved by DP&E 23 May 2014 c) The attached interpretative report and data sets are pursuant with the approval letter dated 25 May 2014 and forms the additional 4 months baseline monitoring data to that approved for January and February 2014 per DP&Es approval letter dated 23.5.14. It is noted that the monitoring data sets were collected 6 months prior to start of construction on 9 February 2015 and those up to Dec 2014 were issued to DP&E via the required preconstruction compliance report (PCCR) as approved in December 2014 d) Outlined in the approved WQMP as DP&E approved 23 May 2014 e) Outlined in the approved WQMP plan DP&E approved 23 May 2014 f) Not yet entered completion phase anticipated such end of 2017 g) Results are presented to EPA and DPI monthly via the ERG and 6 monthly via the CTR to the DP&E Submission of WQMP to DG DP&E 6 months prior to commencement of construction; The WQMP was submitted on 22 April 2014 and approved on 23 May 2014. Construction commenced 9 February 2015 thus DP&E DG approval sought and obtained 6 months prior to construction commencing. Any addendum or refinement to the approved plan recommend in the interpretative report and the soon to be completed addendum report will have the Departments Environmental Representatives endorsement before issuing the plan to the DP&E DG for

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	operational water control measures (such as sedimentation basis and vegetation swales); and g reporting of the monitoring results to the Department, EPA and DPI. The Program shall be submitted to the Director General for approval six (6) months prior to the commencement of construction of the project, or as otherwise agreed by the Director General. A copy of the Program shall be submitted to EPA and DPI prior to its implementation.				information. AFJV (AFJV) is currently undertaking the Surface Water and Groundwater monitoring programs during the construction phase of the Project. Monitoring results are summarised in Section 7 above. The results are presented at the monthly ERG meetings and are discussed in detail. The surface water monitoring results are compared with trigger values and ANZECC guidelines where the trigger value is absent. The Project has not recorded any impacts on surface water or groundwater that is attributable to construction activities. AFJV are currently proposing a change to the approved Groundwater Monitoring Program to remove several bores from the program that have been dry throughout construction.
	Heritage impacts				
B18	As part of detailed design, the Proponent shall ensure that the final design of the alignment is aligned to minimise project impacts on the Cow Creek Aboriginal Reserve (21-6-0228) as far as practicable and detail these design considerations in the Heritage Management Plan required to be prepared under condition B31(e).	Stage 1	Preconstruction	NA	Not applicable to the WC2NH Project (Stage 2).
B19	Prior to the commencement of pre-construction and construction activities affecting the following Aboriginal sites the Proponent shall undertake the relevant salvage mitigation measures outlined in the Environmental Assessment for these sites:	Stage 1 and 2	Preconstruction	Closed	Archaeological Salvage works have been undertaken by Roads and Maritime. Sites located within the Project Boundary have been cleared to commence construction in October 2014. RMS submitted salvage report to LALC's in August 2012.

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	a Butchers Creek 1 (previously PAD 1);
	b Stoney Creek 1 (previously PAD 24);
	c Bald Hill Road 1 (previously PAD 7);
	d Old Coast Road Stone Artefact (previously PAD 2);
	e Boggy Creek Artefact 1 & resource gathering area (previously PAD 16);
	f Cow Creek Artefact Scatter (previously PAD 8);
	g Kalang Spur Artefact Scatter (previously PAD 12);
	h Kalang Flat 1 9(a) (previously PAD 9);
	i Kalang Flat 2 9(b) (previously PAD 9);
	j South Arm Road 1;
	k Tyson's Flat Ridge Artefact Scatter (previously PAD 29);
	l Tyson's Flat I (previously PAD 28); and
	m Tyson's Flat 2 (previously PAD 27).
	The results of the salvage program shall be provided to the Department, OEH and Aboriginal stakeholders within six months of the completion of the salvage program, unless otherwise agreed by the Director General.
					RMS submitted the results of the salvage report to DP&E (formally DOPI) on 1/8/2012.

B20	Prior to the commencement of pre-construction and construction activities affecting the possible house site identified as Site 12 in Table 19-3 of the Environmental Assessment, the Proponent shall prepare an archaeological assessment in consultation with the OEH (Heritage Branch), and generally in accordance with the Departments Archaeological Assessments	Stage 1	Preconstruction	NA	Not applicable to the WC2NH Project (Stage 2).

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	Guideline (1996), and submit the assessment for the Director General's approval. Any further archaeological work recommended on this site by the assessment shall be undertaken by the Proponent in consultation with the OEH (Heritage Branch) and reported to the Director General within six months of the completion of the work, unless otherwise agreed by the Director General.				
	Urban design and landscaping				
B21	Prior to the commencement of construction (unless otherwise agreed to by the Director General), the Proponent shall prepare and implement an Urban Design and Landscape Plan for the project. The plan shall be prepared in consultation with the relevant Council and shall present an integrated urban design for the project. The plan shall include, but not necessarily be limited to: a a principle goal of achieving the urban design objectives outlined in Section 13.4 of Volume 1 of the Environmental Assessment; b sections and perspective sketches; c locations along the project corridor directly or indirectly impacted by the construction of the project (e.g. temporary ancillary facilities, access tracks, watercourse crossings, etc.) which are proposed to be actively rehabilitated, regenerated and/ or revegetated to promote biodiversity outcomes and visual integration. Details of species to be replanted/ revegetated shall be provided,,	Stage 1 and 2	Preconstruction and Construction	Open	A letter seeking approval for a staged Plan and to submit the UDLP after the commencement of construction was provided to DP&E on the 25/11/14. A letter confirming staged submission of the Project UDLP was provided by DP&E on the 04/12/14. Stage 1 of the UDLP was provided to DP&E on the 01/06/15. Stage 1 of the UDLP included the Project design at the 15% detailed design phase. It included a methodology for bushland regeneration, riparian zone rehabilitation, preferred seed mixes and concepts for the design of built elements. Comments were received from DP&E on the 26/06/15. The comments were addressed by AFJV as part of the 85% UDLP Review Process. UDLP Community Consultation was undertaken by RMS/AFJV on the 07/11/2015 at the Macksville Senior Citizens Centre Stage 2 of the UDLP was provided to DP&E on the 1/12/2016 and included details of the final design of built elements, evidence of community consultation and other

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	including their appropriateness to the area and considering existing vegetation and habitat for threatened species; d location of existing vegetation and proposed landscaping, including use of indigenous and endemic species where possible. The plan shall assess the visual screening effects of existing vegetation and the proposed landscaping at residences and businesses, which have been identified as likely to experience high visual impact as a result of the project. Where high residual impacts are identified to remain (including in relation to headlight intrusion), the plan shall in consultation with affected receptors, identify opportunities for providing at-receptor landscaping to further screen views of the project. Where agreed to with the landowner, these measures shall be implemented during the construction of the project; e strategies for progressive landscaping incorporating other environmental controls such as erosion and sedimentation controls, drainage, noise mitigation; f location and design treatments for built elements including retaining walls, cuttings, bridges, and noise barriers; g location and design treatments for any associated footpaths and cyclist elements, and other features such as seating, lighting (in accordance with AS 4282-1997 Control of the Obtrusive Effect of Outdoor Lighting), fencing, and signs; h evidence of consultation with the community on the				outstanding information. Comments were received from DP&E on the 15/1/2016. The comments were addressed by AFJV and a response provided by RMS to DP&E on the 5/2/2016. Approval of the Stage 2 of the UDLP was provided by DP&E on 19/02/2016 The UDLP has been updated to include the North Macksville Ramps into the design and is currently with AFJV for internal review. The design has incorporated headlight screening measures as required by Modification 8. Ongoing consultation and discussion with residents located in the vicinity of the North Macksville Ramps is being undertaken to determine the surface treatment of these mounds. Advice has been received from DP&E that construction on the North Macksville Ramps can commence prior to the submission of the updated UDLP. This was confirmed in an email from DP&E in May 2016. Once AFJV and RMS have completed their review of the updated UDLP, this will be provided to DP&E.

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	proposed urban design and landscape measures prior to its finalisation; and i monitoring and maintenance procedures for the built elements and landscaping (including weed control) including responsibilities, timing and duration and contingencies where landscaping measures fail. The Plan shall be submitted for the approval of the Director General prior to commencement of construction of the project. The Plan may be submitted in stages to suit the staged construction program of the project.				
	Traffic and access				
B22	The Proponent shall ensure that the project is designed in consultation with DPI (Forests NSW) to ensure that access of a standard that is at least equivalent to that currently existing and which meets relevant road safety standards is maintained within the State forests to enable continued forestry operations, fire management and recreation during construction and operation.	Stage 1 and 2	Preconstruction and Construction	Open	Roads and Maritime has reached agreement with Forestry Corporation in regards to this requirement, with proposal from Forestry Corporation on the work it will undertake in State Forests. The detailed design has incorporated permanent adjustments to forestry tracks to maintain access at an equivalent standard to that which currently exists. AFJV in consultation with Forests NSW is maintaining safe access to forestry tracks during temporary traffic staging/construction. AFJV notified Forests NSW in May 2015 that vegetation clearing operations were due to commence. Consultation on the property adjustment drawings was undertaken in

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					December 2015. Access ways are currently under construction in accordance with the approved design. AFJV to comply with requirements for merchantable timber and construction property adjustments as per agreements made by RMS. No issues have been raised by Forestry NSW regarding access during the reporting period. Minor adjustments to the design have been made in consultation with RMS. The finalised Property Adjustments were accepted by Forestry NSW in October 2016.
B23	The Proponent shall ensure that the project is designed to incorporate appropriate signage for townships along the project alignment, in consultation with the relevant Council and businesses policy, and provide information on the range of services available within the towns including advice that the route through the towns may be taken as an alternative route to the bypass.	Stage 1 and 2	Preconstruction and Construction	Open	The requirement of this condition has been included as part of the permanent signage and line-marking (Road Furniture) design package. The Road Furniture Design package has been provided to Nambucca Shire Council for comment prior to finalizing the package. An update on this condition will be provided during the next reporting period after this design package is finalized with the Nambucca Shire Council.
	Property and landuse				
B24	The Proponent shall ensure that the project is designed to minimise land take impacts to surrounding properties (including agricultural properties) as far as feasible and reasonable, in consultation with the affected landowners. Where the viability of existing agricultural operations are identified to be highly affected by the land requirements of the project, the	Stage 1 and 2	Preconstruction	Open	The acquisition for the final property to the south of the Project was executed in February 2016 No land use has been identified as being affected by the project to such an extent jeopardising continued agricultural use – the design has allowed for parcels separated under the one title for grazing to have stock under passes provided. No agricultural specialist has

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	Proponent shall as part of detailed design employ a suitably qualified and experienced independent agricultural specialist (that is approved by the Director General for the purpose of this condition), to assist in the following (where agreed to by the relevant landowner): a identifying alternative farming opportunities for the relevant properties including purchase of other residual land to enable existing/new agricultural activities to continue; and/or b negotiating appropriate compensation and/or arrangements for the purchase of the property under the Land Acquisition (Just Terms Compensation) Act 1991.				been required to be employed to determine offsets. Landholders have been consulted with in regards to acquisitions and offset works (gates fences access tracks revegetation) as required. Acquisitions complete and works for property adjustments fencing accesses permanent and temporary are ongoing with minor adjustment with fence alignment worked on in the field and captured on final DP plans once Registered.
	Compliance tracking				
B25	The Proponent shall develop and implement a Compliance Tracking Program to track compliance with the requirements of this approval. The Program shall be submitted to the Director General for approval prior to the commencement of construction and relate to both the construction and operational phases of the project, and include, but not necessarily be limited to: a provisions for the notification of the Director General of the commencement of works prior to the commencement of construction and prior to the commencement of operation of the project (including prior to each stage, where works are being staged);	Stage 1 and 2	Preconstruction, Construction and Operation	Open	Roads and Maritime submitted Compliance Tracking Program to DP&E on 7 March 2013, which was subsequently approved by DP&E on 20 March 2013. The Compliance Tracking Program was updated and approved by DP&E on the 16/12/14. A standalone compliance tracking register is in place for WC2NH is reviewed and updated on an ongoing basis and summarised at progressive six (6) monthly intervals within Compliance Tracking Reports (first report issued one (1) month prior to commencement of construction and an update reports issued to cover each six (6) months during construction).

