Transport Roads & Maritime Services

NSW GOVERNMENT

# COMPLIANCE TRACKING REPORT

## Nambucca Heads to Urunga

**MAY TO NOVEMBER 2014**

# Document control

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## Tables



## Appendices

# Glossary / Abbreviations

| | |
|---|---|
| ASS | Acid sulfate soils |
| CEMP | Construction environmental management plan |
| Compliance audit | Verification of how implementation is proceeding with respect to a construction environmental management plan (CEMP) (which incorporates the relevant approval conditions). |
| CoA | Conditions of approval |
| CTP | Compliance Tracking Program |
| Director-General | Director-General of the NSW Department of Planning and Infrastructure (or delegate) |
| DP&I | Department of Planning and Infrastructure |
| EA | Environmental Assessment |
| Ecological sustainable development | Using, conserving and enhancing the community's resources so that the ecological processes on which life depends are maintained and the total quality of life now and in the future, can be increased (Council of Australian Governments, 1992). |
| EPA | NSW Environment Protection Authority |
| ERG | Environmental Review Group – comprising representatives of Roads and Maritime, Environmental Representative, Project delivery team, regulatory authorities (EPA, DPI – Fisheries Conservation and Aquaculture, NOW) and councils (Nambucca Shire Council, Bellingen Shire Council). The ERG will be maintained for the duration of the Project and will meet regularly and undertake environmental inspections. The role the ERG is to provide proactive advice on environmental management issues and review the environmental performance of the Project. |
| EMS | Environmental management system |
| Environmental aspect | Defined by AS/NZS ISO 14001:2004 as an element of an organisation's activities, products or services that can interact with the environment. |
| Environmental impact | Defined by AS/NZS ISO 14001:2004 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects. |
| Environmental incident | An unexpected event that has, or has the potential to, cause harm to the environment and requires some action to minimise the impact or restore the environment. |
| Environmental objective | Defined by AS/NZS ISO 14001:2004 as an overall environmental goal, consistent with the environmental policy, that an organisation sets itself to achieve. |
| Environmental policy | Statement by an organisation of its intention and principles for environmental performance. |
| Environmental target | Defined by AS/NZS ISO 14001:2004 as a detailed performance requirement, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set |

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| | and met in order to achieve those objectives. |
| Environmental Representative | A suitably qualified and experienced person independent of project design and construction personnel employed for the duration of construction. The principal point of advice in relation to all questions and complaints concerning environmental performance. |
| EP&A Act | *Environmental Planning and Assessment Act 1979* |
| EPL | Environment Protection Licence |
| Minister, the | Minister for Planning and Infrastructure |
| Non-compliance | Failure to comply with the requirements of the Project approval or any applicable license, permit or legal requirements. |
| Non-conformance | Failure to conform to the requirements of Project system documentation including this CEMP or supporting documentation. |
| NOW | NSW Office of Water |
| OEH | Office of Environment and Heritage |
| Project, the | The Warrell Creek to Urunga Project |
| Roads and Maritime | Roads and Maritime Services |
| SoC | Statement of commitments |

# 1 Introduction

## 1.1 Background

On behalf of the Australian and NSW governments, Roads and Maritime Services (Roads and Maritime) is progressively upgrading the Pacific Highway to dual carriageway between the Hunter and NSW/Queensland border.

In December 2006 the Warrell Creek to Urunga Project was declared by the Minister for Planning to be a Project to which Part 3A of the *Environmental Planning and Assessment Act 1974* applies. An Environmental Assessment was prepared and placed on public exhibition for 60 days between January and March 2010. Following consideration of submissions made during the exhibition period, the submissions report, including changes to the proposal following consideration of submissions, was submitted to the then Minister for Planning seeking approval. Approval of the Project was granted on 19 July 2011.

## 1.2 Project description and staging

The Nambucca Heads to Urunga Pacific Highway upgrade Project comprises approximately 42 kilometres of dual carriageway road that would bypass the towns of Warrell Creek, Macksville, Newee Creek and Bellwood.

The general features of the Project are:

- A 22 kilometre motorway style (class M) upgrade comprising of four-lane divided carriageways (two lanes each way), with a wide median allowing for the future addition of a third lane in each direction and a 110 kilometre per hour posted speed limit.
- Controlled access to the upgrade from four new grade separated interchanges and an upgrade to the existing Waterfall Way interchange at Raleigh.
- 37 bridges including new major highway bridges across Deep Creek at Valla and the Kalang River at Urunga.
- Retention of the existing highway as a local access road between Nambucca Heads and Urunga.
- Floodplain bridges and culverts across sections of the Kalang floodplain at Urunga.
- Low noise pavements at various locations.
- At residence noise treatments to houses in locations where required.
- Permanent spill containment basins at environmentally significant watercourse crossings.
- Combined fauna underpasses/drainage structures at river and creek crossings and key habitat locations.
- Combined drainage/underpass structures and a wide vegetated median for overhead fauna movement in sections of the Newry State Forest and adjacent to private land north of the Kalang River.
- Ancillary construction facilities, including compound sites, batching plant sites and stockpile sites.
- Public utility and service relocations including power lines, telecommunications, network water and sewer mains.

As described in the Warrell Creek to Urunga Pacific Highway Upgrade Environmental Assessment (the Project EA), the Project is proposed to be delivered in two main stages, being:

- Stage 1: Nambucca Heads to Urunga (Chainage 61,265 to Chainage 82,915), with a ramp and associated connections extending a further 0.5 kilometres north.
- Stage 2: Warrell Creek to Nambucca Heads (Chainage 41,765 to Chainage 61,265).

The split between Stage 1 and 2 is located to the north of the Nambucca interchange as shown on Figure 1-1. The extent of each of the stages is also shown on Figure 1-1. This Compliance Tracking Program provides details of compliance for Stage 1 only.

Construction of Stage 1 commenced on 5th December 2013. Stage 1 design and construction is being completed by Lend Lease's Engineering Business (the 'Contractor').

Note, chainage references have been updated since the Project EA where the chainages now reflect the distance north from Kempsey. The number 41,765 can be added to any old chainage referenced in the Project EA and supporting documentation to provide the equivalent chainage currently being used.

## 1.3 Purpose

The key objective of the Compliance Tracking Program (CTP) is to track compliance with the requirements of the Minister's Conditions of Approval (CoA) during the design and construction of Stage 1 of the Project.

The *Contractor* and Roads and Maritime together are responsible for compliance with the requirements of the CoA.

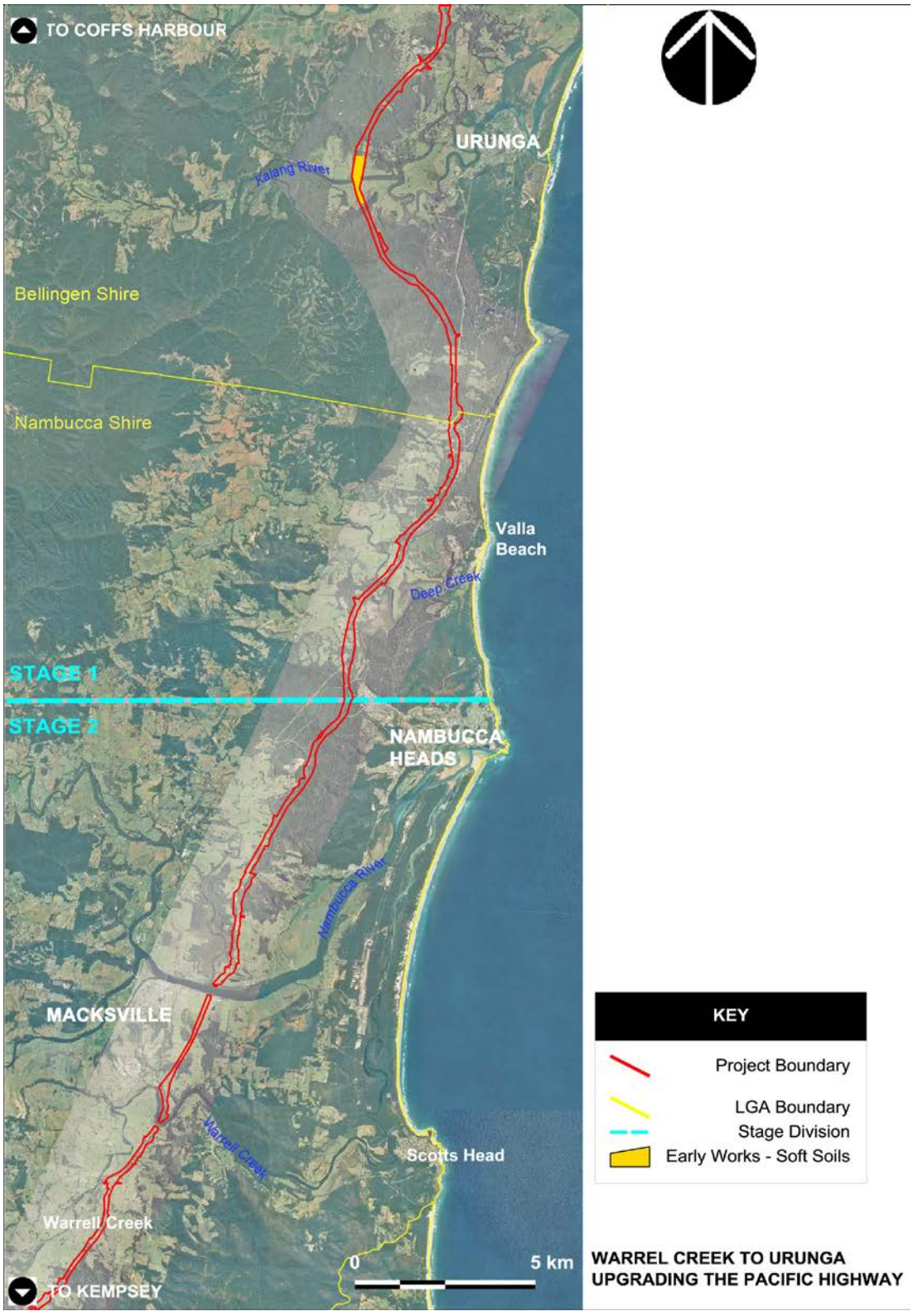
This compliance tracking report documents the review of compliance status for the reporting period May to November 2014.

## 1.4 Environmental management system overview

The Construction Environmental Management Plan (CEMP) is the primary system to manage and control the environmental aspects of the Project during pre-construction and construction. It also provides the overall framework for the system and procedures to ensure environmental impacts are minimised and legislative and other requirements are fulfilled. The strategies defined in the CEMP have been developed with consideration of the Project approval requirement, safeguards and mitigation measures presented in the environmental assessment and approval documents. The CEMP establishes the system for implementation, monitoring and continuous improvement to minimise impacts from the Project on the environment.

This CTP is separate to the CEMP, but is part of a suite of environmental management documents prepared for the Project.

**Figure 1-1 Location of Warrell Creek to Urunga Project**



## 1.5 Relevant documentation

Documentation relevant to the CTP includes:

- Upgrading the Pacific Highway - Warrell Creek to Urunga - Environmental Assessment (January 2010).
- Upgrading the Pacific Highway - Warrell Creek to Urunga – Environmental Assessment Submissions and Preferred Project Report (November 2010).
- Letter from the NSW Roads and Traffic Authority titled Pacific Highway Upgrade - Warrell Creek to Urunga Upgrade Addendum to Submissions Report - Fauna Crossing Structures, and accompanying attachments (May 2011).
- Letter from the NSW Roads and Traffic Authority titled Pacific Highway Upgrade - Warrell Creek to Urunga Upgrade Addendum to Submissions Report - Fauna Crossing Structures and accompanying attachments (June 2011).
- Minister's conditions of approval (July 2011).

# 2 Program requirements

The CTP has been prepared as a requirement of CoA B25. The CTP requirements, as stipulated by this CoA, are detailed in Table 1.

**Table 1 CoA requirements for CTP**

| CoA no. | | Requirement | 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: | This document |
| | (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). | Section 2.1 |
| | (b) | Provisions for periodic review of project compliance with the requirements of this approval, Statement of Commitments and documents listed under condition A1. | Section 2.2 |
| | (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. | Section 2.3 |
| | (d) | A program for independent environmental auditing in accordance with ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing. | Section 2.4 |
| | (e) | Mechanisms for reporting and recording incidents and actions taken in response to those incidents. | Section 2.5 |
| | (f) | Provisions for reporting environmental incidents to the Director General during construction and operation. | Section 2.6 |
| | (g) | Procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management. | Section 2.7 |

## 2.1 Director-General notification

CoA B25 (a) requirement:

*"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)."*

Construction commenced on stage 1 of the Project on the 5th December 2013 following approval by the Director-General of the relevant CEMP, associated environmental plans and other relevant documentation required by the approval. Further information on the staging of the Project is provided in the Warrell Creek to Urunga Pacific Highway Upgrade Staging Report *(Roads and Maritime, 13 May, 2013).*

Notification for the commencement of stage 1 construction was provided to the Director General on the 18-9-2013. Roads and Maritime will advise the Director-General in writing prior to the commencement of operation.

## 2.2 Period compliance review

CoA B25 (b) requirement:

*"Provisions for periodic review of project compliance with the requirements of this approval, Statement of Commitments and documents listed under condition A1."*

The successful contractor, on behalf of Roads and Maritime, will review the status of compliance and submit periodic construction compliance reports to the Director-General for each stage of construction at intervals including:

- Prior to the commencement of construction.
- Six months after the commencement of construction and then at six monthly intervals thereafter.
- Prior to the commencement of operation.

The compliance tracking tables (contained to Appendix A) form an integral part of this periodic review. These tables establish a format for recording compliance and include:

- Description of the environmental obligation.
- The stage of the project to which it relates.
- Status.

## 2.3 Period compliance reporting

CoA B25 (c) requirement:

*"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."*

Appendix A of this CTP documents the six month post construction review of compliance status.

In addition, at intervals prescribed in Section 2.2, the status of compliance will be reviewed and reported to the Director-General in the form of a compliance tracking report. The successful contractor for each stage of construction will have the responsibility for preparing these reports for the duration of the Project. Compliance tracking reports will typically include:

- Scope of the activities undertaken during the reporting period.
- Compliance with CoA, revised SoCs as recorded in the compliance tracking tables.
- Non-compliances during the reporting period.
- Detail of all incidents recorded and action taken during the reporting period.
- Outcomes of monitoring undertaken over the reporting period and review of compliance against relevant criteria.
- Significant outcomes of audits and ERG inspections undertaken during the reporting period.
- Detail of substantiated environmental complaints received, responses taken and current status (ie open or closed).

## 2.4 Independent environmental auditing

CoA B25 (d) requirement:

*"A program for independent environmental auditing in accordance with ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing."*

The successful contractors will ensure that independent audits are undertaken in accordance with ISO 19011:2003 - *Guidelines for Quality and/or Environmental Management Systems Auditing* at six monthly intervals throughout construction. The audits will assess compliance against the CoA and SoCs.

An independent environmental audit was undertaken over the 27 and 28 October 2014 to audit compliance with the requirements of the Project Approval, EPL and Roads and Maritime QA Specifications. A summary of the audit finds is provided in Section 7.

## 2.5 Incident reporting and response

CoA B25 (e) requirement:

*"Mechanisms for reporting and recording incidents and actions taken in response to those incidents."*

Roads and Maritime's Environmental Incident Classification and Reporting Procedure will be implemented for all environmental incidents for the Project. The full procedure is provided in Appendix A9 of CEMP.

Typically, environmental incidents will be notified verbally immediately and in writing within 1 hour of any incident occurring to the Roads and Maritime Representative and the Environmental Representative. Incident reports will be provided to Roads and Maritime Representative and the Environmental Representative within 24 hours of the incident occurring, including lessons learnt from each environmental incident and proposed measures to prevent the occurrence of a similar incident. All efforts will be undertaken immediately to avoid and reduce impacts of incidents and suitable controls put in place. Incidents will be close out as quickly as possible, taking all required action to resolve each environmental incident.

The EPA will be notified of any environmental incidents or pollution incidents on or around the site via the EPA Environment Line (telephone 131 555) in accordance with Part 5.7 of the *Protection of the Environment Operations Act 1997* (NSW) (POEO Act). The circumstances where this will take place include:

- If the actual or potential harm to the health or safety of human beings or ecosystems is not trivial.

- If actual or potential loss or property damage (including clean-up costs) associated with an environmental incident exceeds $10,000.

Roads and Maritime Environment Branch and Project team will maintain all records relating to environmental incidents.

A summary of environmental incidents is provided in Section 5.

## 2.6 Incident reporting to Director-General

CoA B25 (f) requirement:

*"Provisions for reporting environmental incidents to the Director General during construction and operation."*

The Director-General will be notified of incidents in writing in circumstances where:

- The actual or potential harm to the health or safety of human beings or ecosystems is not trivial.
- The actual or potential loss or property damage (including clean-up costs) associated with an environmental incident exceeds $10,000.

An initial notification to the Director-General will be made verbally within two working days. The written notification will be made within 10 working days.

Where incidents are considered to be minor, ie do not meet the criteria above, they will be reported to the Director-General in accordance with the compliance tracking program at frequencies prescribed in Section 2.2.

## 2.7 Addressing non-compliance

CoA B25 (g) requirement:

*"Procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management."*

Section 8.4 and Section 8.6 of CEMP describe in detail the system for tracking compliance prior to and during construction.

Where a non-compliance has been identified, a corrective/preventative action (or actions) will be implemented.

Corrective/preventative actions will be entered into the contractor's quality system database and include detail of the issue, action required and timing and responsibilities. The record will be updated with date of close out and any necessary notes. The database will be reviewed regularly to ensure actions are closed out as required.

The close-out of required actions will be reviewed during forums including Environmental Representative and ERG inspections, and the Environmental Representative will be actively involved in the review and resolution of non-compliances.

A summary of non-compliances for the reporting period is provided in Section 3.

# 3 Construction Works

The focus for construction works during this reporting period has been:

- Works associated with Pacific Highway intersection upgrades, local road upgrades;
- Project boundary fencing;
- Ancillary Facility establishments;
- Construction of basins;
- Mainline clearing;
- Topsoil stripping and bulk earthworks;
- Culvert and drainage installations;
- Bridge works and creek realignments;
- Soft soil foundations and treatments;
- Installation of bridging layers;
- Interchange construction;
- Pavement drainage works;
- Progressive temporary and permanent revegetation works.

Works completed between Chainage 61265 to 72900 (Nambucca Interchange to north of Ballards Rd) included:

- Intersection upgrades – Ballards, Boggy Creek and Valla Roads;
- Mainline clearing completed;
- Topsoil stripping completed;
- Bulk earthworks and drainage installation has progressed;
- Extensive bridge works in progress at Nambucca Rail Corridor, Boggy Creek, Cow Creek, Valla Road and Ballards Road;
- Deep Creek rock platform installation and piling works (northern piers);
- Creek realignment works have been completed at Boggy Creek, Cow Creek, Oyster Creek, McGraths 1 and McGraths 2 Creeks;
- Soft soil treatments at Deep Creek;
- Nambucca Interchange construction;
- Opening of Local Access Road D and closure of the East West Road intersection with the Pacific Highway;
- Pavement drainage installation north of Burkes Lane and Nambucca Interchange;
- Site 12B (batching ancillary facility) site establishment;
- Topsoiling of permanent batters and hydromulching;
- Service relocations;
- Remediation of contaminated site.

Works completed between chainage 72900 and 77600 (north of Ballards Road to the southern side of the Kalang River):

- Mainline clearing completed;
- Topsoil stripping completed;
- Bulk earthworks and drainage installation has progressed;
- Extensive bridge works in progress at Dalhousie Creek, Martells Road bridge and Kalang Floodplain bridge including, piling, pier construction and girder installations;
- Installation of a temporary bridge over the Kalang River to enable permanent bridge construction;
- Permanent bridge works at the Kalang River, including piling, scour installation, pier construction and girder installations;
- Soft soil treatment works on the South of Kalang River, including removal of surcharge material;
- Soft soil treatment works on Fill 31 and Fill 30;
- Creek realignment works have been completed at Dalhousie Creek;
- Blasting, crushing and screening at Cut 26;
- Martells Road temporary realignment;
- Opening of Local Access Road F;
- Topsoiling of permanent batters and hydromulching;

Works completed between chainage 77750 and 82915 (North of Kalang River to Waterfall Way)

- Mainline clearing completed;
- Topsoil stripping completed;
- Bulk earthworks and drainage installation has progressed;
- Extensive bridge works in progress at Local Access Road G, SB20, Short Cut Road bridge, SB23, SB24 and SB25;
- Soft soil treatment works on the North side of Kalang River;
- Installation of rock bridging layers north of Shortcut Road;
- South Arm Rd realignment works;
- Local Access Road G temporary realignment completed;
- Creek realignment works have been completed at SB20 (unnamed Watercourse).
- Waterfall Way Interchange construction in progress.
- Pavement drainage installation north of Kalang River.
- Topsoiling of permanent batters and hydromulching;
- Service relocations.
- Remediation of contaminated sites.

# 4 Non Compliances

No non-compliances with the CoA have been identified during this report period.

It is noted that the EPA has raised a possible non-conformance regarding NH2U's temporary waterway crossings and compliance with the guideline *Managing Urban Stormwater – Soils and Construction Volume 1* (Landcom, 2004) (the Blue Book). In response to EPA's concerns raised in September 2014, Lend Lease engaged a soil conservationist and the designers to review NH2U's temporary crossing design in reference to the Blue Book requirements (including Volume 2D, 2C and 1). Lend Lease provided this review to EPA on 3 November 2014 for consideration and further discussion. This matter is still under discussion.

# 5 Environmental Incidents

The following environmental incidents were recorded during this reporting period.

| *Date* | *Description* | *Action* |
|---|---|---|
| 9/05/2014 | During operation, a hose separation occurred on a truck and dog, resulting in a minor hydraulic oil spill (~15L) onto the ground. The spill did not extend beyond the immediate area or enter any water bodies. | The truck and dog was shut down immediately by the operator, the site spill response procedure was then implemented containing and cleaning up the spill. Minor repair was undertaken to the plant to rectify the fault. |
| 13/05/2014 | During operation, a hose separation occurred on a Moxy dump truck, resulting in a minor hydraulic oil spill (~20L) onto the ground. The spill did not extend beyond the immediate area or enter any water bodies. | The truck was shut down immediately by the operator, the site spill response procedure was then implemented containing and cleaning up the spill. Minor repair was undertaken to the truck to rectify the fault. |
| 13/05/2014 | During operation, a rock pierced the fuel tank of a truck, resulting in a diesel spill (~100L). The spill did not extend beyond the immediate area or enter any water bodies. | The truck was immediately moved 50m away from the closest waterway and shut down by the operator. The site spill response procedure was then implemented containing and cleaning up the spill. The fuel tank on the truck was replaced. |
| 13/05/2014 | During operation of a BPE backhoe, a mechanical fault occurred, resulting in a minor engine oil spill (~1L). The spill did not extend beyond the immediate area or enter any water bodies. | The vehicle was shut down immediately by the operator, the site spill response procedure was then implemented containing and cleaning up the spill. A service vehicle attended site to rectify fault. |
| 21/05/2014 | Minor spill (~5L) from hose separation on truck and dog. The spill did not extend beyond the immediate area or enter any water bodies. | The truck and dog was stopped immediately by the operator, the site spill response procedure was then implemented containing and cleaning up the spill. Minor repair was undertaken to the plant on site. |
| 22/05/2014 | An intermediate container containing concrete curing compound was temporarily stored on site outside of bunded storage area. | The curing compound was removed from location and transferred to an approved storage area. Site toolbox of chemical storage requirements. |
| 30/05/2014 | During normal operation a hose separation occurred on a piling rig, resulting in a minor hydraulic oil spill (~5L). The spill did not | The rig was shut down immediately by the operator, the site spill response procedure was then |

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| | extend beyond the immediate area or enter any water bodies. | implemented containing and cleaning up the spill. Minor repair was undertaken to the plant to rectify the fault. |
| 2/06/2014 | Testing of replaced couplings on a piling rig resulted in a minor hydraulic oil spill (~100-500mL). The spill did not extend beyond the immediate area or enter any water bodies. | The rig was shut down immediately by the operator, the site spill response procedure was then implemented containing and cleaning up the spill. All couplings were re-checked and re-tightened as a precaution to avoid any further leakage. |
| 3/06/2014 | During normal operation a hose separation occurred on a piling rig, resulting in a minor hydraulic oil spill (~5L). The spill did not extend beyond the immediate area or enter any water bodies. | The rig was shut down immediately by the operator, the site spill response procedure was then implemented containing and cleaning up the spill. Minor repair was undertaken to the plant to rectify the fault. |
| 11/06/2014 | During normal operation a hose separation occurred on a Franna crane, resulting in a minor hydraulic oil spill (~45L). The spill did not extend beyond the immediate area or enter any water bodies. | The crane was shut down immediately by the operator, the site spill response procedure was then implemented containing and cleaning up the spill. Minor repair was undertaken to the plant to rectify the fault. |
| 24/06/2014 | Whilst driving pile C-8B (Kalang Temp bridge) a hydraulic oil leak was detected on the power pack resulting in a small spill (~0.5-1L) of biodegradable hydraulic oil. The spill did not extend beyond the immediate area or enter any water bodies. | Piling activity was shut down immediately by the operator, site spill response procedure implemented containing and cleaning up the spill. Minor repair was undertaken to rectify the fault. |
| 2/07/2014 | A minor hydraulic oil spill (< 1L) into the Kalang River from a hose failure on the vibrating hammer. The spill was contained within the hydrocarbon containment boom that was in place during the works. | The rig was shut down immediately by the operator. Site spill response procedure was implemented including deployment of additional hydrocarbon boom and absorbent pads within the containment boom. Spill cleaned up and rig repaired. |
| 2/07/2014 | A hose separation occurred on a concrete pump, resulting in a minor diesel spill (3-4L) onto ground. The spill did not extend beyond the immediate area or enter any water bodies. | The pump was shut down immediately by the operator, the site spill response procedure was then implemented and the spill cleaned up. Concrete pump was sent offsite back to supplier for rectification of the fault. |

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| 23/07/2014 | During normal operation a hose separation occurred on a AMCS tipper, resulting in a minor hydraulic oil spill (~4L). The spill did not extend beyond the immediate area or enter any water bodies. | The tipper was shut down immediately by the operator, the site spill response procedure was then implemented containing and cleaning up the spill. Tipper taken off-site for repair. |
| 12/08/2014 | During normal operation a hose separation occurred on a Cat 637G Scraper, resulting in a minor hydraulic oil spill (~10L). The spill did not extend beyond the immediate area or enter any water bodies. | The scraper was shut down immediately by the operator, the site spill response procedure was then implemented containing and cleaning up the spill. Minor repairs to plant were completed to rectify the fault. |
| 27/08/2014 | ERSED control issues at 3 locations during significant rain event of up to 206mm (which is 3 times above the design rain event of 55.8mm). All controls were installed prior to the rain event with no previous concerns identified. | Temporary controls were installed immediately to minimise any environmental impacts. Following the rain event, controls were strengthened at these 3 locations. |
| 3/09/2014 | A minor hydraulic oil spill (< 1L) on to the ground from a mechanical failure on the jinker associated with girder delivery. The spill did not extend beyond the immediate area or enter any water bodies. | Vehicle was parked and turned off. The site spill response procedure was then implemented and the spill cleaned up. Repairs to the plant completed to rectify the fault. |
| 5/09/2014 | Diesel seal on common rail relief valve failed on hiab resulting in a minor diesel spill/spray onto road surface (~5L). The spill did not extend beyond the immediate area or enter any water bodies. | Vehicle was parked and turned off. The site spill response procedure was then implemented and the spill cleaned up. Repairs to the plant undertaken to rectify the fault. |
| 9/09/2014 | As part of utility upgrade works a subcontractor working for RMS used asbestos containing material (ACM) to repair damage to a resident driveway caused by the works. | The site was secured and alternative driveway access provided, an asbestos removal contractor and occupational hygienist was engaged to remove the ACM, RMS investigated and identified potential source stockpile and LL secured this site, ACM removed and the hygienist validated removal. |
| 9/09/2014 | During a paving operation, an oil filter came loose from a near new multi-tyre roller resulting in a minor hydraulic oil spill (~10L). The spill did not extend beyond the immediate area or enter any water bodies. | Vehicle was parked and turned off. The site spill response procedure was then implemented and the spill cleaned up. Pre-start and vehicle operating hours were checked, oil filter tightened and hoses checked. |
| 11/09/2014 | Fill (approximately $0.5m^3$) inadvertently | Consultation with archaeologist to |