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	b provisions for periodic review of project compliance with the requirements of this approval, Statement of Commitments and documents listed under condition A1; c provisions for periodic reporting of compliance status against the requirements of this approval, Statement of Commitments and documents listed under condition A1 to the Director General including at least one month prior to the commencement of construction and operation of the project and at other intervals during the construction and operation, as identified in the Program; d a program for independent environmental auditing in accordance with ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing; e mechanisms for reporting and recording incidents and actions taken in response to those incidents; f provisions for reporting environmental incidents to the Director General during construction and operation; and g procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management.				This report is the fourth Six (6) Monthly Compliance report prepared for the Project to cover the reporting period 9 August 2016 – 8 February 2017.
	Community information and involvement – provision of electronic information				
B26	Prior to the commencement of construction, 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	Stage 1 and 2	Preconstruction and Construction	Open	Roads and Maritime managed web site for WC2NH is in place. Project documentation and information can be found at the link below:

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	project. 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: a information on the current implementation status of the project; b a copy of the documents referred to under condition A1 of this approval, and any documentation supporting modifications to this approval that may be granted from time to time; c a copy of this approval and any future modification to this approval; d a copy of each relevant environmental approval, licence or permit required and obtained in relation to the project; e a copy of each current strategy, plan, program or other document required under this approval; and f the outcomes of compliance tracking in accordance with the requirements of Condition B25.				Link to Project Documents AFJV will provide Roads and Maritime with all relevant information, details and data (electronically in WCAG 2.0 web accessible format) in regards to construction in compliance with the requirements of this condition, to enable Roads and Maritime to maintain the website and ensure it is up to date. The web page has been populated with ongoing monitoring reports in accordance with the Ecological Monitoring Program in compliance with DP&E and DOE approvals.
	Complaints and enquiries procedure				
B27	Prior to the commencement of construction, the Proponent shall ensure that the following are available for community complaints and enquiries during the construction period: a a telephone number on which complaints and enquiries about construction and operation activities may be registered; b a postal address to which written complaints and	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has established the following methods and tools for community complaints and enquiries about construction activities: (a) a telephone number for registration of complaints and enquiries: 1800 074 588 (b) a postal address enabling written complaints and enquiries to be received: PO Box 254, Macksville NSW

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	enquiries may be sent; and c an email address to which electronic complaints and enquiries may be transmitted. The telephone number, the postal address and the email address shall be published in a newspaper circulating in the local area prior to the commencement of construction and prior to the commencement of project operation. The above details shall also be provided on the website (or dedicated pages) required by this approval. The Proponent must prepare and implement a Construction Complaints Management System consistent with *AS 4269 Complaints Handling* prior to the commencement of construction activities and must maintain the System for the duration of construction activities. Information on all complaints received, including the means by which they were addressed and whether resolution was reached and whether mediation was required or used, must be maintained by the Proponent and included in a complaints register. The information contained within the System must be made available to the Director General on request.				2447 (c) an email address to which electronic complaints and enquiries may be transmitted: community@afjv.com.au An advertisement advising of the commencement of Early Works was undertaken on the 31/11/2015 and was presented in the Bellingen Shire Courier-Sun on 31/10/2015 A Construction Complaints Management System consistent with AS 4269 Complaints Handling is in place (Consultation Manager). Information on the complaint raised and the resolution is maintained in this register. Complaints received during the reporting period are provided in Section 8 above.
	Community involvement				
B28	The Proponent shall prepare and implement a Community Communication Strategy for the project. This Strategy shall be designed to provide mechanisms to facilitate communication between the Proponent, the Contractor, the Environmental Representative, the relevant Council and the local	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has an approved Community Involvement Plan (which covers the requirements of the Condition B28 Community Communication Strategy) to provide the mechanisms to facilitate communication between the Proponent, the Contractor, the Environmental Representative, the relevant Council and the local

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	community (broader and local stakeholders) on the construction and environmental management of the project. The Strategy shall include, but not necessarily be limited to: a identification of stakeholders to be consulted as part of the Strategy, including affected and adjoining landowners; b procedures and mechanisms for the regular distribution of information to stakeholders on the progress of the project and matters associated with environmental management; c procedures and mechanisms through which stakeholders can discuss or provide feedback to the Proponent and/or Environmental Representative in relation to the environmental management and delivery of the project; d procedures and mechanisms through which the Proponent can respond to any enquires or feedback from stakeholders in relation to the environmental management and delivery of the project; and e procedures and mechanisms that would be implemented to resolve any issues/disputes that may arise between parties on the matters relating to environmental management and the delivery of the project. This may include the use of an appropriately qualified and experienced independent mediator. The Proponent shall maintain and implement the Strategy throughout construction of the project. The Strategy shall be approved by the Director General				community (broader and local stakeholders) on the construction and environmental management of the project, covering all tasks and procedures in meeting the requirements of this condition. The Plan was approved by DP&E on the 16/12/14. AFJV will maintain and implement the Strategy throughout construction of the project. During the reporting period the AFJV Community Team published and distributed • 25 community notifications • 2 quarterly community project updates Held community information and drop-in sessions on the following dates: • 10 and 11 August 2016 (regular quarterly Community Information Sessions) • 12 and 13 October 2016 (proposed temporary asphalt plant information sessions) • 7 and 8 December 2016 regular quarterly Community Information Sessions) Relevant and timely community relations topics were provided to Toolboxes every week during this period. Made feedback available at the following locations: • Site compound at 124 Albert Drive, Warrell Creek

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	prior to the commencement of construction, or as otherwise agreed by the Director General.				• Nambucca Shire Council The Community Involvement Plan is currently under review and will be updated during the next reporting period.
	Environmental management – Environmental Representative				
B29	Prior to the commencement of construction of the project, or as otherwise agreed by the Director General, the Proponent shall nominate for the approval of the Director General a suitably qualified and experienced Environment Representative(s) that is independent of the design (including preparation of documentation referred to condition A1), and construction personnel. The Proponent shall employ the Environmental Representative(s) for the duration of construction, or as otherwise agreed by the Director General. The Environment Representative(s) shall: a be the principal point of advice in relation to the environmental performance of the project; b be consulted in responding to the community concerning the environmental performance of the project; c monitor the implementation of all environmental management plans and monitoring programs required under this approval; d monitor the outcome of all environmental management plans and advise the Proponent upon the achievement of all project environmental outcomes;	Stage 1 and 2	Preconstruction and Construction	Open	David Bone – Onsite Environmental Management – approved as the Environmental Representative (ER) for WC2NH on 12 September 2013. The ER Deed has been signed and the ER is now engaged on the project and undertaking the requirements of this condition.

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	e have responsibility for considering and advising the Proponent on matters specified in the conditions of this approval, and all other licences and approvals related to the environmental performance and impacts of the project; f ensure that environmental auditing is undertaken in accordance with the requirements of condition B25 and the project Environmental Management System(s); g 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 required under condition B30; and h 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.				
	Construction Environmental Management Plan				
B30	Prior to the commencement of construction, the Proponent shall prepare and (following approval) implement a Construction Environmental Management Plan for the project. The Plan shall outline the environmental management practices and procedures that are to be followed during construction, and shall be prepared in consultation with the EPA, DPI and	Stage 1 and 2	Preconstruction and Construction	Open	DP&E approved the WC2NH CEMP and Sub-plans on the 16/12/14. CoA B30 Requirements (a) to (e) are covered within the approved CEMP, prescribing: • Scope and description of all relevant activities to be undertaken during construction

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	relevant Council and include, but not necessarily be limited to: a a description of all relevant activities to be undertaken during construction of the project or stages of construction, as relevant; b statutory and other obligations that the Proponent is required to fulfil during construction including all approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies. Evidence of consultation with relevant public authorities, shall be included identifying how issues raised by these public authorities have been addressed in the plan; c a description of the roles and responsibilities for all relevant employees involved in the construction of the project including relevant training and induction provisions for ensuring that all employees, including contractors and sub-contractors are aware of their environmental and compliance obligations under these conditions of approval; d identification of ancillary facility site locations, including an assessment against the location criteria outlined in condition C27; e an environmental risk analysis to identify the key environmental performance issues associated with the construction phase and details of how environmental performance would be monitored and managed to meet acceptable outcomes including what actions will be taken to address identified potential adverse environmental impacts (including any impacts arising from concurrent				• Statutory and other obligations that AFJV is required to fulfil during construction • Consultation with relevant public authorities, • Roles and responsibilities for all relevant personnel involved in the construction • Training and awareness for all employees, including contractors and sub-contractors • identification of ancillary facility site locations including a detailed Ancillary Facilities Assessment (Also refer to Reference / Comment provided in condition C27) • Environmental risk analysis and register • Details on environmental performance monitoring The CEMP is also supplemented by construction Sub-plans to address specific environmental aspects of the projects in accordance with the requirements of this condition as follows: • Requirement (e)(i) is covered within the Air Quality Management Sub-plan (AQMP). • Requirement (e)(ii) is covered within the Waste & Energy Management Sub-plan (WEMP). • Requirement (e)(iii) is covered by the Spoil Management Protocol (Appendix I to the Soil and Water Management Sub-plan (SWMP)). Requirement (e)(iv) is covered by the CEMP incorporating measures to monitor and manage hazard and risks including emergency management.

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	construction works with adjacent Pacific Highway Upgrade projects, as relevant). In particular, the following environmental performance issues shall be addressed in the Plan: *i.* measures to monitor and manage **dust emissions** including dust generated by haulage trucks, traffic on unsealed public roads and stockpile management; *ii.* measures to monitor and manage **waste** generated during construction including but not necessarily limited to: general procedures for waste classification, handling, reuse, and disposal; how contaminated materials would be handled and disposed; use of secondary waste material in construction wherever feasible and reasonable; procedures for dealing with green waste including timber and much from clearing activities; and measures for reducing demand on water resources (including the potential for reuse of treated water from sediment control basins); *iii.* measures to monitor and manage **spoil and fill** including details of how excavated material would be handled, stockpiled, reused and disposed and a stockpile management protocol detailing location criteria that would guide the placement of stockpiles and minimum management measures (including rehabilitation) that would be implemented to avoid/ minimise amenity impacts to surrounding residents and environmental risks (including to surrounding watercourses);				Requirement (e)(v) is covered by the CEMP and associated Sub-plans (see B31 Reference / Comment response). Requirement (f) and (g) are covered within the Community Involvement Plan (CIP) and linked to the CEMP. Requirement (h) is covered by the CEMP on procedures for the periodic review and continual improvement of the CEMP. The CEMP was reviewed during the reporting period, no changes to the document were identified. Several updates have been incorporated into the relevant sub-plans as discussed below.

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	iv. measures to monitor and manage **hazard and risks** including emergency management; and *v.* the issues identified in condition B31; f details of community involvement and complaints handling procedures during construction, consistent with the requirements of conditions B26 to B28; g details of compliance and incident management consistent with the requirements of condition B25; and h procedures for the periodic review and update of the Construction Environmental Management Plan as necessary (including where minor changes can be approved by the Environmental Representative). The Plan shall be submitted for the approval of the Director General no later than one month prior to the commencement of construction, or within such period otherwise agreed by the Director General. Construction works shall not commence until written approval has been received from the Director General.				
B31	As part of the Construction Environment Management Plan for the project required under condition B30 of this approval, the Proponent shall prepare and implement the following sub plan(s): a a **Construction Traffic Management Plan**, prepared in accordance with the RTA's *QA Specification G10 - Control of Traffic and Traffic Control at Work Sites Manual* (2003) to manage	Stage 1 and 2	Preconstruction and Construction	Open	DP&E approved the WC2NH CEMP and associated Sub-plans on the 16/12/14. The approved Traffic and Safety Management Plan (TSMP) has been prepared in accordance with RMS Specification G10 and complies with the requirements of this condition. An audit of the TSMP was conducted by RMS in September 2016, no non-compliances were raised. The

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	disruptions to highway and local traffic movements as a result of construction traffic associated with the project. The Plan shall be developed in consultation with Council and shall include, but not necessarily be limited to: *i.* identification of construction traffic routes and quantification of construction traffic volumes (including heavy vehicle/spoil haulage) on these routes; *ii.* details of vehicle movements for construction sites and site compounds including parking, dedicated vehicle turning areas, and ingress and egress points; *iii.* potential impacts to traffic on the existing highway and associated local roads including intersection level of service and potential disruptions to arrangements for pedestrians, property access, public transport, parking and/ or cyclist; *iv.* details of temporary and interim traffic arrangements including intersections, property access and alternative traffic routes; *v.* traffic and other arrangements to minimise impacts including safe pedestrian access at all times, and the provision of alternative facilities and locations for pedestrians and/or cyclist access; *vi.* a response procedure for dealing with traffic incidents; and *vii.* mechanism for the monitoring, review and amendment of this plan;				traffic arrangements are regularly inspected by both RMS and the site team. 70 plans have been developed during the project to 8 February 2016, 30 during this reporting period.