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| | placed on heritage PAD (Cow Creek PAD 3) to allow for a temporary access to be constructed, emergency access was required to be provided for resident effected by potential asbestos exposure. | determine most appropriate corrective action. Archaeologist and relevant LALC's to attend site, inspect area and provide recommendation. Investigations and discussions with the RAP's & OEH are still ongoing to determine the most appropriate method for removal of material from the PAD |
| 18/09/2014 | During normal operation a hose separation occurred on a RCA truck and dog, resulting in a minor hydraulic oil spill (~20L). The spill did not extend beyond the immediate area or enter any water bodies. | The truck was shut down immediately by the operator, the site spill response procedure was then implemented containing and cleaning up the spill. Truck was repaired on site. |
| 19/09/2014 | As a result of a plant rollover, a minor oil spill occurred on site (~15L). The spill did not extend beyond the immediate area or enter any water bodies. | The site spill response procedure was implemented containing and cleaning up the spill. |
| 29/09/2014 | During normal operation a hose separation occurred on D8 Dozer, resulting in a minor hydraulic oil spill (~4L).The spill did not extend beyond the immediate area or enter any water bodies. | The dozer was shut down immediately and the site spill response procedure was implemented containing and cleaning up the spill. The dozer was repaired on site. |
| 10/10/2014 | During normal operation an axle on a truck and dog broke. Inspection of damage resulted in a minor gear oil spill (~3L). | The truck & dog was shut down immediately by the operator, the site spill response procedure was then implemented. The truck was repaired off site. |
| 20/10/2014 | Watermain pipeline cracked causing mains water to travel across construction site at the corner of Shortcut Road and South Arm Road. | Works in the area stopped immediately and Council was called to assess and repair pipe. |
| 22/10/2014 | Concrete pump hose failure whilst pouring one of the piers in the Kalang River. A minor amount of concrete (~2.5L) entered the Kalang River after it hit the formwork and steel cages. The concrete hose was above the pier thus no concrete spilled directly into the river. | Concrete pump was stopped immediately. Concrete hose was pulled down into the pier to control the remaining concrete in the hose. Hose repaired prior to restarting the pour. |
| 7/11/2014 | During normal operation a hose separation occurred on Moxy dump truck, resulting in a minor hydraulic oil spill (~10L). | The truck was shut down immediately by the operator, the site spill response procedure was |

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| | | then implemented containing and cleaning up the spill. The truck was repaired on site. |
| 10/11/2014 | During normal operation a hose separation occurred on 30t Hitachi Excavator, resulting in a minor hydraulic oil spill (~4L). | The excavator was shut down immediately by the operator, the site spill response procedure was then implemented containing and cleaning up the spill. The machine was repaired on site. |
| 21/11/2014 | Following application of AMCOO primer to a local connector road, a heavy localised thunderstorm caused run-off of some prime. The spill was contained onsite and did not extend beyond the immediate area. | Additional controls were implemented and the site spill response procedure was followed containing and cleaning up the spill. |

# 6 Environmental Review Group Meetings

A summary of the ERG meetings undertaken over the reporting period in provided below:

| *Date* | *Stakeholder Attendees* | *Summary of Items Discussed* |
|---|---|---|
| 20.5.14 | ERG 16<br>• David Bone (Env Rep)<br>• Shayne Walker, Stefan Everingham, Gerry Ryan, (Roads & Maritime)<br>• Craig Dunk, Craig Harre (EPA)<br>• James Sakker (DPI) | Approvals Update, Construction Update, Monitoring Update, Blasting Update, Contamination Update, Archaeological Program Update, Community Consultation Update, Design Consultation, Site Inspection - positive comments & some minor areas for improvement |
| 17.6.14 | ERG 17<br>• David Bone & Tim Mouton (Env Rep)<br>• Shayne Walker, Stefan Everingham, Gerry Ryan, (Roads & Maritime)<br>• Craig Dunk, Craig Harre (EPA)<br>• James Sakker (DPI) | Approvals Update, Construction Update, Monitoring Update, Blasting Update, Contamination Update, Kalang Temporary Bridge update, Deep Ck Bridge Update, Community Consultation Update, Design Consultation, Site Inspection - positive comments & some minor areas for improvement |
| 15.7.14 | ERG 18<br>• Tim Mouton (Env Rep)<br>• Shayne Walker, Stefan Everingham, Gerry Ryan, (Roads & Maritime)<br>• Craig Dunk, Brian Tolhurst (EPA)<br>• James Sakker (DPI) | Approvals Update, Construction Update, Monitoring Update, Blasting Update, Contamination Update, Kalang Temporary Bridge update, Deep Ck Bridge Update, Community Consultation Update, Landscaping & Rehab Update, Site Inspection - positive comments & some minor areas for improvement |
| 19.08.14 | ERG 19<br>• Tim Mouton (Env Rep)<br>• Shayne Walker, Stefan Everingham, Gerry Ryan, Sean Hardiman (Roads & Maritime)<br>• Craig Dunk, Craig Harre (EPA)<br>• James Sakker (DPI) | Approvals Update, Construction Update, Monitoring Update, Blasting Update, Contamination Update, Deep Ck & Kalang River Update, Community Consultation Update, Design Consultation, Landscaping & Rehab Update, Site Inspection - positive comments & some minor areas for improvement |
| 16.9.14 | ERG 20<br>• David Bone (Env Rep)<br>• Shayne Walker (Roads & Maritime)<br>• Craig Dunk, Brian Tolhurst, Stuart Murphy (EPA)<br>• James Sakker (DPI) | Approvals Update, Construction Update, Incident discussion, Monitoring Update, Contamination Update, Deep Ck & Kalang River Update, Community Consultation Update, Landscaping & Rehab Update, Site Inspection - positive comments & some minor areas for improvement |
| 14.10.14 | ERG 21<br>• David Bone (Env Rep)<br>• Shayne Walker, Gerry Ryan | Approvals Update, Construction Update, Monitoring Update, Review of Surface Water Monitoring Program, Contamination Update, Deep Ck & Kalang River Update, |

| | | |
|---|---|---|
| | (Roads & Maritime)<br>• Craig Dunk, Brian Tolhurst (EPA)<br>• James Sakker (DPI) | Community Consultation Update, Design Update, Landscaping & Rehab Update, Site Inspection - positive comments & some minor areas for improvement |
| 18.11.14 | ERG 22<br>• David Bone (Env Rep)<br>• Shayne Walker, Gerry Ryan, Kris Hinks (Roads & Maritime)<br>• Craig Dunk, Brian Tolhurst (EPA)<br>• James Sakker (DPI) | Approvals Update, Construction Update, Ecological Update, Monitoring Update, Blasting Update, Contamination Update, Deep Ck & Kalang River Update, Community Consultation Update, Landscaping & Rehab Update, Site Inspection - positive comments & some minor areas for improvement |

# 7 Audits

An independent environmental audit was undertaken on 27th and 28th October 2014. Lend Lease were found to be compliant with the requirements of the Project Approval, EPL and Roads and Maritime QA Specifications. The site inspection indicated that the site environmental controls were well established and maintained across the site. Examples of good management practices included the creek realignment works, timber reuse and the Kalang Temporary Bridge construction and controls. Key project environmental risks were identified to be dust management and success of permanent landscaping given the current dry weather conditions. It was acknowledged that controls were in place to manage these risks. No corrective actions or Observations of Concern were raised for the environmental components of the audit. Two opportunities for improvement were identified and summarised as follows:

- Roads and Maritime should include a link on the RMS Nambucca Heads to Urunga project website to Lend Lease's website which includes the monitoring data required by the EPL.
- The RMS website should clearly state that the toll free 1800 number is a 'complaints or feedback' line and not just for project contact or general project enquiries.

# 8 Community Complaints

**May 2014**

There were no environment related complaints received during May 2014.

**June 2014**

There were three (3) environmental related complaints received in June 2014 as detailed below.

| Date | Source | Issue | Summary | NH2U response | Complaint Status |
|---|---|---|---|---|---|
| 11/06/2014 | Resident (Oyster Drive) | Dust/Noise/Driver Behaviour | Various construction issues include dust, noise and driver behaviour. Also operational noise. | Meeting held with resident. No visual dust apparent. Dust monitor installed. Noise monitoring also undertaken and construction noise below noise goals. Operational noise information and fact sheet provided. Driver behaviour addressed through signage, VMP and update in induction. | Closed |
| 11/06/2014 | Resident (Gossips Road) | Property damage | Resident alleges their house has developed a structural crack from construction activities. | Lend Lease investigated issue and property. Vibration monitoring carried out at property and was compliant with the required standards. Written response provided to resident. | Closed |
| 30/06/2014 | Resident (Fox's Road) | Delivery of mulch to neighbouring property | Alleged that trucks were using part of his property to deliver mulch to his neighbour. | Lend Lease investigated and identified an existing disagreement between property owners. Lend Lease ceased mulch delivery until disagreements are resolved. | Closed |

## July 2014

There were three (3) environmental related complaints received in July 2014 as detailed below.

| Date | Source | Issue | Summary | NH2U response | Complaint Status |
|---|---|---|---|---|---|
| 21/07/2014 | Resident (South Arm Road) | Noise | Low noise hum that seems to be present all the time. | Lend Lease met with resident, carried out noise monitoring. Determined noise was likely to be coming from generator at compound. Generator was moved and being switched off of an evening. | Closed |
| 28/07/2014 | Resident (Oyster Drive) | Dust | Resident concerned about dust at their property | Lend Lease met with resident and confirmed dust levels on their property complied with the criteria. All feasible mitigation is in place to minimise dust. | Closed |
| 29/07/2014 | Resident (Ridgewood Drive) | Property damage | Real estate agent did inspection of property and noticed new cracking. | Lend Lease inspected property. Vibration monitoring conducted at residence with results showing compliance with required limits. Lend Lease provided written response to owner. | Closed |

## August 2014

There were six (6) environmental related complaints received in August 2014 as detailed below.

| Date | Source | Issue | Summary | NH2U response | Complaint Status |
|---|---|---|---|---|---|
| 01/08/2014 | Resident (South Arm Road) | Dust | Complaint from resident regarding dust coming off South Arm Road | Increased the water carts on South Arm Road. | Closed |

| | | | | | |
|---|---|---|---|---|---|
| 01/08/2014 | Resident (South Arm Road) | Dust | Complaint from resident regarding dust coming off South Arm Road | Met with resident. Increased the water carts on South Arm Road. | Closed |
| 08/08/2014 | Resident (South Arm Road) | Dust | Complaint from resident regarding dust coming off South Arm Road | Met with resident. Resident is located further up on South Arm Road where road is currently sealed. Increased water carts. Road also swept out front of residence. | Closed |
| 11/08/2014 | Resident (South Arm Road) | Dust | Complaint from resident regarding dust coming off South Arm Road | Onsite meeting with Council and residents. Review of issues. Informed of agreed maintenance agreement with Council. Agreed to assist residents by sweeping sealed section of road in front of their properties and filling in some of the potholes. | Closed |
| 12/08/2014 | Resident (Oyster Drive) | Dust | Complaint from resident regarding dust coming off the project near Oyster Drive | Onsite meeting and discussion of dust results. Provision of monthly dust results via email. Lend Lease provided a program of remaining earthworks and explained the dust mitigation in place. | Closed |
| 27/08/2014 | Resident (Pacific Highway, Valla) | Flooding on property | Water pooling on property in a large rain event. Concerned about drainage and damage to pasture | Lend Lease, RMS and independent Environmental Representative met with resident and investigated property. Advised of temporary and future permanent drainage works programmed to be completed. Water drained away within 48hours. | Closed |

## September 2014

There were no environmental related complaints received in September 2014.

## October 2014

There were eight (8) environmental related complaints received in October 2014 as detailed below.

| Date | Source | Issue | Summary | NH2U response | Complaint Status |
|---|---|---|---|---|---|
| 1/10/2014 | Resident<br>(Pacific Highway, Valla) | Dust | Resident complained about levels of dust at property from project work. | Lend Lease held a meeting with the resident and advised of the existing mitigation in place and the additional controls put in place due to the strong winds. At the end of this meeting, resident agreed that the area was now operating better in terms of dust due to action implemented by the team. | Closed |
| 8/10/2014 | Resident (Old Pacific Hwy, Urunga) | Property damage | Resident alleges their house has developed cracks from construction activities. | Lend Lease inspected and monitored vibration levels at the property. Results were in compliance with required limits. Lend Lease met with resident and outlined existing cracking was evident in pre-construction dilapidation report. Awaiting a response from resident. | Open |
| 13/10/2014 | Resident (South Arm Road) | Property damage | Resident complained that their second house on property has some visual cracking inside and also movement of retaining wall. | Lend Lease met with resident and carried out vibration monitoring. Results were in compliance with required limits. Advised the resident of this outcome and have referred | Closed |

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| | | | | issue to RMS insurers. | |
| 14/10/2014 | Business (Short Cut Road) | Temporary Drainage and Traffic Control | Business owner has concerns about the temporary drainage design. Also concerned about location of traffic control impacting on business. | Traffic control moved on 17th October 2014. Several meetings held with business owner. Temporary drainage issue resolved by relocating barriers. Offered to provide signage and assist with advertising. This was declined. Discussed impacts on business with RMS present. No further action at this stage. | Closed |
| 16/10/2014 | Resident (Pacific Highway, Valla) | Health concerns | Resident raised some health concerns alleged from project activities | Meetings held with resident and project team investigated. Issue also investigated by NSW Health. Issue closed out with resident and NSW Health. | Closed |
| 17/10/2014 | Pacific Highway | Littering | Motorist observed a truck driver (working on the project) littering | Lend Lease took direct action with the subcontractor. Site wide toolbox about litter also occurred. | Closed |
| 28/10/2014 | Resident (Valla Road) | Dust | Dust coming from the driveway at Valla Road compound. | Toolboxed compound users in regards to behaviour entering and existing site. Access point graded off. Water cart used. Closed out with resident who indicated it was better. | Closed |
| 30/10/2014 | Business (Short Cut Road) | Dust | Dust coming from construction activities creating dust in office space. | Met with business owner to discuss issues. Investigated concerns, increased water cart usage, increased street sweeper usage, sealed Short Cut and South Arm Road intersection. Continuing to monitor on a daily basis. Closed out with | Closed |

| | | | | | |
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| | | | | business owner at meeting on 26 November 2014. | |

**November 2014**

There were two (2) environmental related complaints received in November 2014 as detailed below.

| Date | Source | Issue | Summary | NH2U response | Complaint Status |
|---|---|---|---|---|---|
| 6/11/2014 | Resident (Martells Road) | Dust | Dust coming from Martells Road towards the intersection of Pacific Highway. | Increased water carts in front of house. Martells Road also regraded. Closed out with resident. | Closed |
| 13/11/2014 | Resident (Bale Close) | Dust | Dust generated from project and potential for the dust to damage business equipment. | Increased water carts. Monitoring of work areas and ceasing of activities in high wind conditions. Dust management toolboxed to work crews. Closed out with resident. | Closed |

# 9 Environmental Monitoring

Summary tables for noise, vibration, dust and water monitoring are provided in Appendix B.

**Noise**

There were 18 occasions out of 130 monitoring events where the predicted noise levels were exceeded during this reporting period. In all 18 occasions, no complaints were received and all reasonable and feasible noise mitigation measures were in place. Further information regarding the noise monitoring undertaken is provided in Appendix B.

The noise monitoring at these locations will continue and be regularly checked to assess trends and determine if further action is required.

**Vibration and Blasting**

Nine vibration monitoring events were undertaken during the reporting period. All results were in accordance with the limits outlined in the NVMP and the German Standard DIN 4150-3: 1999.

Eleven blasts were undertaken in Cut 26 during the reporting period. Vibration and overpressure monitoring has been conducted for every blast at the nearest affected residence/receiver. All results at the nearest affected residence have been in compliance with the limits in the NVMP and the Conditions of Approval.

Blast monitoring is also undertaken at a service asset (Telstra Tower) near Cut 26. All results at this location have been in line with the limits outlined in the Conditions of Approval expect on 6 November 2014 where an elevated overpressure level of 121.2dB was recorded and an elevated vibration level of 5.36 mm/s was recorded. It is noted that this structure is not a sensitive receiver for the purposes of compliance with the Conditions of Approval.

**Dust**

There were eight occasions where the insoluble solid results exceeded the 4 g/m$^2$/month during this reporting period. These are further explained below:

- A result of 5.4 g/m$^2$/month was recorded at 79 Short Cut Road, Urunga during the August monitoring period (05/08/2014 - 05/09/2014). A high level of organic matter was present in this sample. Organic matter is not from construction works. The annual insoluble solids averages remain below the 4 g/m$^2$/month air quality criteria for deposited dust.
- A result of 4.1 g/m$^2$/month was recorded at 100 Old Pacific Highway, Raleigh during the August monitoring period (05/08/2014 - 05/09/2014). A high level of organic matter was present in this sample. Organic matter is not from construction works. The annual insoluble solids averages remain below the 4 g/m$^2$/month air quality criteria for deposited dust.
- A result of 5.8 g/m$^2$/month was recorded at 63 Waterfall Way, Raleigh during the August monitoring period (05/08/2014 - 05/09/2014). A high level of organic matter was present in this sample. Organic matter is not from construction works. The annual insoluble solids averages remain below the 4 g/m$^2$/month air quality criteria for deposited dust.
- Results of 15.1, 4.4 and 4.3 g/m$^2$/month were recorded at 358 South Arm Road, Urunga during August, September and October monitoring periods. Dust off the unsealed local road adjacent to the dust gauge is also contributing to these results. No complaints received from this location. All reasonable and feasible dust mitigation measures were in place. The annual insoluble solids averages remain below the 4 g/m$^2$/month air quality criteria for deposited dust.

- A result of 6.9 g/m$^2$/month was recorded at 47 Boggy Creek Road, Valla during the October monitoring period (03/10/2014 - 05/11/2014). Dust off Boggy Creek Road also contributes to this gauge. No complaints received from this location. The annual insoluble solids averages remain below the 4 g/m$^2$/month air quality criteria for deposited dust.
- A result of 6.5 g/m$^2$/month was recorded at 7115 Pacific Highway, Valla during the October monitoring period (03/10/2014 - 05/11/2014). A high level of algae growth was present in the sample and impacted the results. The annual insoluble solids averages remain below the 4 g/m$^2$/month air quality criteria for deposited dust.

### Surface Water

Surface water monitoring results are provided in Appendix B.

Surface water monitoring has continued during this reporting period in accordance with the approved monitoring program. Many of the waterways had no flow or were dry at the time of sampling during the reporting period due to prolonged dry conditions.

Typically turbidity levels at all monitoring locations have been less than 50NTU during the reporting period. Elevated turbidity levels were recorded at some locations on 27$^{th}$ August 2014 following a significant rain event of up to 271mm. The rain event was above the design criteria of 55.4mm and therefore all sediment basins were discharging. All construction water went through erosion and sediment control measures. Some areas of improvement and maintenance were identified and addressed.

The pH levels observed in the majority of sampling locations were found to fluctuate greatly with several results less than pH 6.5. Most notably was upstream and downstream of Oyster Creek where pH levels lowered to 3.76. An investigation into these results was conducted however there was no noted reason for these results other than very low flows in the creek. This will continue to be monitored closely.

Some slightly elevated nutrient and heavy metal results have been recorded during the reporting period. However the results show no correlation with construction activities. In most cases the upstream values have been higher than the downstream values. It can therefore be concluded that the nutrients and heavy metals present is within natural variations rather than indicating impact downstream from construction works.

### Groundwater

Groundwater monitoring results are provided in Appendix B.

Groundwater monitoring has continued during this reporting period in accordance with the approved monitoring program. Prolonged dry conditions have led to insufficient water to sample in several monitoring bores including 21300.1, 30500.1, 33600.2 and 36600.1.

As shown in Appendix B there have been several minor fluctuations in the monitoring parameters at each monitoring bore with no apparent link with construction works. In newly established monitoring wells (commissioned in April 2014), several anomalies have been noted such as a high pH and a detection of low level hydrocarbons which is likely due to the installation process. This has been noted particularly in monitoring bores 22600.1, 32500.1, 32500.2 and 33600.1. The pH levels are returning to normal range. The bores will continue to be monitored for any continuing trends.

### Flora and Fauna

Flora and Fauna monitoring has occurred in accordance with the requirements detailed in the approved Ecological Monitoring Program. The annual reports for this ecological

monitoring are in progress and will be provided to the Department of Planning by 19th December 2014.

**Heritage**

Additional archaeological investigations occurred on 1st May 2014 at WC-U-PAD 14 (AHIMS 21-6-0330) in accordance with CoA 27A. The Department of Planning has been provided with a report detailing these investigations.

Salvage activities have also occurred at Martells Road 1 (AHIMS 21-6-0395) and Martells Road 2 (AHIMS 21-6-0396) on 1st May 2014 in accordance with the approval provided by The Department of Planning on 11th April 2014. A salvage report has been provided to the Department of Planning.

The Unexpected Archaeological Finds Procedure has been successfully implemented during this reporting period in regards to a shell deposit exposed on 20th October 2014. Both the project archaeologist and a Registered Aboriginal Stakeholder inspected the find and confirmed the shell deposit was of natural origin and not of Aboriginal origin. Construction works were able to progress following this confirmation.

# Appendix A

# Compliance tables

**Table 1 Minister for Planning conditions of approval (July 2011, Modification_1 November 2012, Modification_2 December 2012, Modification_3 February 2013, Modification_4 March 2013, Modification_5 December 2013, Modification_6 March 2014) .**

| CoA No. | Requirement | Timing | Responsibility | Status | Reference / Comment |
|---|---|---|---|---|---|
| **Part A – Administrative conditions** | | | | | |
| Terms of approval | | | | | |
| A1 | The Proponent shall carry out the project generally in accordance with the:<br>a Major Projects Application 07_0112;<br>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;<br>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;<br>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 and<br>e The Roads and Maritime Services modification request and letter dated 23 October 2012 (07_0112 MOD1);<br>f The Roads and Maritime Services modification request and letter dated 23 November 2012 to correct a minor error in condition C28 (07_0112 MOD2);<br>g The Roads and Maritime Services modification request and letter dated 18 January 2013 to correct minor errors in condition A1 (07_0112 MOD3); | Preconstruction, construction and operation | Contractor, Roads and Maritime for retained obligations. | Open | Requirement to be undertaken throughout preconstruction, construction and construction activities with documents a – k forming part of the Project Deed. |

| CoA No. | Requirement | Timing | Responsibility | Status | Reference / Comment |
|---|---|---|---|---|---|
| | 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);<br>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)<br>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); and<br>k The conditions of this approval.. | | | | |
| A2 | In the event of an inconsistency between:<br>a the conditions of this approval and any document listed from condition A1(a) to A1(d) inclusive, the conditions of this approval shall prevail to the extent of the inconsistency; and<br>b any document listed from condition Al(a) to A1(d) inclusive, and any other document listed from condition A1(a) to A1(d) inclusive, the most recent document shall prevail to the extent of the inconsistency. | Preconstruction, construction and operation | Contractor | Open | Requirement to be undertaken throughout preconstruction, construction and operation activities.<br><br>No inconsistencies have been reported. |
| A3 | The Proponent shall comply with any reasonable requirement(s) of the Director General arising from the Department's assessment of:<br>c any reports, plans or correspondence that are submitted in accordance with this approval; and<br>d the implementation of any actions or measures contained within these reports, plans or correspondence. | Preconstruction, construction and operation | Contractor | Open | Requirement to be undertaken throughout preconstruction, construction and operation activities.<br><br>Letters to DP&I and responses from DP&I are stored and any requirements are addressed in the compliance tracking system. |
| A4 | Subject to confidentiality, the Proponent shall make all documents required under this approval available for public inspection on request. | Preconstruction, construction and operation | Roads and Maritime | Open | B26 requires documents to be maintained on project website. All documents are available for inspection at the Lend Lease community centre. |
| Staging | | | | | |
| A5 | The Proponent may elect to construct and/ or operate the project in | Preconstruction | Roads and | Closed | The project is being constructed in |

| CoA No. | Requirement | Timing | Responsibility | Status | Reference / Comment |
|---|---|---|---|---|---|
| | stages. Where staging of the project is proposed, these conditions of approval are only 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:<br>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<br>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.<br>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.<br>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. | | Maritime | | stages 1 and 2. This information was forwarded to DP&I on 12-3-2013. A response from DP&I was received on 11-04-2013, and responded to on 24-05-2013 prior to construction.<br>Staging report updated 16-1-2014 for access track from Old Coast Road. Update accepted by DP&I 19-2-2014. |

| CoA No. | Requirement | Timing | Responsibility | 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. | Preconstruction and construction | Contractor and Roads and Maritime for early works. | Open | DP&I approvals and compliance updates are stored in Table 1 Appendix A of the Compliance Tracking Program.<br><br>Roads and Maritime Decision Report approvals, licences and compliance updates are maintained within the project compliance tracking system.<br><br>Lend Lease has obtained an Environmental Protection Licence for the NH2U project (no.20321, issued 27 Sept 2013). Water extraction licences have also been obtained for use of ground waters and surface waters. |
| 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. | Preconstruction | Roads and Maritime | Closed | Construction commenced 5-12-2013. Early works commenced in 2012. |
| 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. | NA | NA | NA | Requirement applicable to Stage 2. |
| A9 | The proposed trailer exchange facility located in the vicinity of the Nambucca Heads rest area does not form part of this approval. | NA | NA | NA | Requirement applicable to Stage 2. |
| **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. | Construction | Contractor | Open | Design Refinements made as a result of consultation with DPI & EPA. Report submitted and approved by DP&I in accordance with B3 30-1-2014. Construction of these fauna |

| CoA No. | Requirement | Timing | Responsibility | Status | Reference / Comment |
|---|---|---|---|---|---|
| | | | | | crossings has commenced. |
| B2 | As part of detailed design, the Proponent shall further investigate design refinements to improve fauna connectivity between Chainages 19150 and 19820. | Preconstruction | Roads and Maritime | Closed | Design Refinements made as a result of consultation with DPI & EPA. Report submitted and approved by DP&I in accordance with B3 30-1-2014. |
| 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. | Preconstruction and construction | Contractor | Closed | Design Refinements made as a result of consultation with DPI & EPA. Report submitted and approved by DP&I in accordance with B3 30-1-2014. |
| 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. | Preconstruction and construction | Contractor | Open | 2 widened medians provided as part of the detailed design at Ch.72500-74000 & Ch.78900-80700. Design of specific glider crossings ongoing during and after clearing. Consultation with EPA ongoing. |
| 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* | Preconstruction and construction. | Contractor | Open | Waterway crossing design refinements undertaken in consultation with DPI (Fisheries) – meetings held 8-5-2013 and 12-4-2013 to ensure design is addressing guideline requirements. |

| CoA No. | Requirement | Timing | Responsibility | Status | Reference / Comment |
|---|---|---|---|---|---|
| | *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. | | | | Ongoing fish design issues are discussed at ERG meetings and agency site visits to finalise design and construction issues. Note - only culvert requiring fish passage is Oyster Ck. The Oyster Ck culvert has now been constructed and commissioned. Five creek realignments have also been constructed and commissioned incorporating fish passage. |
| 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. | Preconstruction | Roads and Maritime | Closed | Nest Box MP approved by DP&I on 20/3/13. |
| 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:<br>a investigates the potential for the translocation of plants impacted by the project;<br>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 | Preconstruction | Roads and Maritime | Closed | Warrell Creek to Urunga Upgrade Threatened Flora Management Plan (6-3-2013) submitted to DP&I 7-3-2013 and approved 31-5-2013.<br><br>Biodiversity offset strategy (required under B8) is to address the threatened flora identified within the Threatened Flora Management Plan. |

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| | Threatened Species in Australia, including details of ongoing maintenance such as responsibilities, timing and duration;<br>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<br>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.<br>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*. | | | | |
| 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 riparian vegetation). The Strategy shall include, but not necessarily be limited to:<br>a confirmation of the vegetation communities/ habitat (in hectares) to be offset and the size of offsets required (in hectares); | Preconstruction | Roads and Maritime | Open | Planning approved the WC2U Biodiversity Offset Strategy on the 24 November 2014. |