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	b a **Construction Flora and Fauna Management Plan** to detail how construction impacts on ecology will be minimised and managed. The Plan shall be developed in consultation with the EPA and shall include, but not necessarily be limited to: *i.* details of pre-construction surveys undertaken to verify the construction boundaries/ footprint of the project based on detailed design and to confirm the vegetation to be cleared as part of the project (including tree hollows, threatened flora and fauna species, mangroves and riparian vegetation). The surveys shall be undertaken by a qualified ecologist and include surveys of existing bridges and culverts for the presence of micro-bat roosting at least 6 months prior to the planned disturbance of such structures and targeted surveys for the Giant Barred Frog within and in the vicinity of the project corridor undertaken during suitable conditions; *ii.* updated sensitive area vegetation maps based on B31(b)(i) above and previous survey work; *iii.* a Giant Barred Frog management plan, in the case that this species or its habitat is identified to occur in the project corridor or its vicinity, based on surveys undertaken as part of B31(b)(i); *iv.* a micro-bat management strategy, in the case that micro bats or evidence of roosting are identified during pre-construction surveys. The strategy shall detail measures to avoid, minimise and mitigate impacts to these	Stage 1 and 2	Preconstruction and Construction	Open	DP&E approved the Flora and Fauna Management Plan (FFMP) on the 16/12/14. The Flora and Fauna Management Plan (FFMP) incorporates the following plans and strategies in regards to minimising impacts on flora and fauna: • Giant Barred Frog Management Strategy • Grey-Headed Flying Fox Management Plan • Koala Management Plan • Spotted Tail Quoll Management Plan • Threatened Flora Management Plan • Nest Box Management • Ecological Monitoring Program • Green-Thighed Frog Management Strategy • Microchiropteran Bat Management Strategy • Pre-Clearing Checklist • Working Around Trees Guideline • Fauna Handling and rescue Procedure • Unexpected Threatened Species/EEC Procedure • Weed Management Plan Roads and Maritime has developed a construction and operational phase monitoring strategy for the Yellow - Bellied Glider. In addition to these plans and strategies, sensitive area plans have been prepared identifying vegetation EECs, incorporated within the draft CEMP (Appendix A6). Controls on topsoil management and erosion and sedimentation are covered within the Soil and Water

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	species and identified roost sites, including short and long term management measures; *v.* details of general work practices to minimise the potential for damage to native vegetation (particularly EECs) not proposed to be cleared as part of the project and native fauna during construction, including (but not necessary limited to): fencing of sensitive areas, a protocol for the removal and relocation of fauna during clearing, presence of an experienced ecologist to oversee clearing activities and facilitate fauna rescues and re-location, clearing timing with consideration to breeding periods, measures for maintaining existing habitat features (such as bush rock and tree branches etc), seed harvesting and appropriate topsoil management, construction worker education, weed management, erosion and sediment control and progressive re-vegetation; *vi.* specific procedures to deal with EEC/ threatened species anticipated to be encountered within the project corridor including re-location, translocation and/or management and protection measures; *vii.* a procedure for dealing with unexpected EEC/ threatened species identified during construction including stopping works and notification of EPA, determination of appropriate mitigation measures in consultation with EPA (including relevant relocation measures) and update of ecological				Management Sub-plan of the CEMP. As required by the AFJV scope of work, AFJV will implement the requirements of the FFMP and subordinate plans, strategies and guidelines, and associated CEMP Sub-plans. The FFMP will undergo periodic review and continual improvement in accordance with the requirements specified within the CEMP. Pre-clearing surveys have been completed for the main Project alignment and mapping for EEC, hollow bearing trees, threatened species, etc has been updated to reflect ground-truthed data. No disturbance to bridge or culvert structures with the presence of micro-bats has occurred. A colony of micro-bats present in a bridge structure adjacent to the Project alignment at Crouches Creek (Williamson Creek) is being monitored in accordance with the approved *Microchiropteran* Bat Management Strategy. Targeted surveys for Giant barred Frog were also completed at Butchers Creek and Upper Warrell Creek prior to clearing commencing in accordance with the Giant Barred Frog Management Strategy. The majority of vegetation clearing on the Project is now complete. Vegetation clearing processes have been monitored regularly to ensure vegetation clearing is minimised. Exclusion flagging is checked during pre-clearing inspections and whilst clearing is being undertaken. Exclusion of sensitive habitat and retention of features for landscape rehabilitation are consistent with the requirements of the FFMP. Fauna rescue and retrieval has been in accordance with

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	monitoring and/ or biodiversity offset requirements consistent with conditions B8 and B10; and *viii.* mechanism for the monitoring, review and amendment of this plan;				the approved procedure attached to the FFMP. A review of the FFMP was undertaken during the reporting period. Several documents that make up appendices to the FFMP were updated during the reporting period including: - Nest Box Management Plan; - Spotted-Tailed Quoll Management Plan; and - Koala Management Plan; The changes are currently being reviewed by the ER and RMS and will be finalised in the next reporting period. The Nest Box Management Plan was updated to include the final calculations for nest box numbers post completion of mainline clearing. The calculations concluded that 143 nest boxes in total were required, which is a reduction from the original number of 152 in the original approved Plan. It is noted that all 143 nest boxes are now installed alongside the main alignment in approved Nest Box Management Zones in accordance with the approved Plan. AFJV have sought approval from RMS for the permanent reuse of spoil material within the Project alignment for earth mounds. A Consistency Review was prepared and approved. The mounds are designed in accordance with RMS Specification and are approved through the required design process by RMS and the Project Verifier.
	c a **Construction Noise and Vibration Management Plan** to detail how construction	Stage 1 and 2	Preconstruction and	Open	DP&E approved the WC2NH Noise and Vibration Management Plan (NVMP) on the 16/12/14. The Plan

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	noise and vibration impacts will be minimised and managed. The Plan shall be developed in consultation with the EPA and include, but not necessarily be limited to: *i.* identification of nearest sensitive receptors and relevant construction noise and vibration goals applicable; *ii.* identification of key noise and/or vibration generating construction activities (based on representative construction scenarios) that have the potential to impact on surrounding sensitive receivers including expected noise/ vibration levels; *iii.* identification of all feasible and reasonable measures proposed to be implemented to minimise construction noise and vibration impacts (including construction traffic noise impacts); *iv.* procedure for dealing with out-of-hour works in accordance with condition C4, including procedures for notifying the Director General concerning complaints received in relation to the extended hours approved under condition C4(d); *v.* procedures and mitigation measures to ensure relevant vibration and blasting criteria are achieved, including a suitable blast program supported by test blast results, applicable buffer distances for vibration intensive works, use of low vibration generating equipment vibration dampeners or alternative construction methodology, and pre- and post- construction		Construction		incorporates the identification and procedures of: - Nearest sensitive receptors and relevant construction noise and vibration goals - Key noise and vibration generating construction activities accompanied with Plant and Equipment sound power data - Measures proposed to be implemented to minimise construction noise and vibration impacts - Out-Of-Hour Works Procedure - Blast Management Program - Notification to sensitive receivers and handling of noise and vibration complaints - Noise and vibration monitoring and managing potential exceedances As required by the AFJV scope of work, AFJV will implement the requirements of the NVMP and subordinate procedures and programs. The Blast Management Program has been updated to reflect the vibration and air blast overpressure limit change approved by DP&E on 17/7/2015. Implementation of the NVMP has been ongoing throughout construction. Out of hours activities are managed through a permit system to ensure compliance with the Out of Hours Approvals Procedure (attached to the NVMP) and the Project EPL. Vibration and air blast overpressure monitoring for the blasting activities is presented above in Section 7. Noise monitoring and vibration monitoring have been

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	dilapidation surveys of sensitive structures where blasting and/ or vibration is likely to result in building damage; *vi.* procedures for notifying sensitive receivers of construction activities that are likely to affect their noise and vibration amenity, as well as procedures for dealing with and responding to noise complaints; and *vii.* a program for construction noise and vibration monitoring clearly indicating monitoring frequency, location, how the results of this monitoring would be recorded and, procedures to be followed where significant exceedances of relevant noise and vibration goals are detected;				undertaken in relation to complaints and information has been provided to the complainant. Vibration monitoring has also been undertaken for several residents located close to earthworks activities on an "as needs" basis. Ongoing monthly noise monitoring is undertaken and the results are presented in Appendix B. The Out of Hours Procedure was updated during the reporting period and provided to RMS and the ER for approval. With 32 OoHW permits were prepared during this review period. The predominate activity being for quality reason in regards to structures. At the time of this report there have been 126 OoHW permits prepared.
	d a **Construction Water Quality Management Plan** to manage surface water quality and groundwater impacts during construction of the project. The Plan shall be developed in consultation with EPA, DPI (Fisheries and NOW) and include, but not necessarily be limited to: *i.* a contingency plan, consistent with the *Acid Sulfate Soils Manual*, to deal with the unexpected discovery of actual or potential acid sulfate soils; *ii.* a tannin leachate management protocol to manage the stockpiling of mulch and use of cleared vegetation and mulch filters for erosion and sediment control;	Stage 1 and 2	Preconstruction and Construction	Open	One non-compliance was raised during the reporting period relating to a breach of an Environment Protection Licence condition. A sediment basin was not dewatered within the required timeframe after the cessation of the rainfall event. Details of the non-compliance is provided above in Section 3. DP&E approved the WC2NH Soil and Water Management Plan (SWMP) on the 16/12/14. The Plan incorporates requirements for soil and water quality management including requirements for mitigation and management of erosion and sedimentation. The SWMP incorporates specific plans and procedures including: • Acid Sulfate Soil Management Procedure

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	iii. details of how construction activities would be managed and mitigated to minimise erosion and sedimentation consistent with condition C17; *iv.* where construction activities have the potential to impact on waterways or wetlands (through direct disturbance such as construction of waterway crossings or works in close proximity to waterways or wetlands), site specific mitigation measures to be implemented to minimise water quality, riparian and steam hydrology impacts as far as practicable, including measures to stabilise bank structure and rehabilitate affected riparian vegetation to existing or better condition (including relevant performance indicators and monitoring requirements). The timing of rehabilitation of the waterways shall be as agreed to with DPI (Fisheries and NOW) shall be identified in the plan; *v.* construction water quality monitoring requirements consistent with condition B17; and *vi.* a groundwater management strategy, including (but not necessarily limited to): i. description and identification of groundwater resources (including depths of the water table and groundwater quality) potentially affected by the proposal based on baseline groundwater monitoring undertaken in accordance with condition B17(c);				• Management of Tannins from Vegetation Mulch • Sediment Basin Management and Discharge Procedure • Pacific Highway Projects Dewatering Practice Note • Water Quality Monitoring Program • Groundwater Management Strategy • Spoil and Fill Management Procedure • Stockpile Management Protocol • Unexpected Discovery of Contaminated Land Procedure • Arsenic Rock Management Strategy As required by the AFJV scope of work, AFJV will implement the requirements of the SWMP and subordinate procedures and programs. Implementation of the SWMP is monitored regularly by AFJV including fortnightly inspections by the Project Soil Conservationist to determine compliance with the “Blue Book”. Site controls are also regularly inspected by AFJV staff prior to, during and after rainfall events. Monitoring results for groundwater and surface water are summarised in Section 7 above. Incidents raised relating to erosion and sediment controls are detailed in Sections 5 above. The SWMP was reviewed during the reporting period. The following documents that form part of the SWMP were updated:

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	ii. identification of surrounding licensed bores, dams or other water supplies and groundwater dependant ecosystems and potential groundwater risks associated with the construction of the project on these groundwater users and ecosystems; iii. measures to manage identified impacts on water table, flow regimes and quality and to groundwater users and ecosystems; iv. groundwater inflow control, handling, treatment and disposal methods; and v. a detailed monitoring plan to identify monitoring methods, locations, frequency, duration and analysis requirements; and				- Groundwater Monitoring Program; - Groundwater Management Strategy The documents are with RMS and the ER for review.
	e a **Construction Heritage Management Plan** to detail how construction impacts on Aboriginal and non-Aboriginal heritage will be minimised and managed. The Plan shall be developed in consultation with the OEH (Heritage Branch) (for non-Aboriginal heritage) and EPA and Registered Aboriginal Stakeholders (for Aboriginal heritage), and include, but not necessarily be limited to: *ii.* In relation to Aboriginal Heritage: i. details of management measures to be carried out in relation to already recorded sites and potential Aboriginal deposits (including further archaeological investigations, salvage measures and/ or measures to protect unaffected sites during construction works in	Stage 1 and 2	Preconstruction and Construction	Open	DP&E approved the WC2NH Heritage Management Plan (HMP) on the 16/12/14. The Plan incorporates requirements for mitigation and management of construction impacts on Aboriginal and Non-Aboriginal heritage, including management measures to be carried out in relation to already recorded sites and potential Aboriginal deposits and non-Aboriginal heritage sites. The HMP incorporates specific plans and procedures including: • Methodology for Aboriginal and Historical Heritage Investigation for Works Outside the Project Corridor • Aboriginal heritage education and training package • Non-Aboriginal heritage education and training

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	the vicinity); ii. procedures for dealing with previously unidentified Aboriginal objects excluding human remains (including halting of works in the vicinity, assessment of the significance of the item(s) and determination of appropriate mitigation measures including when works can re-commence by a qualified archaeologist in consultation with registered Aboriginal stakeholders, assessment of the consistency of any new Aboriginal heritage impacts against the approved impacts of the project, and registering of the new site in the OEH AHIMS register); iii. procedures for dealing with human remains (including halting of works in the vicinity and notification of the NSW Police, OEH and registered Aboriginal stakeholders and not-recommending any works in the area unless authorised by OEH and/ or the NSW Police); and iv. Aboriginal cultural heritage induction processes for construction personnel (including procedures for keeping records of inductions undertaken for the duration of the project) and procedures for ongoing Aboriginal consultation and involvement; and (iii) In relation to non-Aboriginal Heritage: i. details of management measures to be carried out in relation to already recorded sites (including further heritage investigations,				package • Roads and Maritime Standard Management Procedure – Unexpected Heritage Items As required by the AFJV scope of work, AFJV will implement the requirements of the HMP and subordinate management procedures, and training packages for heritage induction and training. HMP implementation is ongoing, AFJV are undertaking ongoing consultation with the RAP's in accordance with the approved HMP. Protective fencing around heritage significant areas is inspected regularly and reinstated where required.