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| | 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;<br>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;<br>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:<br>i. changes to footprint due to design changes;<br>ii. changes to predicted impacts resulting from changes to mitigation measures;<br>iii. identification of additional species/habitat through pre-clearance surveys; and<br>iv. additional impacts associated with ancillary facilities; and<br>e options for the securing of biodiversity options in perpetuity.<br>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. | | | | |

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| | 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 the project for the approval of the Director General. The Package shall be developed in consultation with EPA, and shall provide details of:<br>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);<br>b the final selected means of securing the biodiversity values of the offset package in perpetuity including ongoing management, monitoring and maintenance requirements; and<br>c timing and responsibilities for the implementation of the provisions of the package over time.<br>The requirements of the Package shall be implemented by the responsible parties according to the timeframes set out in the Package. | Construction | Roads and Maritime | Open | RMS is progressing the Biodiversity Offset package in accordance with the approved Biodiversity Offset Strategy |
| 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:<br>a an adaptive monitoring program to assess the effectiveness of the mitigation measures identified 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 | Preconstruction and construction | Roads and Maritime. | Open | Ecological Monitoring Program approved 30-5-2013.<br>Monitoring has been undertaken in accordance with the Ecological Monitoring Program.<br>Annual reporting to be undertaken – next report due to be submitted to DP&I by 31-12-2014. |

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| | 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;<br>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;<br>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;<br>d provision for the assessment of the data to identify changes to habitat usage and if this can be attributed to the project;<br>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<br>f provision for annual reporting of monitoring results to the Director General and EPA, or as otherwise agreed by those agencies.<br>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 | | | | | |

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| 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. | NA | NA | NA | Requirement applicable to Stage 2. |
| 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:<br>a assess the impacts of the project on flood behaviour (in relation to Nambucca River and floodplain;<br>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;<br>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 Exceedence Probability;<br>d examine any changes in the flood behaviour under climate change conditions; and<br>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. | NA | NA | NA | Requirement applicable to Stage 2. |
| 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:<br>a identify all properties likely to have an increased flooding impact and | Preconstruction | Roads and Maritime | Closed | Hydrological Mitigation Report approved by DP&I on 26-6-2013. |

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| | detail the predicted increased flooding impact;<br>b identify mitigation measures to be implemented where increased flooding is predicted to adversely affect access, property or infrastructure;<br>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;<br>d be developed in consultation with EPA, the relevant Council, NSW State Emergency Service and directly-affected property owners; and<br>e identify operational and maintenance responsibilities for items (a) to (e) inclusive.<br>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. | | | | |
| 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. | Preconstruction and construction | Roads and Maritime | Closed | The B13 report recommended mitigation works that were refused by the landowner. No schedule to be submitted for Stage 1. |
| 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 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 | Preconstruction and construction | Roads and Maritime | Closed | The B13 report recommended mitigation works that were refused by the landowner. No schedule to be submitted for Stage 1. |

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| | 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. | Preconstruction and construction | Contractor | Open | To be provided if requested. |
| 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 consultation with EPA and DPI and shall include but not necessarily be limited to:<br>a identification of surface water and groundwater quality monitoring locations which are representative of the potential extent of impacts from the project;<br>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;<br>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;<br>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);<br>e contingency and ameliorative measures in the event that adverse impacts to surface water quality are identified;<br>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 | Preconstruction, construction and operation. | Roads and Maritime to prepare plan and implement the pre and post construction requirements. Contractor to implement requirements during construction. | Open | DP&I approval of surface and ground water monitoring programs obtained 4-3-2013.<br><br>Background water quality monitoring commenced September 2012, min 6 months background monitoring achieved following February 2013 monitoring event.<br><br>The 6month Pre-Construction Monitoring reports have been submitted to the Department, EPA, DPI(Fisheries) and the Office of Water for information.<br><br>Surface and ground water monitoring programs to be implemented through construction period and continuing 3 years post construction or until effective stabilisation has been demonstrated and verified. |

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| | being rehabilitated to an acceptable condition. The monitoring shall also confirm the establishment of operational water control measures (such as sedimentation basis and vegetation swales); and<br>g reporting of the monitoring results to the Department, EPA and DPI.<br>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. | | | | |
| 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). | Preconstruction | Contractor | Closed | The project corridor was modified during the EA to avoid the Cow Creek Reserve. By keeping the final design alignment within the approved corridor the intent of B18 will have been satisfied.<br><br>The B18 design requirements have been included as Appendix A of the HMP submitted to DP&I 1-7-2013. |
| 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:<br>a Butchers Creek 1 (previously PAD 1);<br>b Stoney Creek 1 (previously PAD 24);<br>c Bald Hill Road 1 (previously PAD 7);<br>d Old Coast Road Stone Artefact (previously PAD 2);<br>e Boggy Creek Artefact 1 & resource gathering area (previously PAD 16);<br>f Cow Creek Artefact Scatter (previously PAD 8);<br>g Kalang Spur Artefact Scatter (previously PAD 12); | Preconstruction | Roads and Maritime | Closed | This has been completed pre construction.<br><br>Results of the salvage for these sites have been provided to DP&I, OEH and the registered Aboriginal stakeholders as required, in August 2012. |

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| | h Kalang Flat 1 9(a) (previously PAD 9);<br>i Kalang Flat 2 9(b) (previously PAD 9);<br>j South Arm Road 1;<br>k Tyson's Flat Ridge Artefact Scatter (previously PAD 29);<br>l Tyson's Flat I (previously PAD 28); and<br>m Tyson's Flat 2 (previously PAD 27).<br>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. | | | | |
| 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 Guideline (1996), and submit the assessment for the Director General's approval.<br>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. | Preconstruction and construction | Roads and Maritime | Closed | SKM were engaged to prepare reports titled *Warrell Creek to Urunga Pacific Highway Upgrade, Tysons Flat House Site, Urunga, NSW – Archaeological Assessment* and *Warrell Creek to Urunga Pacific Highway Upgrade, Tysons Flat House Site, Urunga, NSW – Archaeological Research Design Report*. These reports are contained in Appendix B and C of the HMP submitted to DP&I 1-7-2013.<br><br>The archaeological assessment of Site 12 (possible House Site) was submitted to DP&I 23 May, 2012 and approved 7 June, 2012 subject to implementation of the measures to protect the house site from accidental damage during pre-construction and construction of the project. No changes to project boundary proposed. |
| Urban design and landscaping | | | | | |
| B21 | Prior to the commencement of construction (unless otherwise agreed to | Preconstruction | Contractor | Open | Extension request submitted to DP&I |

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| | by the Director General), the Proponent shall prepare and implement an Urban Design and Landscape Plan for the project. The pan 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:<br>a a principle goal of achieving the urban design objectives outlined in Section 13.4 of Volume 1 of the Environmental Assessment;<br>b sections and perspective sketches;<br>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,, including their appropriateness to the area and considering existing vegetation and habitat for threatened species;<br>d location of existing vegetation and proposed landscaping, including use of indigenous and endemic species where possible. The plan shall assess the visual screening affects 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, 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;<br>e strategies for progressive landscaping incorporating other environmental controls such as erosion and sedimentation controls, drainage, noise mitigation;<br>f location and design treatments for built elements including retaining walls, cuttings, bridges, and noise barriers;<br>g location and design treatments for any associated footpaths and cyclist elements, and other features such as seating, lighting (in | and construction | | | 7-3-2013 and approved 19-3-2013. Draft UDLP submitted to DP&I with CEMP 1-7-2013.<br>Extension requests submitted and granted by DP&I until September 2014.<br><br>100% UDLP was submitted to DP&I in September 2014. Approval still pending. |

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| | accordance with AS 4282-1997 Control of the Obtrusive Effect of Outdoor Lighting), fencing, and signs;<br>h evidence of consultation with the community on the proposed urban design and landscape measures prior to its finalisation; and<br>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.<br>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. | Preconstruction and construction | Contractor | Open | General principals of DPI (Forest NSW) access requirements have been agreed with Roads and Maritime. Final design pending Lend Lease finalising property access agreements in consultation with DPI (Forest NSW). Agreements are in progress. |
| 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. | Construction | Roads and Maritime | Open | This signage is included in Design Lot LS1 and has been developed in consultation with Council and required businesses. |
| 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 Proponent shall as part of detailed design employ a suitably qualified and experienced independent agricultural specialist (that is | Preconstruction | Roads and Maritime | Closed | All property purchase undertaken in accordance with Land Acquisition (Just Terms Compensation) Act 1991 |

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| | approved by the Director General for the purpose of this condition), to assist in the following (where agreed to by the relevant landowner):<br>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<br>b negotiating appropriate compensation and/or arrangements for the purchase of the property under the Land Acquisition (Just Terms Compensation) Act 1991. | | | | |
| 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:<br>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);<br>b provisions for periodic review of project compliance with the requirements of this approval, Statement of Commitments and documents listed under condition A1;<br>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;<br>d a program for independent environmental auditing in accordance with ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing;<br>e mechanisms for reporting and recording incidents and actions taken in response to those incidents; | Preconstruction, construction and operation | Roads and Maritime to prepare and submit the Program for approval and implement the program during the operational phase.<br>Contractor to implement the Program during construction. | Open | Compliance Tracking Program submitted to DP&I 7-3-2013 and approved 20-3-2013.<br><br>Notification of commencement of works provided 18-9-2013.<br><br>Preconstruction CTP submitted to DP&I 15-6-2013.<br><br>Compliance status reviews to be provided to DP&I every 6 months. |

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| | f provisions for reporting environmental incidents to the Director General during construction and operation; and<br>g procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management. | | | | |
| 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 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:<br>a information on the current implementation status of the project;<br>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;<br>c a copy of this approval and any future modification to this approval;<br>d a copy of each relevant environmental approval, licence or permit required and obtained in relation to the project;<br>e a copy of each current strategy, plan, program or other document required under this approval; and<br>f the outcomes of compliance tracking in accordance with the requirements of Condition B25. | Preconstruction and construction | Roads and Maritime | Open | Website functioning - http://www.rta.nsw.gov.au/roadprojects/projects/pac_hwy/port_macquarie_coffs_harbour/nambucca_hds_to_urunga/index.html<br><br>There has been considerable effort to keep the website up to date. The CEMP and other required project documents have been uploaded on the website. |
| 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:<br>a a telephone number on which complaints and enquiries about construction and operation activities may be registered;<br>b a postal address to which written complaints and enquiries may be sent; and<br>c an email address to which electronic complaints and enquiries may | Preconstruction and construction | Contractor | Open | Toll free number active – 1800 800 612.<br><br>Written or e-mail complaints directed to: Nambucca Heads to Urunga upgrade<br>Pacific Highway office<br>• PO Box 546 |

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| | 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.<br>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.<br>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. | | | | • Grafton NSW 2460<br>• Email: pacific.highway@rms.nsw.gov.au<br>Complaint handling by Lend Lease for construction is addressed in the Community Involvement Plan – submitted to DP&I with CEMP 1-7-2013 |
| 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 community (broader and local stakeholders) on the construction and environmental management of the project. The Strategy shall include, but not necessarily be limited to:<br>a identification of stakeholders to be consulted as part of the Strategy, including affected and adjoining landowners;<br>b procedures and mechanisms for the regular distribution of information to stakeholders on the progress of the project and matters associated with environmental management;<br>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;<br>d procedures and mechanisms through which the Proponent can respond to any enquires or feedback from stakeholders in relation to | Preconstruction and construction | Contractor | Open | Community Involvement Plan submitted to DP&I with CEMP documentation on 1-7-2013 Approved 25-9-2013. |

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| | the environmental management and delivery of the project; and<br>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.<br>The Proponent shall maintain and implement the Strategy throughout construction of the project. The Strategy shall be approved by the Director General prior to the commencement of construction, or as otherwise agreed by the Director General. | | | | |
| 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:<br>a be the principal point of advice in relation to the environmental performance of the project;<br>b be consulted in responding to the community concerning the environmental performance of the project;<br>c monitor the implementation of all environmental management plans and monitoring programs required under this approval;<br>d monitor the outcome of all environmental management plans and advise the Proponent upon the achievement of all project environmental outcomes;<br>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; | Preconstruction and construction | Contractor | Open | David Bone – Onsite Environmental Management – approved as ER. by DP&I on 08/02/2013 Contact details - 02 4696 1066 or 0407 461 092 or david.bone@osem.com.au<br><br>An Environmental Representative will be employed for the duration of construction. |

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| | f ensure that environmental auditing is undertaken in accordance with the requirements of condition B25 and the project Environmental Management System(s);<br>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<br>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 relevant Council and include, but not necessarily be limited to:<br>a a description of all relevant activities to be undertaken during construction of the project or stages of construction, as relevant;<br>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;<br>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; | Preconstruction and construction | Contractor | Open | CEMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>Ongoing implementation. |

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| | d identification of ancillary facility site locations, including an assessment against the location criteria outlined in condition C27;<br>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 construction works with adjacent Pacific Highway Upgrade projects, as relevant). In particular, the following environmental performance issues shall be addressed in the Plan:<br>i. measures to monitor and manage **dust emissions** including dust generated by haulage trucks, traffic on unsealed public roads and stockpile management;<br>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);<br>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);<br>iv. measures to monitor and manage **hazard and risks** including emergency management; and | | | | |

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| | v. the issues identified in condition B31;<br>f details of community involvement and complaints handling procedures during construction, consistent with the requirements of conditions B26 to B28;<br>g details of compliance and incident management consistent with the requirements of condition B25; and<br>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).<br>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):<br>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 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:<br>i. identification of construction traffic routes and quantification of construction traffic volumes (including heavy vehicle/spoil haulage) on these routes;<br>ii. details of vehicle movements for construction sites and site compounds including parking, dedicated vehicle turning areas, and ingress and egress points;<br>iii. potential impacts to traffic on the existing highway and associated local roads including intersection level of service and | Preconstruction | Contractor | Open | Required B31 plans submitted to DP&I with CEMP 1-7-2013 approved 25-9-2013.<br><br>Ongoing implementation. |

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| | potential disruptions to arrangements for pedestrians, property access, public transport, parking and/ or cyclist;<br>iv. details of temporary and interim traffic arrangements including intersections, property access and alternative traffic routes;<br>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;<br>vi. a response procedure for dealing with traffic incidents; and<br>vii. mechanism for the monitoring, review and amendment of this plan;<br>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:<br>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;<br>ii. updated sensitive area vegetation maps based on B31(b)(i) above and previous survey work;<br>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);<br>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 | | | | |

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| | and mitigate impacts to these species and identified roost sites, including short and long term management measures;<br>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;<br>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;<br>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 monitoring and/ or biodiversity offset requirements consistent with conditions B8 and B10; and<br>viii. mechanism for the monitoring, review and amendment of this plan;<br>c a **Construction Noise and Vibration Management Plan** to detail how construction 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:<br>i. identification of nearest sensitive receptors and relevant construction noise and vibration goals applicable; | | | | |

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| | 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;<br>iii. identification of all feasible and reasonable measures proposed to be implemented to minimise construction noise and vibration impacts (including construction traffic noise impacts);<br>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);<br>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 dilapidation surveys of sensitive structures where blasting and/ or vibration is likely to result in building damage;<br>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<br>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 exceedences of relevant noise and vibration goals are detected;<br>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:<br>i. a contingency plan, consistent with the *Acid Sulfate Soils* | | | | |

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| | *Manual*, to deal with the unexpected discovery of actual or potential acid sulfate soils;<br>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;<br>iii. details of how construction activities would be managed and mitigated to minimise erosion and sedimentation consistent with condition C17;<br>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;<br>v. construction water quality monitoring requirements consistent with condition B17; and<br>vi. a groundwater management strategy, including (but not necessarily limited to):<br>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);<br>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;<br>iii. measures to manage identified impacts on water table, | | | | |

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| | flow regimes and quality and to groundwater users and ecosystems;<br>iv. groundwater inflow control, handling, treatment and disposal methods; and<br>v. a detailed monitoring plan to identify monitoring methods, locations, frequency, duration and analysis requirements; and<br>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 OEH and Registered Aboriginal Stakeholders (for Aboriginal heritage), and include, but not necessarily be limited to:<br>ii. In relation to Aboriginal Heritage:<br>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 the vicinity);<br>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);<br>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 | | | | |

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| | 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<br>(iii) In relation to non-Aboriginal Heritage:<br>i. details of management measures to be carried out in relation to already recorded sites (including further heritage investigations, 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;<br>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<br>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. | Construction | Contractor | Open | Detailed design and construction being undertaken with consideration to minimising clearing. Clearing limits are delineated on site prior to clearing and has been minimised as much as possible. |
| Air quality impacts | | | | | |
| C2 | The Proponent shall employ all feasible and reasonable measures (including temporary cessation of relevant works, as appropriate) to | Construction | Contractor | Open | Addressed in AQMP submitted to DP&I on 1-7-2013, approved 25-9- |

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| | 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. | | | | 2013. Current measures implemented include water carts, sealing areas, minimising disturbed areas, ceasing works where required, progressive stabilisation with cover crop and permanent landscaping works. Annual average dust results compliant to date. |
| Noise and vibration impacts – construction hours | | | | | |
| C3 | The Proponent shall only undertake construction activities associated with the project during the following standard construction hours:<br>a 7:00am to 6:00pm Mondays to Fridays, inclusive; and<br>b 8:00am to 1:00pm Saturdays; and<br>c at no time on Sundays or public holidays. | Construction | Contractor | Open | Addressed in NVMP submitted to DP&I on 1-7-2013, approved 25-9-2013. Works have been in accordance with C3 unless otherwise approved in C4 or C5. |
| C4 | Works outside of the construction hours identified in conditions C3 may be undertaken in the following circumstances:<br>a works that generate noise that is not audible at any sensitive receptor;<br>b for delivery of materials required outside these hours by the Police or other authorities for safety reasons; or<br>c where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or<br>d construction works undertaken through sparsely 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<br>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 | Construction | Contractor | Open | Addressed in NVMP submitted to DP&I on 1-7-2013, approved 25-9-2013. Works have been in accordance with C3 unless otherwise approved in C4 or C5. |

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| | 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. | | | | |
| 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:<br>a details of the nature and need for activities to be conducted during the varied construction hours;<br>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<br>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. | Construction | Contractor | Open | Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br><br>EPL applicable to construction works C4 measures apply. |
| C6 | Blasting associated with the project shall only be undertaken during the following hours<br>a 9:00 am to 5:00 pm, Mondays to Fridays, inclusive;<br>b 9:00 am to 1:00 pm on Saturdays; and<br>c at no time on Sundays or public holidays.<br>This condition does not apply in the event of a direction from police or | Construction | Contractor | Open | Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>Blasting works have been in accordance with these times. |

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| | other relevant authority for safety or emergency reasons to avoid loss of life, property loss and/or to prevent environmental harm. | | | | |
| 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. | Construction | Contractor | Open | Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>94 houses requiring operational noise treatment have been treated to provide a benefit with construction noise management. Refer to SoC N1.<br>Feasible and reasonable noise mitigation measures are being implemented. Minimal noise complaints have been received to date. |
| 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:<br>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;<br>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<br>c for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: A Technical Guideline (DEC 2006); and<br>d the ground-borne noise levels set out in the Interim Construction Noise Guidelines (DECC, 2009). | Construction | Contractor | Open | Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>Monitored vibration levels have been in accordance with these limits. |
| C9 | The Proponent shall ensure that airblast 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 | Construction | Contractor | Open | Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, 25-9-2013.<br>Blasting has been in accordance with |

<table>
<tr><th>CoA No.</th><th>Requirement</th><th>Timing</th><th>Responsibility</th><th>Status</th><th>Reference / Comment</th></tr>
<tr><td></td><td>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.<br>Table 1 Airblast overpressure criteria<table><tr><td>Airblast overpressure (dB(Lin Peak))</td><td></td></tr><tr><td>115</td><td>5% of total</td></tr><tr><td>120</td><td></td></tr></table></td><td></td><td></td><td></td><td>these limits to date at the most affected sensitive receiver.<br><br>It is noted that on 6-11-14 an elevated overpressure level (121.2 dB) was recorded at a nearby service asset (Telstra Tower). This structure is not a sensitive receiver.</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 results from the trials used to determine site specific blast design to satisfy the criteria specified in Table 2.<br>Table 2 Peak particle velocity criteria<table><tr><td>Peak particle velocity (mms-1)</td><td></td></tr><tr><td>5</td><td>5% of total</td></tr><tr><td>10</td><td></td></tr></table></td><td>Construction</td><td>Contractor</td><td>Open</td><td>Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, 25-9-2013.<br>Blasting has been in accordance with these limits to date at the most affected sensitive receiver.<br><br>It is noted that on 6-11-14 an elevated vibration level (5.36 mm/s) was recorded at a nearby service asset (Telstra Tower). This structure is not a sensitive receiver.</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</td><td>Construction</td><td>Contractor</td><td>Open</td><td>Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, approved 25-9-2013.</td></tr>
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| | agreement. In obtaining the Director General approval for any such agreement, the Proponent shall submit to the Director General:<br>a details of the proposed blasting program and justification for the proposed increase to blasting criteria including alternatives considered (where relevant);<br>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 noise, vibration and air quality and any risk to surrounding utilities, services or other structures;<br>c details of the blast management, mitigation and monitoring procedures to be implemented; and<br>d details of consultation undertaken and agreement reached with the relevant landowners (including a copy of the agreement in relation to increased blasting limits).<br>The following exclusions apply to the application of this condition:<br>a any agreements reached may be terminated by the landowner at any time should concerns about the increased blasting limits be unresolved;<br>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<br>c the provisions under condition C'11 (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:<br>a confirm the operational noise predictions of the project based on detailed design. This operational noise assessment shall be based | Construction | Contractor | Open | EPA comments received 27-3-2014.<br><br>Extension requests submitted and granted by DP&I until September 2014. |

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| | 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;<br>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<br>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. | | | | Operational Noise Management Report is at 100% design and was submitted to DP&I for approval in September 2014. Comments received from DP&I and addressed by Lend Lease in November 2014. Approval pending. |
| Heritage impacts | | | | | |
| C13 | This approval does not allow the Proponent to destroy, modify or otherwise physically affect human remains. | Construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| 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. | Construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| 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. | Construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013. |

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| 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). | Construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| 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 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.<br>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.<br>iii) The proponent shall report on the results of the archaeological investigations prior to commencement of permanent works, and:<br>• 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;<br>• 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;<br>• 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 Director General.<br>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. | Construction | Contractor | Open | Requirements incorporated into Appendix H of the HMP. HMP update approved 10-3-2014.<br><br>Additional heritage investigations outside the project boundary have occurred in accordance with this condition and the approved HMP Appendix H methodology. |

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| | (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.<br>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. | Construction | Contractor | Open | Requirements incorporated into the SWMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>The sediment basins and other ERSED controls onsite have been designed, installed and maintained in accordance with the BlueBook. A soil conservationist is engaged to the project to provide advice and experience regarding required controls. |
| 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. | Construction | Contractor | Open | Requirements incorporated into the SWMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>Water from the sediment basins has been used for dust suppression and irrigation as much as possible whilst complying with the EPL requirements.<br><br>Reclaimed water from the Coffs Harbour Sewage Treatment Plant has also been used for dust suppression and construction works. |
| Property and landuse – property impacts | | | | | |
| C19 | The Proponent shall construct the project in a manner that minimises | Construction | Contractor | Open | This is being considered and |

| CoA No. | Requirement | Timing | Responsibility | Status | Reference / Comment |
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| | 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 the damage. | | | | implemented through the finalisation of design. |
| 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. | Construction | Contractor | Open | Requirement included in TMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| 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). | Construction | Contractor | Open | Requirement included in TMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| 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 fire fighting and recreation activities during construction. | Construction | Contractor | Open | Requirement included in TMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| 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). | Preconstruction and construction | Contractor | Open | Requirements incorporated into the TMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>The road dilapidation surveys have been completed and the reports provided to Roads and Maritime Services, Nambucca Shire Council and Bellingen Shire Council. |
| 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 | Construction | Contractor | Open | Requirements incorporated into the WEMP submitted to DP&I 1-7-2013, approved 25-9-2013. |

| CoA No. | Requirement | Timing | Responsibility | Status | Reference / Comment |
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| | permitted by a licence under the *Protection of the Environment Operations Act 1997*, if such a licence is required in relation to that waste. | | | | No waste generated offsite is being brought on to the project unless it is in accordance with EPA's resource recovery waste exemptions. |
| 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 disposal of those materials off site. | Construction | Contractor | Open | Requirements incorporated into the WEMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>Recycling bins are provided onsite and in the office to reduce waste requiring disposal. Reuse onsite is maximised.<br>Site surplus materials (fill, mulch) are being reused offsite in accordance with EPA's resource recovery waste exemptions. |
| 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. | Construction | Contractor | Open | Requirements incorporated into the WEMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>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:<br>a be located more than 50 metres from a waterway;<br>b have ready access to the road network or direct access to the construction corridor;<br>c be located in areas of low ecological significance and require minimal clearing of native vegetation (not beyond that already required by the project);<br>d be located on relatively level land;<br>e be separated from the nearest residences by at least 200 metres | Preconstruction and construction | Contractor. Roads and Maritime to submit documentation for approval. | Open | Addressed in CEMP and associated Appendices.<br><br>Ongoing Environmental Assessment / consistency review will be required to assess areas as they are nominated. |

| CoA No. | Requirement | Timing | Responsibility | Status | Reference / Comment |
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| | (or at least 300 metres for a temporary batching plant);<br>f be above the 20 ARI flood level unless a contingency plan to manage flooding is prepared and implemented;<br>g not unreasonably affect the land use of adjacent properties;<br>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<br>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.<br>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. | | | | |
| 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-Aboriginal and Aboriginal archaeological impacts of the ancillary facility on previously unidentified heritage sites.<br>(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.<br>(c) The results of any relevant archaeological investigations undertaken under this condition must be described in the assessment of the ancillary facility required under Condition C27. | Construction | Contractor | Open | Requirements incorporated into Appendix H of the HMP. HMP update approved 10-3-2014.<br><br>Additional heritage investigations outside the project boundary have occurred in accordance with this condition and the approved HMP Appendix H methodology. |
| 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 | Preconstruction and construction | Contractor. Roads and | Open | Addressed in CEMP and associated Appendices. |

| CoA No. | Requirement | Timing | Responsibility | Status | Reference / Comment |
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| | C27 of this approval and which:<br>(a) are located within an active construction zone within the approved project footprint; and<br>(b) have been assessed by the Environmental Representative to have:<br>(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<br>(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;<br>and<br>(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. | | Maritime to submit documentation for approval. | | The Environmental Representative assesses and approves all minor ancillary facility works in accordance with the condition. |
| **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. | Construction | Roads and Maritime | Open | NA at this stage. |
| **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:<br>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;<br>b a review of the operational noise levels in terms of criteria and noise | Operation | Roads and Maritime | Open | NA at this stage. |

| CoA No. | Requirement | Timing | Responsibility | Status | Reference / Comment |
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| | goals established in the Environmental Criteria for Road Traffic Noise (EPA, 1999);<br>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;<br>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;<br>e any required recalibrations of the noise model taking into consideration factors such as actual traffic numbers and proportions;<br>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<br>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.<br>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. | | | | |

**Table 2 Revised statement of commitments (November 2010)**

| SoC No. | Requirement | Timing | Responsibility | Status | Reference / Comment |
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| | Environmental management | | | | |
| M1 | The head contractor for the project will have an environmental management system. | Preconstruction | Contractor | 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. | Preconstruction and construction | Contractor | Open | Refer to CoA B30 and B31 for status update. |
| M3 | RTA and the contractor will implement a performance and compliance program. | Preconstruction and construction | Contractor | Open | Refer to CoA B25 for status update |
| | Community consultation | | | | |
| CC1 | Keeping the community informed will include:<br>• regular project updates.<br>• prior notice of project activities.<br>• changes to traffic and access and works outside standard working hours.<br>• contact details for enquiries.<br>Targeted consultation with affected individuals or groups will occur as necessary (e.g. waterway users, farmers, noise affected residents, etc.). | Preconstruction and construction | Contractor | Open | Requirements incorporated into the CIP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| CC2 | Complaint management will include:<br>• A published 24 hour toll free complaints number.<br>• Directions on how to register a complaint.<br>• Acknowledgment of complaints within eight working hours.<br>• Complaint recording.<br>• Tracking of complaints until resolution. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the CIP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| | Traffic and transport | | | | |
| T1 | Construction vehicle movements and work programs will incorporate | Preconstruction and | Contractor | Open | Requirements incorporated into the TMP submitted to DP&I 1-7-2013, |