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	archival recordings and/ or measures to protect unaffected sites during construction works in the vicinity), consistent with the measures listed in Environmental Assessment Table 19-4; ii. procedures for dealing with previously unidentified non-Aboriginal objects, (including halting of works in the vicinity, assessment of the significance of the item(s) and determination of appropriate mitigation measures including when works can re-commence by a qualified archaeologist and assessment of the consistency of any new non-Aboriginal heritage impacts against the approved impacts of the project; and iii. non-Aboriginal cultural heritage induction processes for construction personnel.				
	Part C – During construction				
	Biodiversity				
C1	The Proponent shall employ all feasible and reasonable measures to minimise the clearing of native vegetation to the greatest extent practicable during the construction of the project.	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has conducted ground truthing surveys whilst preparing the FFMP. The ecology surveys have informed the clearing extent for detailed design to minimise the clearing of native vegetation to the greatest extent practicable. All vegetation clearing required for the Project is assessed and determined to be consistent with the Planning Approval and Environmental Assessment by RMS and the

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					ER prior to being undertaken. A Vegetation Clearing Tracking Register is maintained and compared with the approved clearing requirements. The approved clearing is consistent with the Biodiversity Offset Strategy. The quantity of EEC clearing is much lower than the area provided in the EA, however the overall quantity of native vegetation clearing is marginally higher than the area provided in the EA. The Project considers the retention of vegetation with conservation significance is a positive outcome for the Project. Exclusion flagging is provided on site along the clearing limits to prevent incidental clearing of unapproved areas. The majority of clearing for the Project is complete and no major incidents regarding breaches of the clearing limits have been recorded.
	Air quality impacts				
C2	The Proponent shall employ all feasible and reasonable measures (including temporary cessation of relevant works, as appropriate) to ensure that the project is constructed in a manner that minimises dust emissions from the site, including wind-blown, traffic-generated dust, stockpiles and material tracking from construction sites onto public roads.	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has detailed management and mitigation measures to achieve this requirement within the approved Air Quality Management Plan (AQMP). The AQMP includes the locations of dust sensitive areas and monitoring locations. The Project is currently using chemical suppressants on haul roads, stockpiles and for batter stabilisation. Dust monitoring is ongoing. Several exceedances of the requirements stipulated in the AQMP have been reported to the EPA in the EPA Monthly Report. The Project has investigated each exceedance and applied additional dust mitigation measures. Results of the monitoring are provided above in Section 7. Improvements have been

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					made to the crushing activities to increase water sprays and stabilised material has been used on haul roads to reduce dust where practical. The Project is undertaking early topsoiling and revegetation of exposed batters to minimise dust impacts.
	Noise and vibration impacts – construction hours				
C3	The Proponent shall only undertake construction activities associated with the project during the following standard construction hours: a 7:00am to 6:00pm Mondays to Fridays, inclusive; and b 8:00am to 1:00pm Saturdays; and c at no time on Sundays or public holidays.	Stage 1 and 2	Preconstruction and Construction	Open	The requirements of this condition are included within the NVMP Sub-plan for implementation by AFJV during construction. These construction hours have been implemented on the Project. All activities undertaken outside of these hours are approved by the AFJV Environment Manager in accordance with the Out of Hours Procedure.
C4	Works outside of the construction hours identified in conditions C3 may be undertaken in the following circumstances: a works that generate noise that is not audible at any sensitive receptor; b for delivery of materials required outside these hours by the Police or other authorities for safety reasons; or c where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or d construction works undertaken through sparsely	Stage 1 and 2	Preconstruction and Construction	Open	The requirements of this condition are included within the NVMP Sub-plan and the Out-Of-Hours Works procedure included in the NVMP, for implementation by AFJV during construction. Noise requirements are also subject to the Environment Protection Licence 20533 conditions. The Project has undertaken a number of activities outside of standard construction hours in accordance with this condition and the conditions of the EPL. Works undertaken outside of standard construction hours are managed in accordance with the Out of Hours Approval Procedure and require a Permit signed by the AFJV Environment Manager and Community Manager prior to

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	populated areas in which sensitive receptors are located greater than 300 metres away from the project boundary. In this case construction is permissible during the following hours: 6.00am to 6.00pm Monday to Friday and 7.00am to 4.00pm Saturdays and at no time on Sundays or public holidays. These works hours may be reviewed and/ or revoked by the Director General in consultation with the EPA in the case of excessive or unresolved noise complaints; or e where an EPL applies to the construction of the project, construction hours which are approved in accordance with the conditions of an EPL for the project; or f where an EPL does not apply to the construction of the project, Out of Hours Works as agreed to by the Director general in accordance with condition C5.				commencement. Notification is also provided to the EPA, RMS and the ER in accordance with the procedure.
C5	For the purposes of condition C4 (f), certain construction activities (Out of Hours Works) may be allowed to occur outside the construction hours specified in conditions C3 with the prior written approval of the Director General. Requests for out of hours approval will be considered for construction activities which cannot be undertaken during the construction hours specified in conditions C3 for technical or other justifiable reasons and will be considered on a case by case or activity-specific basis. Any request for Out of Hours Works must be accompanied by:	Stage 1 and 2	Preconstruction and Construction	Open	The NVMP contains an Out of Hours Works Procedure which covers the process for considering activities to be undertaken outside of standard construction hours. This has been approved by DP&E in December 2014. All works undertaken outside of standard construction hours comply with the approved Out of Hours Works Procedure.

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	a details of the nature and need for activities to be conducted during the varied construction hours; b written evidence to the EPA and the Director General that activities undertaken during the varied construction hours are justified, appropriate consultation with potentially affected receivers and notification of Council has been undertaken, issues raised have been addressed, and all feasible and reasonable mitigation measures have been put in place; and c evidence of consultation with the EPA on the proposed variation in standard construction hours. Despite the above, Out of Hours Works may also occur in accordance with an approved Construction Environment Management Plan or Construction Noise and Vibration Management Plan for this project, where that plan provides a process for considering the above on a case by case or activity specific basis by the Proponent, including factors a) to c) above.				
C6	Blasting associated with the project shall only be undertaken during the following hours a 9:00 am to 5:00 pm, Mondays to Fridays, inclusive; b 9:00 am to 1:00 pm on Saturdays; and c at no time on Sundays or public holidays. This condition does not apply in the event of a direction from police or other relevant authority for safety or emergency reasons to avoid loss of life, property loss and/or to prevent environmental harm.	Stage 1 and 2	Construction	Open	Blasting activities have commenced on the Project in July 2015 and were completed by the 31st August 2016. All blasts are undertaken in accordance with the hours specified in this condition.

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	Noise and vibration impacts – construction noise and vibration goals				
C7	The Proponent shall implement all feasible and reasonable noise mitigation measures with the aim of achieving the construction noise management levels detailed in the *Interim Construction Noise Guideline* (DECC, 2009) during construction activities, 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 B31(c) of this approval.	Stage 1 and 2	Preconstruction and Construction	Open	Proposed noise mitigation measures are included within the NVMP Sub-plan for implementation by AFJV during construction. AFJV have commenced monitoring construction noise levels in accordance with the NVMP. The levels recorded are within the criteria specified in the NVMP. Where the noise levels exceed the Noise Management Levels provided in the NVMP, AFJV provides an explanation and investigates additional mitigation measures in the EPA Monthly Report. AFJV also presents noise monitoring results at the monthly ERG meeting and a discussion regarding reasonable mitigation measures is also undertaken.
C8	The Proponent shall implement all feasible and reasonable mitigation measures with the aim of achieving the following construction vibration goals and ground-borne noise levels: a for structural damage vibration, the vibration limits set out in the German Standard D/N 4150 Part 3-1999 Structural Vibration in Buildings - Effects on Structures; b for works in the vicinity of the heritage structures, the vibration limits set out in the German Standard DIN 4150-3: 1999 Structural Vibration - part 3: Effects of vibration on structures; and c for human exposure, the acceptable vibration values set out in the Environmental Noise	Stage 1 and 2	Construction	Open	Proposed construction noise and vibration goals are included within the NVMP Sub-plan for implementation by AFJV during construction. The mitigation measures included in the NVMP are based on the standards provided in Condition C8. Vibration monitoring has been conducted for the blasting undertaken on the Project and for the use of vibratory equipment. Vibration monitoring has also been undertaken in response to complaints received on the Project from nearby sensitive receivers in accordance with the Project EPL requirements. The results have been compared to the NVMP which is based on the standards set out in Condition C8. Results of monitoring is summarised in Section 7 above.

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	Management Assessing Vibration: A Technical Guideline (DEC 2006); and d the ground-borne noise levels set out in the Interim Construction Noise Guidelines (DECC, 2009).				Noise monitoring is conducted in accordance with the NVMP. The results are summarised in Section 7 above. No monitoring results have shown exceedances of the requirements for structural damage (there are no heritage structures in the vicinity of the Project that require monitoring). On the occasions where the human comfort criteria has not been met, the resident is consulted to determine if the work can continue.

<table>
<tr><th>CoA No.</th><th>Requirement</th><th>Stage</th><th>Timing</th><th>Status</th><th>Reference / Comment</th></tr>
<tr><td>C9</td><td>The Proponent shall ensure that air blast overpressure generated by blasting associated with the project does not exceed the criteria specified in Table 1 when measured at the most affected residence or other sensitive receiver. To ensure that criteria are satisfied at the most affected residence or other sensitive receiver, blasting trials shall be undertaken prior to the commencement of the project blasting program, with results from the trials used to determine site specific blast design to satisfy the criteria specified in Table 1.
Table 1 Airblast overpressure criteria<table><tr><td>Airblast overpressure (dB(Lin Peak))</td><td>Allowable exceedance</td></tr><tr><td>115</td><td>5% of total number of blasts over a 12 month period</td></tr><tr><td>120</td><td>0%</td></tr></table></td><td>Stage 1 and 2</td><td>Construction</td><td>Closed</td><td>The requirements of this condition are included within the NVMP Sub-plan and subordinate Blast Management program for implementation by AFJV during construction.
AFJV sought approval from DP&E in accordance with Condition C11 to increase the blast vibration and airblast overpressure limits.
An approval request was submitted to DP&E on the 08/07/15 to increase the airblast overpressure limit to 125 dB(L) and the ground vibration limit to 25mm/s (PPV). An approval was obtained from DP&E on 17/7/2015 subject to conditions being met.
A request was submitted to DP&E to increase the number of blasts in Cut 10. This was approved by DP&E on the 26/2/2016.
Production blasting undertaken to date has shown compliance with the airblast overpressure requirements of 125 dB(L). Blasting on the Project was completed on the 31/8/16.</td></tr>
<tr><td>C10</td><td>The Proponent shall ensure that ground vibration generated by blasting associated with the project does not exceed the criteria specified in Table 2 when measured at the most affected residence or other sensitive receiver. To ensure that criteria are satisfied at the most affected residence or other sensitive receiver, blasting trials shall be undertaken prior to the commencement of the project blasting program, with</td><td>Stage 1 and 2</td><td>Construction</td><td>Closed</td><td>The requirements of this condition are included within the NVMP Sub-plan and subordinate Blast Management program for implementation by AFJV during construction.
AFJV sought approval from DP&E in accordance with Condition C11 to increase the blast vibration and airblast overpressure limits.
An approval request was submitted to DP&E on the</td></tr>
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<tr><th>CoA No.</th><th>Requirement</th><th>Stage</th><th>Timing</th><th>Status</th><th>Reference / Comment</th></tr>
<tr><td></td><td>results from the trials used to determine site specific blast design to satisfy the criteria specified in Table 2.
Table 2 Peak particle velocity criteria<table><tr><td>Peak particle velocity (mms-1)</td><td>Allowable exceedance</td></tr><tr><td>5</td><td>5% of total number of blasts over a 12 month period</td></tr><tr><td>10</td><td>0%</td></tr></table></td><td></td><td></td><td></td><td>08/07/15 to increase the airblast overpressure limit to 125 dB(L) and the ground vibration limit to 25mm/s (PPV). An approval was obtained from DP&E on 17/7/2015 subject to conditions being met.
A request was submitted to DP&E to increase the number of blasts in Cut 10. This was approved by DP&E on the 26/2/2016.
No exceedances of the approved limit increases have been measured. Blasting on the Project was completed on the 31/8/16.</td></tr>
<tr><td>C11</td><td>The blasting criteria identified in condition C9 and/ or C10 do not apply where the Proponent has a written agreement with the relevant landowner to exceed the criteria identified in condition C9 and/ or C10 and the Director General has approved the terms of the written agreement. In obtaining the Director General approval for any such agreement, the Proponent shall submit to the Director General:
a details of the proposed blasting program and justification for the proposed increase to blasting criteria including alternatives considered (where relevant);
b an assessment of the environmental impacts of the increased blast limits on the surrounding environment and most affected residences or other sensitive receivers including, but not limited to</td><td>Stage 1 and 2</td><td>Construction</td><td>Closed</td><td>The requirements of this condition are included within the NVMP Sub-plan and subordinate Blast Management Program for implementation by AFJV during construction.
An approval request was submitted to DP&E on the 08/07/15 to increase the airblast overpressure limit to 125 dB(L) and the ground vibration limit to 25mm/s (PPV). Approval was received from DP&E on 17/07/2015. This approval request contained information to comply with this condition.
A request was submitted to DP&E to increase the number of blasts in Cut 10. This was approved by DP&E on the 26/2/2016.</td></tr>
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	noise, vibration and air quality and any risk to surrounding utilities, services or other structures; c details of the blast management, mitigation and monitoring procedures to be implemented; and d details of consultation undertaken and agreement reached with the relevant landowners (including a copy of the agreement in relation to increased blasting limits). The following exclusions apply to the application of this condition: a any agreements reached may be terminated by the landowner at any time should concerns about the increased blasting limits be unresolved; b the blasting limit agreed to under any agreement can at no time exceed a maximum Peak Particle Velocity vibration level of 25 mm/s or maximum Airblast Overpressure level of 125 dBL; and c the provisions under condition C11 (to increase applicable blast criteria in agreement with the relevant landowners) do not apply where the property is a heritage property.				
	Operational noise mitigation review				
C12	Unless otherwise agreed to by the Director General, within six months of commencing construction, the Proponent shall in consultation with EPA prepare and submit for the approval of the Director General, a review of the operational noise mitigation measures proposed to be implemented for the project. The review shall:	Stage 1 and 2	Construction	Open	A draft Operational Noise Report has been provided to RMS for review by AFJV. The report has also been provided to the EPA to review. RMS submitted a letter requesting an extension of time from DP&E for submission of the Operational Noise Mitigation Review (5/8/2015). DP&E approved the extension of time on 14/8/2015 for 9 months. A further