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| | traffic control measures to minimise traffic and transport impacts on local roads and the existing Pacific Highway. | Construction | | | approved 25-9-2013. |
| 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. | Preconstruction and construction | Contractor | Open | Refer to CoA C23 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. | Construction | Contractor | Open | Requirements incorporated into the TMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| 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. | Preconstruction and construction | Contractor. Roads and Maritime will consult with property owners to determine the locations and arrangements for Property Works and Local Road Works. | Open | Requirements incorporated into the TMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| T5 | Construction vehicle movements and work programs will incorporate traffic control measures to maintain access to state forests. | Construction | Contractor | Open | Requirements incorporated into the TMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| | 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. | Preconstruction and construction | Contractor. Roads and Maritime will undertake at residence noise mitigation treatments. | Open | Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>Roads and Maritime have completed the at residence noise treatments for those residents that have agreed to have the houses treated. Some Utility upgrades required for air conditioning units to be operational, these |

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| | | | | | upgrades have commenced. |
| 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. | Construction | Contractor | Open | Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>There are no educational institutions in the immediate vicinity of the NH2U construction works. |
| N3 | Best practice mitigation and management measures will be used to minimise construction noise and vibration at sensitive receivers. | Construction | Contractor | Open | Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, approved 25-9-2013. This is addressed in MCoAs C3 to C11 in regards to construction noise. |
| N4 | Construction would normally be limited to the following hours:<br>• Between 6am and 6pm Monday to Friday.<br>• Between 7am and 4pm Saturday.<br>There would be no works outside these hours or on Sundays or public holidays except:<br>a) Works that do not cause construction noise to be audible at any sensitive receivers.<br>b) For the delivery of materials required outside these hours by the Police or other authorities for safety reasons.<br>c) Where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.<br>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.<br>e) Where the work is identified in the CNVMP and approved as part of the Construction Environmental Management Plan.<br>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 must be informed of the timing and duration of work approved under items (d) and (e) at least 48 hours before that work commences. | Construction | Contractor | Open | Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>Refer to CoA C3 & C4 for status update. |

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| 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. | Construction | Contractor | Open | Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, approved 25-9-2013. This has been implemented for all blasts to date. |
| 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. | Construction | Contractor | Open | Requirements incorporated into the NVMP submitted to DP&I 1-7-2013, approved 25-9-2013. No complaints have been received to date for out of hours works. |
| 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. | Preconstruction and construction | Contractor. Roads and Maritime will undertake at residence noise mitigation treatments. | Open | Roads and Maritime included extensive requirements in regards to operational noise in the Deed, including operational noise requirements under SWTC App 4.24 and an Operational Noise Report under SWTC App 4.25.<br><br>Refer CoA E1 and CoA C12. |
| 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 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. | Operation | Roads and Maritime | Open | Refer CoA E1. |
| | Flora and Fauna | | | | |
| F1 | Clearing of native vegetation (including endangered ecological communities (EECs)) will be restricted to the minimum area necessary for construction. | Preconstruction and construction | Contractor | Open | This forms an important part of the project and is an EA/ SWTC requirement. Proposed design refinements consider this issue.<br><br>Any increased clearing will be addressed in the biodiversity offsets strategy/ package. |

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| 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. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the FFMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>A qualified ecologist has been engaged and has completed this requirement. |
| F3 | A threatened flora survey will be undertaken prior to clearing to identify individuals to be translocated and to confirm the extent of clearing.<br>Erection of exclusion fencing to prevent any further encroachment into Newry State Forest to the east of the construction footprint.<br>Threatened species directly impacted by the Proposal will be translocated to a suitable location outside the impact zone.<br>A further visual inspection will be conducted post clearance to identify threatened species which may be indirectly impacted outside the cleared zone.<br>Landscape planting to commence along the road boundary as soon as possible during construction. | Preconstruction and construction | Contractor. Roads and Maritime will develop a management plan for threatened flora to be implemented by the Contractor. | Open | Threatened Flora Management Plan approved by DP&I 31-5-2013, approved 25-9-2013. Plan has been implemented through preconstruction and construction phases.<br>Pre-clearing surveys have been undertaken by a qualified ecologist.<br>Exclusion fencing has been erected prior to clearing along the approved clearing limits.<br>Threatened species translocations have been undertaken by the ecologist prior to or during clearing. These plants have been translocated to a suitable location outside the impact zone.<br>Landscape planting will occur was works progress. |
| F4 | Plantings of rusty plum (*Amorphospermum whitei*) in areas of suitable habitat adjacent to the Proposal will follow from seed collection and propagation. | Preconstruction and construction | Contractor | Open | Threatened Flora Management Plan approved by DP&I 31-5-2013, approved 25-9-2013. Plan has been implemented through preconstruction and construction phases. The ecologist has completed this work. |
| F5 | Site induction of construction workers will inform and instruct them of vegetation to be retained and on the identification of threatened species | Preconstruction and construction | Contractor | Open | Induction is being performed by Lend Lease and incorporates this requirement. |
| 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 | Construction | Contractor | Open | Requirements incorporated into the FFMP submitted to DP&I 1-7-2013, approved 25-9-2013. |

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| | in pre-clearance surveys or during construction will be in suitable habitat as close as possible to the area in which they were found.<br>Immediately prior to clearing an inspection will confirm that the sites subject to pre-clearance surveys remain free of fauna. | | | | A qualified ecologist has been engaged and has completed this requirement. |
| 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 relocation will limit injury to fauna and damage to existing vegetation.<br>A nest box plan will be developed for the Proposal. | Preconstruction and construction. | Contractor. Roads and Maritime will develop a Nest Box Plan to be implemented by the contractor. | Open | Nest Box Plan of Management approved by DP&I 20-3-2013. Plan has been implemented through preconstruction and construction phases.<br>Additional natural and artificial habitat features and resources have been installed outside the clearing limits as per the ecologist's advice. |
| 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. | Preconstruction and construction | Contractor | Open | Refer to CoA B4. |
| 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. | Preconstruction and construction | Contractor | Open | Refer to CoA B1, B2 and B3. |
| 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. | Preconstruction and construction | Contractor | Open | Refer to CoA B5.<br>This matter is being progressed in detailed design and discussed with DPI(Fisheries) at ERGs. |
| 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. | Preconstruction and construction | Contractor. | Open | Refer to CoA B1, B2 and B3.<br>This matter is being progressed in consultation with EPA Biodiversity Specialist to determine most appropriate locations for fauna fence. |
| F12 | Development of an offset strategy will occur in consultation with the Department of Environment, Climate Change and Water. | Preconstruction and construction | Roads and Maritime | Open | Draft Biodiversity Offset Strategy submitted to DP&I 1-7-2013. Final submitted 1-4-2014. |
| 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 | Operation | Roads and Maritime | Open | Not applicable at this time. |

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| | to assess the need for additional measures and/or further targeted monitoring. | | | | |
| 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. | Preconstruction and construction | Contractor | Open | Fauna passage has been progressed in detailed design in consultation with EPA Biodiversity Specialist. |
| | Aboriginal heritage | | | | |
| AH1 | The protection of items and areas of archaeological significance not directly affected by construction will occur. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>These sites are identified on the SAPs and are delineated prior to commencing works in that area. This has been implemented to date. |
| 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. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>The Unexpected Archaeological Finds Procedure has been and will continue to be implemented for the project. |
| 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. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>An Aboriginal Focus Group has been established for the project and meets as required. EPA are invited to these meetings. |
| AH4 | All construction personnel will receive training on their obligations for protection of Aboriginal cultural materials, including information on site locations, conservation management and legal obligations in regard to Aboriginal cultural materials. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>The induction provides training on protection of heritage items.<br>Cultural awareness training was completed in July 2014 for key construction staff, performed by the |

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| | | | | | Registered Aboriginal Parties and the project archaeologist. |
| AH5 | The RTA will comply with the NSW Government's *Aboriginal Participation in Construction Guidelines*. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>Lend Lease have developed an Aboriginal Participation Plan for the project. The Aboriginal Focus Group has been consulted on the plan and are very supportive of the plan. A number of Aboriginal trainees have been employed onsite. |
| | Non-Aboriginal heritage | | | | |
| NH1 | The detailed design will minimise impacts to identified non-Aboriginal heritage items where feasible and reasonable. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| NH2 | If any material of potential archaeological significance is unearthed, work will cease to obtain specialist heritage advice. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>The Unexpected Archaeological Finds Procedure has been and will continue to be implemented for the project. |
| NH3 | Preparation of archival and photographic records for impacted heritage items would be in accordance with relevant guidelines. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the HMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>An archival record of the Kalang River Farmhouse was completed on 2-8-2013 by a historical archaeologist. The report was submitted to Roads and Maritime, Urunga Library, Urunga Museum, Heritage Branch (OEH) on 13-9-2013. |
| | Water quality and hydrology | | | | |

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| W1 | Minimisation of the area of soil exposure during construction. | Construction | Contractor | Open | Requirement incorporated into SWMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>This has been achieved by staging clearing and undertaking progressive revegetation works. |
| W2 | Detailed design will further investigate any additional feasible and reasonable mitigation and management measures to minimise construction erosion and sedimentation. | Preconstruction and construction | Contractor | Open | Sediment basin design and the effective design of drains to minimise scouring risk undertaken through design and SWTC requirements. |
| 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. | Preconstruction and construction | Roads and Maritime will prepare the monitoring program and implement the pre and post construction requirements. Contractor to implement construction monitoring requirements. | Open | Groundwater and surface water monitoring programs approved by DP&I 4-3-2013. |
| 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. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the SWMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>Agency stakeholders have been consulted during the ERG's on the development of detailed design and construction for the waterway realignments. |
| W5 | Managing operational water quality will occur by applying RTA's *Code of Practice for Water Management – Road Development and Management (1999)*. | Preconstruction, construction and operation | Contractor. Roads and Maritime will manage operational water | Open | Requirements incorporated into the SWMP submitted to DP&I 1-7-2013, approved 25-9-2013. |

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| | | | 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. | Preconstruction and construction | Roads and Maritime will prepare the monitoring program and implement the pre and post construction requirements. Contractor to implement construction monitoring requirements. | Open | Groundwater monitoring program approved by DP&I 4-3-2013. Background monitoring of water quality and levels commenced September 2012. |
| W7 | Baseline monitoring of groundwater levels and chemical levels at cutting sites near springs, creeks or endangered ecological communities prior to construction commencing. | Preconstruction and construction | Contractor. Roads and Maritime will undertake baseline monitoring up to the date of the Deed. | Open | Groundwater monitoring program approved by DP&I 4-3-2013. Background monitoring of water quality and levels commenced September 2012. |
| | 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 Monosulphidic Black Ooze (RTA 2005)*. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the SWMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| 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). | Preconstruction and construction | Contractor | Open | Requirements incorporated into the SWMP submitted to DP&I 1-7-2013, approved 25-9-2013. Additional investigations into potential soil contamination have occurred. Three contaminated sites have been identified on the NH2U |

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| | | | | | section. These include a natural arsenic site, a cattle dip site and a pesticide contaminated area. These sites have now been remediated in accordance with advice from a contamination consultant and EPA. |
| | Air quality | | | | |
| AQ1 | To minimise windblown, traffic generated or equipment generated dust emissions, there will be feasible and reasonable mitigation and management measures. | Construction | Contractor | Open | Requirements incorporated into the AQMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>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. | Construction | Contractor | Open | Requirements incorporated into the AQMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>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. | Preconstruction | Contractor | Open | Requirements incorporated into the WEMP submitted to DP&I 1-7-2013, approved 25-9-2013 and considered in detailed design. |
| G2 | Energy efficient work practices will be adopted to limit energy use.<br>Where reasonable and feasible, equipment and management measures will be adopted to minimise energy use and greenhouse gas production. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the WEMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| | 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.<br>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. | Preconstruction | Contractor | Open | Refer to CoA B21 |
| UD2 | The species to be used in the landscaping treatments will include native and locally indigenous plants. | Preconstruction and construction | Contractor | Open | Included in SWTC App 15, R176, R178 and R179 in regards to urban design and landscape treatments.<br>Refer to CoA B21. |

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| UD3 | Landscape and rehabilitation works will be subject to monitoring and maintenance where necessary for a minimum of two years after construction. | Operation | Contractor. | Open | Included in Section 8 of R178 and section 4 of R179 in regards to urban design and landscape treatments. Deed schedule 1 item 8 requires 36 month landscape maintenance period. |
| | 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.<br>Containers, workshops, plant, material stores and storage tanks will not be sited on the floodplain of watercourses where avoidable. | Construction | Contractor | Open | Requirements incorporated into the SWMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| 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. | Construction | Contractor | Open | Requirements incorporated into the SWMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>Controls are put in place to prevent discharge of chemicals to watercourses. No major spills have occurred to date. |
| | Waste and resource management | | | | |
| WR1 | The waste minimisation hierarchy principles of avoid / reduce / re-use / recycle / dispose will apply to all aspects of the Proposal, including work programs, purchase strategies and site inductions. Quarterly assessments will identify opportunities for improvement. | Construction | Contractor | Open | Requirements incorporated into the WEMP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| WR2 | Where reuse or recycling of water is not possible, it will be sent to an appropriately licensed facility. | Construction | Contractor | Open | Requirements incorporated into the WEMP submitted to DP&I 1-7-2013, approved 25-9-2013.<br>Licenced Landfills and Sewage Treatment Plants are being used. |
| | Landuse and property | | | | |
| P1 | Negotiation of all property acquisitions will be in accordance with the RTA *Land Acquisition Policy Statement*. | Preconstruction | Roads and Maritime | Open | All property purchase undertaken in accordance with. Land Acquisition |