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	a confirm the operational noise predictions of the project based on detailed design. This operational noise assessment shall be based on an appropriately calibrated noise model (which has incorporated additional noise monitoring, where necessary for calibration purposes). The assessment shall specifically include verification of noise levels at Nambucca Heads Rest Area, based on additional noise monitoring undertaken at this location; b review the suitability of the operational noise mitigation measures identified in the documents listed under condition A1 to achieve the criteria outlined in the Environmental Criteria for Road Traffic Noise (EPA, 1999) and the Industrial Noise Policy (EPA, 2000) in relation to the Nambucca Heads Rest Area, based on the operational noise performance of the project predicted under (a) above; and c where necessary, investigate additional feasible and reasonable noise mitigation measures to achieve the criteria outlined in the Environmental Criteria for Road Traffic Noise (EPA, 1999) and the Industrial Noise Policy (EPA, 2000) in relation to the Nambucca Heads Rest Area including the applicability of noise walls in the vicinity of River Road in Macksville.				extension of time was granted by the DP&E on the 20/05/16 allowing the report to be submitted for approval on the 8 May 2017. An update on the progress of the report was provided to DP&E on the 8 February 2017. Additional background noise monitoring and traffic counts were undertaken during the reporting period to supplement the information provided in the document. The Project is on track to submit the updated Operational Noise Report by the 8th May 2017 to DP&E.
	Heritage impacts				
C13	This approval does not allow the Proponent to destroy, modify or otherwise physically affect human remains.	Stage 1 and 2	Preconstruction, Construction and Operations	Open	The approved Heritage Management Plan includes the Standard Management Procedure: Unexpected Archaeological Finds Roads and Maritime August 2013. The HMP also includes Aboriginal and Non-Aboriginal

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					heritage induction training packages. These controls will be implemented by AFJV. No human remains have been encountered on the Project.
C14	The Proponent shall not destroy, modify or otherwise physically affect the Aboriginal cultural sites identified in Table 15-3 of the Environmental Assessment (including AHIMS site numbers 21-6-36, 21-6-0287, 21-6-0016, 21-6-0163, 21-6-0039, 21-6-0090, 21-6-0102, 21-6-0141, 21-6-0164, 21-6-0064, and 21-6-0044), Boggy Creek spiritual area, Buchanan Conflict Site at Cow Creek (21-6-00286), burial site, ~~Cabbage tree palm resource site~~, Aboriginal mirrah (21-3-0034), Rosewood Scarred Tree or ~~potential archaeological deposits (PAD) 31~~.	Stage 1 and 2	Preconstruction, Construction and Operations	Open	Site surveys within the WC2NH project area have been undertaken to determine relevant sites, and no-go zone fencing and signage has been erected. Impacts to the Cabbage tree palm resource site and potentially PAD 31 (for fencing works), have been addressed through a modification of the approval by DP&E (Mod 7) which was approved on the 15/01/15. The Rosewood Scarred Tree has been permanently fenced and protected from construction activities.
C15	The Proponent shall not destroy, modify or otherwise physically affect the following historic sites: the ferry/punt crossing at Boulton Hill; old municipal tip; Valla Gold Mine; former stock route; tramway and quarry, Martells Road; and the native swamp conservation area.	Stage 1 and 2	Preconstruction, Construction and Operations	Open	Relevant site surveys for WC2NH (Ferry Punt at Boulton Hill, and old municipal tips) have been undertaken to determine relevant sites, and no-go zone fencing and signage has been erected. No impacts have occurred to the ferry/punt crossing at Boulton Hill and the Old Municipal Tip.
C16	The measures to protect any Aboriginal or historic heritage sites near or adjacent to the project during construction shall be detailed in the Heritage Management Plan required under condition B31 (e).	Stage 1 and 2	Preconstruction, Construction and Operations	Open	The requirement of this condition has been incorporated by AFJV into management and mitigation measures and procedures within the approved Heritage Management Plan. Sites are protected using no-go zone fencing and signage which is regularly inspected and maintained.
C16A	a i) Where permanent works (including utilities, services and permanent access and service roads, or similar works required for the project) located outside the approved project footprint and	Stage 1 and 2	Preconstruction and Construction	Open	The approved methodology - Methodology for Aboriginal and Historical Heritage Investigation for Works Outside the Project Corridor", is incorporated as Appendix A to the approved Heritage Management Plan for implementation

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	described in the documents listed in condition A1 are required, and those works have the potential to impact upon previously unidentified non-Aboriginal and Aboriginal archaeology, the proponent shall undertake archaeological investigations to determine the impacts of those works. ii) The proponent shall undertake the investigations required in accordance with condition C16A (a)(i) consistent with the Construction Heritage Management Plan required under Condition B31 (e), or using a methodology prepared in consultation with OEH and approved by the Director General. iii) The proponent shall report on the results of the archaeological investigations prior to commencement of permanent works, and: · where the potential heritage impacts identified in the report are less than those described in the documents listed in condition A1, the report shall be provided to the Director General; · where the potential heritage impacts identified in the report are the same as those described in the documents listed in condition A1, the report shall be prepared in consultation with OEH and submitted to the Director General; · where the potential heritage impacts identified in the report are greater than those described in the documents listed in condition A1, the report shall be prepared in consultation with OEH and submitted to the satisfaction of the				by AFJV. Accordingly, archaeological reports have been provided to DP&E in accordance with this condition. Heritage assessments have been undertaken for Public Utility realignment works, private property adjustments and design refinements outside of the previous approved Project Boundary. The approved Methodology has been followed under the guidance of the Project Archaeologist Jacobs and the Registered Aboriginal Parties. In all circumstances, a report has been prepared and approved by RMS and the ER. No impacts to heritage items have been identified from additional permanent work activities. The Cultural Heritage Assessment Reports for the Project permanent works were submitted to DP&E in December 2015.

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	Director General. iv) The report on the results of the archaeological investigation is to include recommendations (such as for further archaeological work) and shall include, but not necessarily be limited to, consideration of measures to avoid or minimise disturbance to Aboriginal objects where objects of moderate to high significance are found to be present. b i) The proponent shall undertake salvage work with the approval of the Director General, when recommended by the results of the archaeological investigation required under condition C16A. ii) In determining whether to approve salvage work, the Director General is to have reference to the results of all relevant archaeological investigations undertaken under condition C16A(a) and the views of OEH.				
	Sedimentation, erosion and water				
C17	Soil and water management measures consistent with *Managing Urban Stormwater - Soils and Construction Vols 1 and 2, 4th Edition* (Landcom, 2004) and *Managing Urban Stormwater Soils And Construction Vols 2A and 2D Main Road Construction* (DECC 2008) shall be employed during the construction of the project for erosion and sediment control.	Stage 1 and 2	Preconstruction and Construction	Open	A non-compliance has been raised in this reporting period relating to dewatering of a sediment basin within the required timeframe after a rainfall event. AFJV has incorporated soil and water management measures consistent with the requirements of this condition, into the approved Soil and Water Quality Management Sub-plan (SWMP). AFJV have contracted a Project Soil Conservationist to ensure that erosion and sediment control plans (ESCP) are compliant with this condition. The Project Soil

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					Conservationist also conducts regular site inspections to ensure the ESCP's are being implemented on site. Details of the NCR's and incidents raised for this condition during the reporting period are included in Section 3 above.
C18	Where available, and of appropriate chemical and biological quality, the Proponent shall use stormwater, recycled water or other water sources in preference to potable water for construction activities, including concrete mixing and dust control.	Stage 1 and 2	Preconstruction and Construction	Open	The Project has constructed several large water holding dams to hold water captured during rainfall events in sediment basins located on site. AFJV have also sought approval from the NSW Office of Water to extract water from Upper Warrell Creek and Lower Warrell Creek and from groundwater bores that have been installed adjacent to the alignment. However, due to drier than usual weather and poor water yield from the groundwater bores, potable water is currently being used to supplement the water supply for dust suppression in the northern extent of the Project. Also, potable water is used for concrete batching due to quality issues arising from recycled water and bore water. Due to community feedback, other local sources of surface water were not available to the Project.
	Property and landuse – property impacts				
C19	The Proponent shall construct the project in a manner that minimises impacts to private properties and other public or private structures (such as dams, fences, utilities, services etc.) along the project corridor. In the event that construction of the project results in direct or indirect damage to any such property or structure, the Proponent shall arrange and fund repair of the damage to a standard comparable to the in existence prior to	Stage 1 and 2	Preconstruction and Construction	Open	The WC2NH Project has been designed to minimise the impacts to private property and private property structures. AFJV has obtained building condition surveys of existing structures located adjacent to the alignment to ensure all damage is rectified to the pre-existing standard prior to construction commencing. Several issues have been raised regarding potential

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	the damage.				impacts to property from the Project works during the reporting period. The Project has a process in which a third party assessor will review the claim and repairs will be undertaken if necessary.
C20	The Proponent shall ensure that access to all properties is maintained during construction unless agreed with the property owner in advance and that any access physically affected by the Project is reinstated to at least an equivalent standard, in consultation with the landowner.	Stage 1 and 2	Construction	Open	The AFJV will ensure that access to properties is maintained during construction. No complaints have been received in relation to this condition during the reporting period.
C21	The Proponent shall in consultation with relevant landowners construct the project in a manner that minimises intrusion and disruption to agricultural operations/activities in surrounding properties (e.g. stock access, access to farm dams etc.).	Stage 1 and 2	Construction	Open	AFJV has consulted with relevant landowners on construction of the project, addressing construction activities and approach to minimise intrusion and disruption to agricultural operations/activities in surrounding properties (e.g. stock access, access to farm dams etc.). AFJV has provided stock access through the alignment where necessary. AFJV have also allowed access to creeks and waterways along the alignment for cattle as there is currently drier than average conditions.
	Property and landuse – forestry impacts				
C22	Where the project traverses Nambucca, Newry and Little Newry State Forests, the Proponent shall in consultation with DPI (Forestry) ensure that construction activities do not unduly disrupt existing forestry activities, access for firefighting and recreation activities during construction.	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has consulted with Forestry Corporation to ensure that construction activities do not unduly disrupt existing forestry activities, access for firefighting and recreation activities during construction. Forests NSW were notified in May 2015 that vegetation clearing was due to commence and access through the alignment would be limited. No issues were raised by

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					Forests NSW regarding impacts to access, fire-fighting or recreational use. The Project is in regular communication with Forests NSW to ensure there are no impacts to access for forestry operations.
	Traffic impacts				
C23	Road dilapidation reports shall be prepared for all local roads likely to be used by construction traffic prior to use by construction heavy vehicles. A copy of the relevant report shall be provided to the relevant Council. Any damage resulting from the construction of the project, aside from that resulting from normal wear and tear, shall be repaired at the cost of the Proponent. The roads likely to be used by heavy construction vehicles should be identified in the Traffic Management Plan required under condition B31 (a).	Stage 1 and 2	Preconstruction and Construction	Open	In accordance with the approved Traffic and Safety Management Plan, a road dilapidation review has been undertaken by the Project for i) the Pacific Hwy and ii) Local Roads affected by the project. A copy of the dilapidation report has been provided to the relevant road authority, RMS and Nambucca Shire Council respectively.
	Waste management				
C24	The Proponent shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*, if such a licence is required in relation to that waste.	Stage 1 and 2	Preconstruction and Construction	Open	No waste generated offsite is being brought on to the project.
C25	The Proponent shall maximise the reuse and/or recycling of waste materials generated on site as far as practicable, to minimise the need for treatment or	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has detailed the requirements of this condition within the approved Waste and Energy Management Plan (WEMP). The Plan includes measures to reduce wastage

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	disposal of those materials off site.				and provide recycling for construction waste. The Project has reused crushed concrete and demolition materials on site. Recycling receptacles are available for comingled paper, cardboard, plastics, etc. The Project is also currently reusing mulch material generated on the Project and excess soil material is being incorporated into noise and visual barriers.
C26	The Proponent shall ensure that all liquid and/or non-liquid waste generated on the site is assessed and classified in accordance with *Waste Classification Guidelines* (DECC, 2008), or any future guideline that may supersede that document and where removed from the site is only directed to a waste management facility lawfully permitted to accept the materials.	Stage 1 and 2	Construction	Open	AFJV has detailed the requirements of this condition within the approved Waste and Energy Management Plan (WEMP). All liquid and non-liquid wastes are classified prior to transportation and disposal. The waste classification is recorded in the AFJV Waste Tracking Register for all materials removed from site. All wastes are being classified and recorded in accordance with EPA's guidelines.
	Ancillary facilities				
C27	Unless otherwise approved by the Director General in accordance with this condition, the sites for ancillary facilities associated with the construction of the project shall: a be located more than 50 metres from a waterway; b have ready access to the road network or direct access to the construction corridor; c be located in areas of low ecological significance and require minimal clearing of native vegetation (not beyond that already required by the project); d be located on relatively level land;	Stage 1 and 2	Construction	Open	Both the main site compounds in the northern and southern ends of the Project have been approved under Major Consistency Reviews and were both compliant with this condition. The approved methodology - Methodology for Aboriginal and Historical Heritage Investigation for Works Outside the Project Corridor", is incorporated as Appendix A to the approved Heritage Management Plan for implementation by AFJV. An approval from the DP&E was received on 17 December 2015 for the Northern Concrete Batch plant to operate within 300m of a nearby sensitive receiver.

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
	e be separated from the nearest residences by at least 200 metres (or at least 300 metres for a temporary batching plant); f be above the 20 ARI flood level unless a contingency plan to manage flooding is prepared and implemented; g not unreasonably affect the land use of adjacent properties; h provide sufficient area for the storage of raw materials to minimise, to the greatest extent practical, the number of deliveries required outside standard construction hours; and i be located in areas of low heritage conservation significance (including identified Aboriginal cultural value) and not impact on heritage sites beyond those already impacted by the project. Ancillary sites identified that do not meet the above criteria shall be assessed against this criteria to demonstrate how any impacts can be mitigated and managed to acceptable standards (including demonstrating consistency with project impacts identified in the documents listed under condition 41, to the satisfaction of the Director General. Such assessment(s) can be submitted separately or as part of the Construction Environmental Management Plan required under condition B30.				A Major Consistency Review to construct and operate a concrete batch plant opposite Scotts Head Road, Macksville was approved during the reporting period. An approval to place the batch plant within 300m of a residents was received from DP&E on the 28/9/17. A Major Consistency Review to construct and operate an asphalt batch plant at 124 Albert Drive, Warrell Creek was approved during the reporting period. This facility is more than 300m from the nearest residence.
C27A	a The Proponent may undertake archaeological investigations at ancillary sites that do not meet the criterion set out in condition C27(i) of this approval, where this is required to assess the potential non-	Stage 1 and 2	Preconstruction and Construction	Open	Archaeological assessments of nominated ancillary site facilities have been undertaken in accordance with the approved Methodology for aboriginal heritage and historic investigation for works outside the project corridor. The

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
	Aboriginal and Aboriginal archaeological impacts of the ancillary facility on previously unidentified heritage sites. b Any archaeological investigations undertaken under this condition must be undertaken consistent with the Construction Heritage Management Plan required under Condition B31 (e) or a methodology prepared in consultation with OEH and approved by the Director General. c The results of any relevant archaeological investigations undertaken under this condition must be described				assessment results have been provided to Roads and Maritime and the ER as part the Consistency Review for the Albert Drive Compound and the Northern Compound. No impacts to areas or items of heritage significance have been undertaken for either of the Ancillary Site Facilities approved for the Project. The Project currently has a register of Minor Ancillary Facilities that is provided to the ER for approval. There are currently 19 approved Minor Ancillary Facilities on the Project. The register compares the Minor Ancillary Facility to this condition and also to C27. No archaeological investigations were required for the concrete batch plant located near Scotts Head Road, Macksville.

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
C28	The Director General's approval is not required for minor ancillary facilities (e.g. lunch sheds, office sheds, and portable toilet facilities) that do not comply with the criteria set out in condition C27 of this approval and which: a are located within an active construction zone within the approved project footprint; and b have been assessed by the Environmental Representative to have: (i) minimal amenity impacts to surrounding residences, with consideration to matters such as noise and vibration impacts, traffic and access impacts, dust and odour impacts, and visual (including light spill) impacts, and (ii) minimal environmental impact in respect to waste management, and no impacts on flora and fauna, soil and water, and heritage beyond those approved for the project; and c have environmental and amenity impacts that can be managed through the implementation of environmental measures detailed in a Construction Environment Management Plan for the project.	Stage 1 and 2	Preconstruction and Construction	Open	The Project currently has a register of Minor Ancillary Facilities that is provided to the ER for approval. There are currently 19 approved Minor Ancillary Facilities on the Project. The register compares the Minor Ancillary Facility to this condition and also to C27.
	Part D – Prior to Operations				
	Operational Environment Management System				
D1	Prior to the commencement of operation, the Proponent shall incorporate the project into its existing environmental management system.	Stage 1 and 2	Operations	Open	RMS will incorporate the works as executed within RMS operational management systems per the requirements for both stage 1 and stage 2 within 6 months of the stages being deemed fully operational.

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
	Part E – During Operations				
	Operational noise				
E1	Within 12 months of the commencement of operation of the project, or as otherwise agreed by the Director General, the Proponent shall undertake operational noise monitoring to compare actual noise performance of the project against noise performance predicted in the review of noise mitigation measures required by condition C12 and prepare an Operational Noise Report to document this monitoring. The Report shall include, but not necessarily be limited to: a noise monitoring to assess compliance with the operational noise levels predicted in the review of operational noise mitigation measures required under condition C12 and documents specified under condition A1 of this approval; b a review of the operational noise levels in terms of criteria and noise goals established in the Environmental Criteria for Road Traffic Noise (EPA, 1999); c methodology, location and frequency of noise monitoring undertaken, including monitoring sites at which project noise levels are ascertained, with specific reference to locations indicative of impacts on sensitive receivers; d details of any complaints and enquiries received in relation to operational noise generated by the project between the date of commencement of operation and the date the report was prepared;	Stage 1 and 2	Operations	Open	Not yet commenced.

CoA No.	Requirement	Stage	Timing	Status	Reference / Comment
	e any required recalibrations of the noise model taking into consideration factors such as actual traffic numbers and proportions; f an assessment of the performance and effectiveness of applied noise mitigation measures together with a review and if necessary, reassessment of all feasible and reasonable mitigation measures; and g identification of any additional feasible and reasonable measures to those identified in the review of noise mitigation measures required by condition C12, that would be implemented with the objective of meeting the criteria outlined in the *Environmental Criteria for Road Traffic Noise* (EPA, 1999), when these measures would be implemented and how their effectiveness would be measured and reported to the Director General and the EPA. The Proponent shall provide the Director General and the EPA with a copy of the Operational Noise Report within 60 days of completing the operational noise monitoring referred to a) above and no later than 12 months after the date of the commencement of operation, or as otherwise agreed by the Director General.				

Appendix E.2 Revised statement of commitments

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	Environmental management				
M1	The head contractor for the project will have an environmental management system.	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA B30 and B31 for status update.
M2	Suitably qualified and experienced personnel will develop and implement project specific environmental management plans and procedures, incorporating as a minimum the mitigation and management measures in the environmental assessment.	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA B30 and B31 for status update.
M3	RTA and the contractor will implement a performance and compliance program.	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA B25 for status update.
	Community consultation				
CC1	Keeping the community informed will include: • regular project updates. • prior notice of project activities. • changes to traffic and access and works outside standard working hours. • contact details for enquiries. Targeted consultation with affected individuals or groups will occur as necessary (e.g. waterway users, farmers, noise affected residents, etc.).	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA B28 for status update.

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
CC2	Complaint management will include: • A published 24 hour toll free complaints number. • Directions on how to register a complaint. • Acknowledgment of complaints within eight working hours. • Complaint recording. • Tracking of complaints until resolution.	Stage 1 and 2	Preconstruction and Construction	Open	AFJV have implemented a Construction Complaints Management System consistent with AS 4269 Complaints Handling. AFJV has established the following methods and tools for community complaints and enquiries about construction activities: (a) a telephone number for registration of complaints and enquiries (b) a postal address enabling written complaints and enquiries to be received (c) an email address to which electronic complaints and enquiries may be transmitted. An advertisement advising of the commencement of Early Works was undertaken on the 31/11/2015 and was presented in the Bellingen Shire Courier-Sun on 31/10/2015
	Traffic and transport				
T1	Construction vehicle movements and work programs will incorporate traffic control measures to minimise traffic and transport impacts on local roads and the existing Pacific Highway.	Stage 1 and 2	Preconstruction and Construction	Open	The Traffic Management & Safety Plan (TM&SP) has been prepared by AFJV and approved by DP&E on the 16/12/14. In accordance with the TM&SP, AFJV will submit Area / Discipline specific Traffic Management Plans (TMP) to the Roads and Maritime Representative. The TMP has been implemented to identify the Traffic Control Plans, access requirements and vehicle movement plans to ensure adequate and safe accesses are provided

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
					to minimise impact to all road users. The TMP details the specific road safety and traffic management measures that will be applied during the staged delivery of the elements of a specific area of the project.
T2	Any use of non-arterial roads by construction traffic will require the preparation of pre-construction and post construction dilapidation reports, with copies to go to the relevant roads authority. Repair of any damage resulting from construction (normal wear and tear), will occur, unless there are alternative arrangements with the relevant roads authority.	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA B23 for status update
T3	Construction vehicle movement arrangements will limit impacts on other road users (including pedestrians, vehicles, cyclists and disabled persons), having regard to other road works in the area, local traffic movement requirements, and peak traffic volumes, including those during long weekends and holiday periods.	Stage 1 and 2	Preconstruction and Construction	Open	The Project must comply with the Road Occupancy Licence (ROL) regime, which limits the use of traffic control during peak times, weekends and major events/holiday periods. TCP's are developed to incorporate all road users and construction requirements. Vehicle Movement Plans (VMP) are developed to ensure that all construction personnel are aware of the permitted vehicle movements, inter action between plant and workers on foot and any site specific details such as bus stops, pedestrian routes and characteristics of local vehicle movements.
T4	Where the Proposal temporarily or permanently affects any legal property access, the provision of feasible and reasonable alternative access to an equivalent standard will be necessary, unless a property owner agrees to alternative arrangements.	Stage 1 and 2	Preconstruction and Construction	Open	AFJV consults with relevant landowners on construction of the project, addressing construction activities and approach to minimise intrusion and disruption to property access. Property access has been maintained to an equivalent standard unless agreed with the resident.

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
T5	Construction vehicle movements and work programs will incorporate traffic control measures to maintain access to state forests.	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA B22 for status update
	Noise and vibration				
N1	Further investigation of all feasible and reasonable mitigation and management measures to minimise construction noise at sensitive receivers will occur as part of detailed design (including consideration of early implementation of operational noise mitigation measures). Noise and vibration monitoring will measure against predicted levels and assess effectiveness. Implementation of further feasible and reasonable mitigation measures will occur where necessary.	Stage 1 and 2	Preconstruction, Construction and Operation	Open	Measures to minimise construction noise have been investigated during detailed design. Mitigation measures have been incorporated into the approved Noise and Vibration Management Plan (NVMP). The NVMP also prescribes the noise monitoring requirements to be undertaken during construction. Visual and noise mounds have been included in the detailed design and have been constructed as early as practical during the construction phase. Noise mounds in the vicinity of Albert Drive, Rosewood Drive and Mattick Road are currently under construction. Roads and Maritime will undertake at residence noise mitigation treatments in regards to operational noise mitigation early in the construction program.
N2	Consultation with affected education institutions during construction works in their vicinity will attempt to limit audible construction works during important events, such as examination periods.	Stage 1 and 2	Construction	Open	Noise sensitive areas have been investigated as part of developing the NVMP covering requirements for mitigation of potential noise impacts to educational institutions during construction. It is noted that the nearest educational institute is located approximately 400m to the west of the alignment at the floodplain south of Nambucca River.
N3	Best practice mitigation and management measures will be used to minimise construction noise and vibration at	Stage 1 and 2	Preconstruction and Construction	Open	Mitigation measures are incorporated into the approved NVMP.

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	sensitive receivers.				This is addressed in MCoAs C3 to C11 in regards to construction noise.
N4	Construction would normally be limited to the following hours: • Between 6am and 6pm Monday to Friday. • Between 7am and 4pm Saturday. There would be no works outside these hours or on Sundays or public holidays except: a) Works that do not cause construction noise to be audible at any sensitive receivers. b) For the delivery of materials required outside these hours by the Police or other authorities for safety reasons. c) Where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm. d) Any other work as agreed through negotiations between the RTA and potentially affected sensitive receivers. Any such agreement must be recorded in writing and a copy kept on site for the duration of the works. e) Where the work is identified in the CNVMP and approved as part of the Construction Environmental Management Plan. f) As agreed by Department of Planning and or Department of Environment, Climate Change and Water in an EPL for the construction of the Proposal Local residents and the Department of Environment, Climate Change and Water	Stage 1 and 2	Preconstruction and Construction	Open	The requirements of this SoC are included within the approved NVMP Sub-plan for implementation by AFJV during construction. Refer to CoA C3 & C4 for status update.

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	must be informed of the timing and duration of work approved under items (d) and (e) at least 48 hours before that work commences.				
N5	All reasonable attempts will be made to contact sensitive receivers located within 500 metres of a blast location. The contact will be at least 48 hours before a blast and will include a schedule of blast time(s), and a telephone contact name and number.	Stage 1 and 2	Preconstruction and Construction	Closed	The Project's Blast Management Plan outlines the requirements for community consultation leading up to a blast. The Blast Management Plan includes notification to be made with residents 500m from the blast at least 48 hours prior to the blast via email or SMS which will include the date, time and no. of blasts. This was undertaken throughout the production blasting program which was completed on the 31/8/16.
N6	Where complaints relating to noise or vibration impacts as a result of extended workings cannot be satisfactorily resolved with the affected residents then works hours will revert back to standard working hours at that particular location for that particular activity. Resident(s) will be consulted before recommencing any works outside standard working hours. Any complaints received in relation to working hours will be made available to DoP and DECCW.	Stage 1 and 2	Construction	Open	The requirements of this SoC are included within the NVMP Sub-plan and OOHW Procedure for implementation by AFJV during construction. No complaints have been received during the reporting period in relation to works occurring outside of standard construction hours.
N7	Confirmation of all feasible and reasonable mitigation and management measures to minimise operational noise at sensitive receivers will occur as part of detailed design. Implementation of the measures would occur as construction proceeds.	Stage 1 and 2	Preconstruction, Construction and Operations	Open	The Operational Noise Modelling and Mitigation Report is currently in draft form and is being finalised following EPA review. Roads and Maritime have commenced at-house noise treatments to mitigate operational noise impacts to over 150 residences. Residences that are highly affected have been targeted in the first package and remaining residences will be progressively rolled out over the course

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
					of the project. To date • RMS have engaged the contractor GHD to manage the house noise mitigation (AHNM) treatments at the 165 houses identified as needing to receive. To date, 20 houses in key areas such as Letitia close have had mitigations, such as double glazing and/or air conditioners, installed. As of 8 February 2017 a further 43 houses had the AHNM treatments partially completed. RMS is implementing all these AHNM treatments with the intent of completion before the works are functioning at operational design speeds. Installation of the AHNM works will be on going until project practical completion is reached which at this stage (weather permitting) is anticipated for early 2018. The remaining houses will be progressively packaged for treatment. AFJV have also undertaken some additional house treatments to assist residents in this area such as air conditioning units and screening fences. The combination of all activities has contributed to reduced complaints regarding project activities.
N8	Monitoring of operational noise will be undertaken within one year after completion of construction. If monitoring indicates a clear trend that traffic noise levels exceed those	Stage 1 and 2	Operations	Open	Not yet required

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	predicted, investigation of all further feasible and reasonable management measures will occur. Consultation with a suitably qualified and experienced acoustic specialist and the affected property owner will be necessary during the development of any additional mitigation measures.				
	Flora and Fauna				
F1	Clearing of native vegetation (including endangered ecological communities (EECs)) will be restricted to the minimum area necessary for construction.	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA C1 for status update.
F2	A qualified ecologist will identify any vegetation (including Marsdenia longiloba) to be retained and to be clearly delineated on work plans within the construction corridor. Erection of flagging/fencing on-site prior to any construction works, which is to remain in place for the full construction period, will clearly delineate this vegetation.	Stage 1 and 2	Preconstruction and Construction	Open	A qualified Project Ecologist has been engaged by AFJV as part of the project team to advise on erection of vegetation flagging/fencing to be in place throughout construction. Flagging is inspected on a weekly basis and reinstated where needed.
F3	A threatened flora survey will be undertaken prior to clearing to identify individuals to be translocated and to confirm the extent of clearing. Erection of exclusion fencing to prevent any further encroachment into Newry State Forest to the east of the construction footprint. Threatened species directly impacted by the Proposal will be translocated to a suitable location outside the impact	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has undertaken ground truthing ecological surveys of the alignment to identify threatened flora individuals that require translocation. Threatened flora noted in the Threatened Flora Management Plan as Directly or Indirectly impacted have been translocated to protected areas outside of the clearing limits. These areas have been delineated with no-go zone fencing and signage. Additional threatened plants have been identified during the Pre-clearing inspections undertaken by the Project Ecologist. These plants have been translocated in accordance with

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	zone. A further visual inspection will be conducted post clearance to identify threatened species which may be indirectly impacted outside the cleared zone. Landscape planting to commence along the road boundary as soon as possible during construction.				the TFMP. **Note: requirements for Newry State Forest not applicable to Project (Newry State Forest north of WC2NH).** The Urban Design and Landscape Plan has been approved by the DP&E. Permanent landscaping including batter stabilisation has commenced in accordance with this Plan.
F4	Plantings of rusty plum (*Amorphospermum whitei*) in areas of suitable habitat adjacent to the Proposal will follow from seed collection and propagation.	Stage 1 and 2	Construction	Open	Seed collection and propagation of *A.whitei* is being managed by Eco's Environmental on behalf of AFJV in accordance with the TFMP. The individuals will be nursery raised and planted along the alignment once suitable.
F5	Site induction of construction workers will inform and instruct them of vegetation to be retained and on the identification of threatened species	Stage 1 and 2	Preconstruction and Construction	Open	The site induction covers the identification of key threatened flora species located along the alignment.
F6	A suitably qualified ecologist will undertake pre-clearance surveys for threatened species including frogs. Searches will include nests and hollow bearing trees. Re-location of fauna species at risk of injury found in pre-clearance surveys or during construction will be in suitable habitat as close as possible to the area in which they were found. Immediately prior to clearing an inspection will confirm that the sites subject to pre-clearance surveys remain free of fauna.	Stage 1 and 2	Preconstruction and Construction	Open	A qualified Project Ecologist has been engaged by AFJV as part of the project team. The Project Ecologist undertakes inspections of all areas prior to clearing to inspect for potential fauna habitat, nests and hollow bearing trees. Fauna at risk of injury is relocated outside of the clearing area where practical.
F7	Where feasible and reasonable the identification and distribution of natural and artificial habitat features and resources (such as hollow-bearing trees, hollow logs, nest boxes and bush rocks) will occur along the Proposal. This	Stage 1 and 2	Preconstruction and Construction	Open	The AFJV Project Ecologist has identified hollows and coarse woody debris that has been reused within the Project alignment for habitat.

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	relocation will limit injury to fauna and damage to existing vegetation. A nest box plan will be developed for the Proposal.				The Nest Box plan prepared by Roads and Maritime was approved by DP&E on 20/03/2013. All nest boxes to be installed prior to clearing commencing have been installed. Installation of next boxes post clearing is now complete.
F8	Retention of mature trees in the median at locations identified in the environmental assessment will provide a stepping stone for gliders. Protection of these trees will occur (F2), and lopping and pruning is not to occur without expert advice.	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA B4 for status update.
F9	Provision of fauna crossings will be as identified in the environmental assessment. All fauna crossings will be confirmed with the DECCW and I&I (Fisheries) during the detailed design phase.	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA B1, B2 and B3 for status update.
F10	Design and construction of waterway crossings will be in accordance with the fish habitat classification of each waterway and in consultation with the Department of Industry and Investment. All fauna crossings will be confirmed with the DECCW and I&I (Fisheries) during the detailed design phase.	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA B5 for status update.
F11	Erection of fauna exclusion fencing (e.g. floppy-top fencing) along the Proposal at appropriate locations will direct fauna movement towards fauna-crossing structures.	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA B3 for status update.
F12	Development of an offset strategy will occur in consultation with the Department of Environment, Climate Change and Water.	Stage 1 and 2	Preconstruction, Construction and Operations	Open	Refer to CoA B8 for status update.

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
F13	A targeted, adaptive monitoring program will be undertaken for a minimum of 12 months to assess the effectiveness of fauna and flora impact mitigation measures. After 12 months a report will be completed to assess the need for additional measures and/or further targeted monitoring.	Stage 1 and 2	Preconstruction and Construction	Open	The Ecological Monitoring Program was approved by DP&E as part of the Flora and Fauna Management Plan on the 16/12/14. An Annual Report of the Ecological Monitoring outcomes was produced after the first year of construction. A second Annual Report will be produced during the next reporting period.
F14	The RTA will set bed levels for culverts and ledges for combined fauna passage in consultation with the Department of Environment, Climate Change and Water.	Stage 1 and 2	Preconstruction and Construction	Open	Early design consultation with DPI (Fisheries) have been undertaken and included in tender documentation. The culverts requiring fish passage as agreed with Fisheries have been noted in Table 4.1 of the SWTC. The Design is currently progressing to incorporate the requirements of Table 4.1. The bed levels and ledges for fauna culverts have been designed. AFJV has provided agencies with design drawings for review and comment. Issues are being raised at the monthly ERG meetings and closed out through site visits and/or ongoing communication.
	Aboriginal heritage				
AH1	The protection of items and areas of archaeological significance not directly affected by construction will occur.	Stage 1 and 2	Preconstruction and Construction	Open	Heritage sites identified during the EA and subsequent Cultural Heritage Assessments are identified on the Project's Sensitive Area Plans. The areas are flagged on site with no-go zone flagging and signage to prevent

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
					construction access.
AH2	There will be protocols will be established and implemented to manage any previously unidentified Aboriginal objects or skeletal remains encountered during construction. All works in the vicinity of the find will cease to obtain Aboriginal heritage specialist advice and inform the Department of Environment, Climate Change and Water.	Stage 1 and 2	Preconstruction and Construction	Open	The approved HMP incorporates specific plans and procedures including Roads and Maritime Standard Management Procedure – Unexpected Heritage Items
AH3	The management of any Aboriginal heritage items directly affected will be in consultation with Aboriginal stakeholders and the Department of Environment, Climate Change and Water.	Stage 1 and 2	Preconstruction and Construction	Open	Archaeological Salvage works have been undertaken by Roads and Maritime in consultation with Aboriginal stakeholders and DP&E. Sites located within the Project Boundary have been cleared to commence construction. Subsequent Cultural Heritage Assessments undertaken for the Project have not identified any Aboriginal Heritage items that will be directly affected. However a section of the permanent design in the southern section of the Project will require salvage of an artefact. The Cultural Heritage Assessment for this work has been provided to the RAP's and the proposed design was discussed during the Aboriginal Focus Group, including OEH during a meeting in September 2015. The item has been salvaged and provided to the RAP's for safe keeping until the end of the Project. RMS will provide correspondence to DP&E closer to project completion verifying reburial if required.
AH4	All construction personnel will receive training on their obligations for protection of Aboriginal cultural materials, including information on site locations, conservation	Stage 1 and 2	Preconstruction and Construction	Open	The HMP includes an Aboriginal heritage education and training package.

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	management and legal obligations in regard to Aboriginal cultural materials.				AFJV will implement the requirements of the HMP and subordinate management procedures, and training packages for heritage induction and training. The first training session was held in October 2015.
AH5	The RTA will comply with the NSW Government's *Aboriginal Participation in Construction Guidelines*.	Stage 1 and 2	Preconstruction and Construction	Open	An Aboriginal Participation Plan is currently being implemented by AFJV. Compliance with the Aboriginal Participation Plan is discussed in the regular Aboriginal Focus Group Meetings.
	Non-Aboriginal heritage				
NH1	The detailed design will minimise impacts to identified non-Aboriginal heritage items where feasible and reasonable.	Stage 1 and 2	Preconstruction and Construction	Open	Relevant site surveys for WC2NH (Ferry Punt at Boulton Hill, and old municipal tips) have been undertaken to determine relevant sites, these areas have been identified with no-go zone flagging and signage. The detailed design has avoided impacts to non-aboriginal heritage items identified in the approved HMP.
NH2	If any material of potential archaeological significance is unearthed, work will cease to obtain specialist heritage advice.	Stage 1 and 2	Construction	Open	The approved HMP incorporates specific plans and procedures including Roads and Maritime Standard Management Procedure – Unexpected Heritage Items
NH3	Preparation of archival and photographic records for impacted heritage items would be in accordance with relevant guidelines.	Stage 1 and 2	Preconstruction and Construction	Open	The Old Farm House in North Macksville has been subject to archival recording during demolition in accordance with relevant procedures and guidelines. The archival recording has been undertaken by the Project Archaeologist/Heritage consultant – Jacobs.

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	Water quality and hydrology				
W1	Minimisation of the area of soil exposure during construction.	Stage 1 and 2	Preconstruction and Construction	Open	The Project works are inspected on a fortnightly basis by the Project Soil Conservationist who provides guidance and advice to reduce the area of soil exposed during construction. The clearing and topsoil strip phases of construction have been undertaken progressively to avoid exposing soil to erosion. Batter stabilisation and progressive rehabilitation has commenced and will be ongoing until earthworks are complete.
W2	Detailed design will further investigate any additional feasible and reasonable mitigation and management measures to minimise construction erosion and sedimentation.	Stage 1 and 2	Preconstruction and Construction	Open	Sediment basins and other water quality control measures have been designed and managed by AFJV during the detailed design phase. These have been further developed and managed by AFJV and the Project Soil Conservationist after the detailed design was released. The design of the alignment aims to minimise the footprint where possible in order to minimise potential for erosion and sedimentation.
W3	Monitoring of groundwater impacts and surface water quality upstream and downstream of the site during construction will determine the effectiveness of mitigation strategies. Implementation of additional feasible and reasonable management measures will occur if necessary.	Stage 1 and 2	Preconstruction and Construction	Open	The SWMP incorporates a: • Water Quality Monitoring Program; and • Groundwater Management Strategy AFJV is currently undertaking the monitoring of groundwater and surface water during construction in accordance with the approved plans. Monitoring results are discussed during the monthly ERG meetings and are provided to the EPA in the EPA Monthly Report. Monitoring

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
					data is also available on the ACCIONA website.
W4	Development and implementation of specific construction measures for in-stream works to limit water quality impacts will occur in consultation with relevant government agencies.	Stage 1 and 2	Preconstruction and Construction	Open	AFJV have developed specific EWMS's for works in or near waterways. The EWMS's have been reviewed by DPI Fisheries and the EPA. DPI Fisheries are specifically notified prior to undertaking works in or near waterways. These areas are also regularly inspected during ERG meetings by DPI Fisheries and the EPA.
W5	Managing operational water quality will occur by applying RTA's Code of Practice for Water Management – Road Development and Management (1999).	Stage 1 and 2	Construction and Operations	Open	Operational water quality basins have been designed in accordance with the SWTC. Roads and Maritime will manage operational water quality during the operational phase.
W6	Investigation of the potential for changes in the groundwater table will take place before starting any major earthworks. Where a potential for change is identified, the significance of the change and any resultant impacts will be determined and measures to manage the changes will be designed and implemented as necessary.	Stage 1 and 2	Preconstruction and Construction	Open	Roads and Maritime has prepared the monitoring program and implementation for the pre and post construction requirements. AFJV is currently monitoring groundwater in accordance with the approved groundwater monitoring program. A Groundwater Management Strategy is a part of the approved SWMP. This Strategy includes management and mitigation measures for groundwater resource areas that may be impacted by the Project. Monitoring results for groundwater are discussed during the monthly ERG and any changes from the trigger levels are discussed in the EPA Monthly Report.
W7	Baseline monitoring of groundwater levels and chemical levels at cutting sites near springs, creeks or endangered	Stage 1 and 2	Preconstruction and Construction	Open	Roads and Maritime has undertaken baseline monitoring up to construction commencing. AFJV is currently implementing the construction-phase monitoring

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	ecological communities prior to construction commencing.				requirements.
	Soils and fill				
S1	Identification and management of Acid Sulphate Soils will be in accordance with the Guidelines for the Management of Acid Sulphate materials: Acid Sulphate Soils, Acid Sulphate Rock and Mono-sulphidic Black Ooze (RTA 2005).	Stage 1 and 2	Preconstruction and Construction	Open	The approved SWMP includes an Acid Sulphate Material Management Plan which is based on this guideline document. This is currently being implemented on site. A small quantity of Acid Sulphate soil has been generated from the piling works within the floodplain and adjacent to Nambucca River and Lower Warrell Creek. This has been treated in accordance with the approved SWMP.
S2	There will be identification, investigation and appropriate management of areas of potential soil contamination (including works in the vicinity of the old municipal tip site in Nambucca State Forest).	Stage 1 and 2	Preconstruction and Construction	Open	Potential contamination within and adjacent to the Project site has been assessed and will be managed in consideration of design requirements and construction. All known areas assessed in reports prepared by Coffeys, including the April 2014 report. Contaminated areas are managed in accordance with RMS specification requirements including the preparation and implementation of a Remedial Action Plan. In addition, procedures have been included within the SWMP in dealing with unexpected contamination detected during construction.
	Air quality				
AQ1	To minimise windblown, traffic generated or equipment generated dust emissions, there will be feasible and	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has detailed management and mitigation measures to achieve this requirement within the approved Air Quality Management Plan (AQMP).

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	reasonable mitigation and management measures.				Refer to CoA C2.
AQ2	Dust generating activities will stop where visible dust is being emitted outside the construction corridor and dust suppression measures are ineffective.	Stage 1 and 2	Preconstruction and Construction	Open	AQMP includes the locations of dust sensitive areas and indicative monitoring locations. Specific controls for managing potential for air quality (dust) impacts are prescribed within the approved AQMP. Refer to CoA C2.
	Greenhouse gases and energy				
G1	Wherever feasible and reasonable detailed design will consider whole of life reductions in greenhouse gas emissions and energy consumption.	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has detailed the requirements of this SoC within the approved Waste and Energy Management Plan (WEMP). The detailed design has endeavoured to reuse material won from the Project alignment to reduce the need for carting material to and from the worksite. The long term design also supports less vehicle emissions through smarter road design (e.g. less inclines, less stopping and starting, etc.).
G2	Energy efficient work practices will be adopted to limit energy use. Where reasonable and feasible, equipment and management measures will be adopted to minimise energy use and greenhouse gas production.	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has detailed the requirements of this SoC within the approved Waste and Energy Management Plan (WEMP). Construction machinery is inspected to ensure it is operating efficiently prior to commencing on site. Machinery is regularly maintained to minimise emissions. Operators are tool-boxed to switch of machinery when not in use. Solar lighting towers are also used when practical.
	Visual amenity and design				
UD1	The preparation of detailed urban and landscape design will be in consultation with Nambucca and Bellingen Shire councils and the community.	Stage 1 and 2	Preconstruction and Construction	Open	Refer to CoA B21

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	The detailed design and implementation of built elements and landscapes and the mitigation of residual impacts will be in accordance with the visual and urban design objectives and principles of the Proposal.				
UD2	The species to be used in the landscaping treatments will include native and locally indigenous plants.	Stage 1 and 2	Preconstruction and Construction	Open	Included in SWTC App 15, R176, R178 and R179 in regards to urban design and landscape treatments. Refer to CoA B21.
UD3	Landscape and rehabilitation works will be subject to monitoring and maintenance where necessary for a minimum of two years after construction.	Stage 1 and 2	Construction and Operation	Open	Not yet commenced
	Hazards and risks				
HR1	Hazardous materials used during construction will be stored in bunded areas within construction sites. Hazardous materials will not be stored on the floodplain below the 20 year ARI flood level. Use of hazardous materials in floodplain areas will be limited to a daily or weekly threshold. Containers, workshops, plant, material stores and storage tanks will not be sited on the floodplain of watercourses where avoidable.	Stage 1 and 2	Preconstruction and Construction	Open	These requirements are incorporated as part of the CEMP in the approved SWMP. For site/activity specific works, EWMS's have been prepared and implemented for the prevention and mitigation of potential hazards and risk. Hazardous materials are not stored within the floodplain or adjacent to creek lines.
HR2	Potentially hazardous and contaminating activities (such as washing construction plant and handling hazardous chemicals) and activities with the potential for spillage such as refuelling, maintenance of equipment, mixing of cutting oil and bitumen will be in bunded areas or in other areas where suitable containment measures are in place to prevent discharge into watercourses.	Stage 1 and 2	Preconstruction and Construction	Open	These requirements are incorporated as part of the approved SWMP. Activities that may cause contaminated run-off are undertaken in appropriately bunded areas.
	Waste and resource management				
WR1	The waste minimisation hierarchy principles of avoid / reduce / re-use / recycle / dispose will apply to all aspects	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has detailed the requirements of this SoC within the approved Waste and Energy Management Plan (WEMP).

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	of the Proposal, including work programs, purchase strategies and site inductions. Quarterly assessments will identify opportunities for improvement.				Waste management is reviewed quarterly in line with ACCIONA infrastructure internal reporting requirements.
WR2	Where reuse or recycling of water is not possible, it will be sent to an appropriately licensed facility.	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has detailed the requirements of this SoC within the approved Waste and Energy Management Plan (WEMP). Water is reused or disposed in accordance with the Environment Protection Licence 20533.
	Landuse and property				
P1	Negotiation of all property acquisitions will be in accordance with the RTA Land Acquisition Policy Statement. Compensation assessment will be in accordance with the Land Acquisition (Just Terms Compensation) Act 1991.	Stage 1 and 2	Preconstruction and Construction	Open	Property purchases have all been completed in February 2016. Refer CoA B24
P2	The Department of Industry and Investment will have access to state forest land identified for acquisition by RTA to remove any harvestable timber within the footprint of the Proposal prior to commencement of construction. Access to state forest land adjacent to the Proposal will provide for forestry operations, fire management activities and recreation purposes.	Stage 1 and 2	Preconstruction and Construction	Open	Roads and Maritime has reached agreement with Forestry Corporation in regards to this requirement, with proposal from Forestry Corporation on the work it will undertake in State Forests.
P3	Where the Proposal adversely affects a licensed bore, dam or other property water supply, RTA will investigate an alternate source or negotiate compensation for the loss with the landowner.	Stage 1 and 2	Preconstruction and Construction	Open	The Project has not impacted on any licenced bores to date. Supplementary water supplies (such as water tanks) have been provided to landowners where farm dams have been removed.
	Socio economic impacts				
S1	There will be ongoing consultation with affected businesses, agricultural and aquaculture landowners.	Stage 1 and 2	Preconstruction and Construction	Open	AFJV has an approved Community Involvement Plan (which covers the requirements of the Condition B28 Community Communication Strategy) to provide the mechanisms to facilitate communication between the

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
					Proponent, the Contractor, the Environmental Representative, the relevant Council and the local community (broader and local stakeholders) on the construction and environmental management of the project, covering all tasks and procedures in meeting the requirements of this SoC.
S2	The identification of utilities and services potentially affected by construction, including requirements for diversion, protection and / or support will occur prior to the start of construction. Consultation with the service providers will determine alterations to services, the limitation of disruptions and requirements for advice to customers.	Stage 1 and 2	Preconstruction and Construction	Open	The AFJV has actively consulted with Utilities providers and has prepared a design of the relocation of impacted public utilities. This is currently being implemented on site to prevent damage to necessary public utilities.
S3	Sites chosen for ancillary facilities will satisfy criteria outlined in Chapter 7 of the EA. Occupation and use of compound and work sites will seek to minimise disturbance to adjacent residents.	Stage 1 and 2	Preconstruction and Construction	Open	Consistency Assessments for two Ancillary Site Facilities (Southern Compound and Northern Compound) addressing the facilities compliance with the Planning Approval have shown the facilities are consistent with the EA and Planning Approval Ancillary Facilities are checked for compliance on a register which is regularly sent to the ER for approval. The register ensures the facility is compliant with this condition and the MCoA requirements. A Consistency Assessment was prepared and approved for a concrete batch plant near Scotts Head Road, Macksville during the reporting period. A Consistency Assessment to construct and operate an asphalt batch plant at 124 Albert Drive, Warrell Creek was approved during the reporting period. This facility is more than 300m from the nearest residence.
S4	Fencing will be erected around construction activities to prevent livestock from adjacent properties entering construction areas. Inclusion of water quality protection measures during the	Stage 1 and 2	Preconstruction and Construction	Open	Rural fencing was installed prior to the commencement of substantial construction to prevent livestock entering active construction zones. The works in-stream incorporate water quality protection

SoC No.	Requirement	Stage	Timing	Status	Reference / Comment
	installation of in-stream structures to protect aquaculture.				measures such as silt curtains and hydrocarbon booms.