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| | Compensation assessment will be in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*. | | | | (Just Terms Compensation) Act 1991. Refer to 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. | Preconstruction | Roads and Maritime | Open | Requirement included within State Forest Deed of Agreement as part of land purchase. State Forest are currently exercising this agreement. |
| 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. | Preconstruction and construction | Contractor | Open | Groundwater monitoring program approved by DP&I 4-3-2013.<br>Program did not identify any licensed bores that would be adversely affected.<br>Consultation with landowners has occurred where dams may be impacted. |
| | Socio economic impacts | | | | |
| S1 | There will be ongoing consultation with affected businesses, agricultural and aquaculture landowners. | Preconstruction and construction | Contractor | Open | Requirements incorporated into the CIP submitted to DP&I 1-7-2013, approved 25-9-2013. |
| 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. | Preconstruction and construction | Roads and Maritime for some pre construction activities and Contractor for construction. | Open | Utility relocations ongoing in consultation with the relevant service provider. |
| S3 | Sites chosen for ancillary facilities will satisfy criteria outlined in Chapter 7 of the EA.<br>Occupation and use of compound and work sites will seek to minimise disturbance to adjacent residents. | Preconstruction and construction | Contractor | Open | Included in CEMP and SWMP.<br>Further EA/ Consistency required as sites are proposed by the Contractor/ where required.<br>Refer to CoA 27 and 28. |
| S4 | Fencing will be erected around construction activities to prevent livestock from adjacent properties entering construction areas.<br>Inclusion of water quality protection measures during the installation of in-stream structures to protect aquaculture. | Preconstruction and construction | Contractor | Open | Fencing works ongoing |

# Appendix B

# Environmental Monitoring Results

## NH2U - Noise Monitoring Summary May 2014 to November 2014

| Monitoring Location No. (NVMP) | Location | Date | Time | Activity | Noise Goal Laeq | Predicted LAeq Noise Level | Measured Noise Level Laeq | Construction Noise Within Predicted Noise Level? | Monitoring Comments | Compliance Check |
|---|---|---|---|---|---|---|---|---|---|---|
| **May-14** | | | | | | | | | | |
| CP_1 (1A) | 70 Foxes Rd | 12-May-14 | 9:35 AM | Earthworks | 45 | 44 | 43 | Y | Construction noise inaudible. Dominant noise source includes Pacific Highway traffic (50dB) and wind in trees (45dB). | Construction noise inaudible. |
| CP_2 (2A) | 47 Boggy Creek Rd | 12-May-14 | 10:32 AM | Earthworks | 48 | 59 | 45.9 | Y | Construction audible, however background noise dominant. Construction includes truck movements and general earthworks. Excavator loading moxy's (48dB peak), moxy movements (43dB) and faint reversing beeper (42dB). Background noise includes Pacific Highway traffic (54dB), birds (52dB) wind in trees (50dB) and intermittent cows (51dB). | Construction noise below noise goals. |
| CP_3 (2) | 21 Auld Cl | 12-May-14 | 9:10am | Earthworks | 57 | 60 | 57.5 | Y | Construction noise inaudible. Background noise includes Pacific Highway traffic (60dB peak), wind in trees (45dB) and birds (55dB). | Construction noise inaudible |
| CP_4 (3) | 19 Valla Rd | 12-May-14 | 10:38am | Earthworks | 57 | 65 | 61 | Y | Construction audible. Works include general earthworks, excavator loading trucks (57dB), Pacific Highway traffic (peak 62dB) and intermittent reversing beepers (57dB). | Construction noise equivalent to noise goals and below predicted noise level. |
| CP_5 (5) | 7119B Pacific Hwy | 9-May-14 | 11:27 AM | Earthworks | 55 | 53 | 55.4 | Y | Construction audible, however background noise dominant (Pacific Highway). Works include earthworks - loading of moxy's, operation of water cart, pad foot. Pad foot roller (51dB), excavator (48dB). Pacific Highway noise dominates - trucks braking (58dB). | Construction noise below noise goals. Pacific Highway noise dominates. |
| CP_6 (6A) | 7 Valla Beach Rd | 12-May-14 | 9:21 AM | Earthworks | 55 | 43 | 56.7 | Y | Construction inaudible. Background noise sources include Pacific Highway (58-67dB) and local traffic along Valla Beach Road (63dB). | Construction noise inaudible. |

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| CP_7 (7) | 6 East West Rd | 9-May-14 | 2:30 PM | Earthworks | 57 | 64 | 56.8 | Y | Construction noise audible, however background sources dominant. Works involve general earthworks (pad foot roller, scraper). Scraper (52-54dB), roller (49-50dB). Dominant noise source were passing cars on East/West Road (62dB) and trucks braking on Pacific Highway (57dB). Other sources include birds (49dB peak). | Construction noise below noise goals. |
| CP_8 (8A) | 7440 Pacific Hwy | 12-May-14 | 8:56 AM | Earthworks | 50 | 47 | 57.9 | Y | Construction noise inaudible. Works include crane operation and truck loading. Pacific Highway background noise is dominant (62dB peak). | Construction noise inaudible. |
| CP_9 (9A) | 7443 Pacific Hwy | 7-May-14 | 11:54 AM | Earthworks | 55 | 53 | 52.1 | Y | Construction noise inaudible. Background noise sources include Pacific Highway (57dB), wind in trees and birds. | Construction noise inaudible. |
| CP_10 (11) | 7643 Pacific Hwy | 12-May-14 | 8:18am | Earthworks | 59 | 49 | 50.6 | Y | Construction noise audible however background sources dominant. Works include earthworks along Pacific Highway to Ballards Road. Faint reversing beepers (48dB). Other background sources include birds (51dB), trucks braking on Pacific Highway (60dB peak) and property owner working in shed (62dB peak). | Construction noise below noise goals. |
| CP_11 (11A) | 1316 Martells Rd | 15-May-14 | 10:19am | Earthworks | 52 | 23 | 44.3 | Y | Construction inaudible. Background noise includes Pac Hwy (50dB) and birds (48dB). | Construction noise inaudible. |
| CP_12 (13A) | 354 South Arm Rd | 8-May-14 | 3:12 PM | Earthworks | 40 | 51 | 60.9 | N | Construction noise audible. Works include general earthworks - 4 x moxy's tipping (60.4dB), dozer operating (59dB), truck and dogs using South Arm Road (60dB). Background noise includes birds (58dB peak). | Construction noise above the noise goal and 9.9dB above predicted noise levels. All reasonable and feasible noise mitigation in place. No complaints received. |
| CP_13 (12A) | 358 South Arm Rd | 8-May-14 | 2:46 PM | Earthworks | 40 | 59 | 53.3 | Y | Construction audible. Works include general earthworks. Excavator being repaired (53dB), moxy's moving across haul road (54dB peak). Background noise includes birds (53dB peak). | Construction noise above noise goals, but below predicted noise level. |
| CP_14 (14A) | 17 Ridgewood Dr | 15-May-14 | 11:38 AM | Earthworks | 45 | 52 | 49.5 | Y | Construction noise inaudible. Background noise includes birds and traffic along Short Cut Road. | Construction noise inaudible. |

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| CP_15 (15A) | 79 Short Cut Rd | 10-May-14 | 1:49 PM | Earthworks | 46 | 56 | 52.8 | Y | Construction noise audible. Works include clearing (1x excavator, 1x dozer). Excavator (54dB peak) and dozer (53dB), reversing beeper (49-51dB). Other background noise includes local traffic on Short Cut Road (55dB), crickets (42dB) and birds (50dB). | Construction noise above noise goals, but below predicted noise level. |
| CP_16 (16A) | 63 Waterfall Way | | | | | | | n/a | Construction work is yet to commence in this area, no monitoring required. | |
| CP_17 (17A) | 100 Old Pacific Hwy | | | | | | | n/a | Construction work is yet to commence in this area, no monitoring required. | |
| Receiver 281 | McCombies, Gossips Rd | 15-May-14 | 10:48 AM | Earthworks | 40 | 47 | 47.4 | N | Construction noise audible. Works include general earthworks. Scraper's running (48dB), roller (42dB) and tractor with scraper attachment (47dB). Intermittent reversing beepers (42dB), watercart operating (inaudible). Background noise includes birds (43dB peak). | Construction noise above the noise goal and 0.4dB above predicted noise levels. All reasonable and feasible noise mitigation in place. No complaints received. |
| CP_12 (13A) | 354 South Arm Rd | 30-May-14 | 11:45am | Earthworks | 40 | 51 | 56.6 | N | Construction audible. Works include earthworks (moxy's dumping approx 60m from property - 58dB peaks). Other works include light vehicle movements, water cart operating. Stockpile aids in shielding from majority of works in alignment. | Construction noise above the noise goal and 5.6dB above predicted noise levels. All reasonable and feasible noise mitigation in place. No complaints received. |
| CP_13 (12A) | 358 South Arm Rd | 30-May-14 | 11:25am | Earthworks & Piling (bore) | 40 | Earthworks (59) & Piling (52) | 59.9 | N | Construction audible. Works include piling (bore), plant movements (moxy's, scrappers, dozers) and general earthworks. Piling rig (`58-60dB during operation). Peaks of 64dB (during shaking of equipment). Note - Batter provides significant noise shielding. Background noise includes birds ( 48dB). | Construction noise above the noise goal and 0.9dB above predicted noise levels. All reasonable and feasible noise mitigation in place. No complaints received. |
| **Jun-14** | | | | | | | | | | |
| CP_1 (1A) | 70 Foxes Rd | 11-Jun-14 | 11:45 AM | Earthworks | 45 | 44 | 62.1 | Y | Construction noise inaudible. Background noise includes grass cutting at nearby property (63dB), train passing (68db) and birds (58dB). | Construction noise inaudible |

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| CP_2 (2A) | 47 Boggy Creek Rd | 11-Jun-14 | 12:12 PM | Earthworks | 48 | 59 | 49.9 | Y | Construction audible. Works include general earthworks. 2 x excavators (48.5dB) and truck movements (inaudible). Intermittent reversing beepers (47dB). Background noise includes Pac Hwy traffic (42dB peak), wind in trees (49dB peak) and crickets (39dB). | Construction noise slightly above noise goal but below predicted noise level |
| CP_3 (2) | 21 Auld Cl | 11-Jun-14 | 11:15 AM | Earthworks | 57 | 60 | 57.5 | Y | Construction inaudible. Works include truck movements. Dominant background noise source includes Pac Hwy traffic (60dB). Other noise sources include wind in trees (58db). | Construction noise inaudible |
| CP_4 (3) | 19 Valla Rd | 16-Jun-14 | 8:57 AM | Earthworks | 57 | 65 | 53.5 | Y | Construction noise inaudible, background noise from Pac Hwy dominant. Works include truck and dog movements along Valla rd. Pac Hwy traffic (61dB peak). | Construction noise inaudible |
| CP_5 (5) | 7119B Pacific Hwy | 16-Jun-14 | 11:26 AM | Earthworks | 55 | 53 | 51.9 | Y | Construction audible but background noise from Pac Hwy dominant (54dB peak when trucks are braking). Works involve general earthworks and moxy movements. Excavator (49dB), moxy movements (46dB) and grader (inaudible). | Construction noise below noise goals. |
| CP_6 (6A) | 7 Valla Beach Rd | 11-Jun-14 | 10:50 AM | Earthworks | 55 | 43 | 59.8 | Y | Construction inaudible. Works include general earthworks. Background sounds include Pac Hwy traffic (62dB), Valla Rd traffic (68dB peak) and birds (58dB). | Construction noise inaudible. |
| CP_7 (7) | 6 East West Rd | 16-Jun-14 | 9:30 AM | Earthworks | 57 | 64 | 56.8 | Y | Construction noise inaudible, works include ERSED/fence maintenance by workers on foot. Background noise dominated by Pac Hwy traffic (64dB). Other noise includes birds (58dB) and delivery driver driving along property driveway (67dB). | Construction noise inaudible. |
| CP_8 (8A) | 7440 Pacific Hwy | 11-Jun-14 | 10:30 AM | Earthworks | 50 | 47 | 59 | Y | Construction inaudible. Works include crane operation, truck movements and general formwork. Background sounds include Pac Hwy (62dB), birds (58dB) and wind in trees (55-58dB). | Construction noise inaudible. |
| CP_9 (9A) | 7443 Pacific Hwy | 16-Jun-14 | 10:50 AM | Earthworks | 55 | 53 | 52.7 | Y | Construction noise audible. Works include general earthworks, excavators working stockpile (51dB), reversing beepers (49dB), | Construction noise below noise goals. |

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| | | | | | | | | | roller (inaudible), truck movements (50dB). Stockpile shielding excavator's 2 and 4. Pacific Hwy traffic (44-48dB) and birds (30dB). | |
| CP_10 (11) | 7643 Pacific Hwy | 18-Jun-14 | 10:50 AM | Earthworks | 59 | 49 | 52.7 | Y | Construction noise audible. Works include material handling and earthworks. Excavator (48dB), workers on foot hammering (49dB), generator/pump running (51dB), reversing beepers (47.5dB). Background noise - roosters (56db), birds (43dB) and Pac Hwy (53dB). | Construction noise below noise goals. |
| CP_11 (11A) | 1316 Martells Rd | 16-Jun-14 | 11:51 AM | Earthworks | 52 | 23 | 51.3 | Y | Construction inaudible. Background noise includes Pac Hwy traffic (44dB) and birds in trees (46dB). | Construction noise inaudible. |
| CP_12 (13A) | 354 South Arm Rd | 16-Jun-14 | 12:25 PM | Earthworks | 40 | 51 | 53.3 | N | Construction audible. Works include general earthworks and truck movements. Excavator's (38dB), moxy's (32dB), reversing beepers (50dB) and forklift's reversing squarker (51dB intermittent). Background noise includes traffic on South Arm Rd (42dB), birds (peak 49dB). | Construction noise above noise goal and slightly (2.3dB) above predicted noise level. No additional mitigation measures feasible. No complaints received. |
| CP_13 (12A) | 358 South Arm Rd | 16-Jun-14 | 1:02 PM | Earthworks | 40 | 59 | 57.7 | Y | Construction noise audible. Works include general earthworks and material handling. Cut provides significant noise screening - excavator (49dB), franna (47dB), dozer (39dB) and workers welding/cutting rio (50dB peak). Background noise includes intermittent dog barking (80dB) and birds (46dB). | Construction noise above noise goal but below predicted noise level |
| CP_14 (14A) | 17 Ridgewood Dr | 17-Jun-14 | 11:52 AM | Earthworks | 45 | 52 | 52.9 | N | Construction audible. Works include general earthworks. Excavator (50dB), roller (47.5dB), truck and dog (48dB), reversing beepers (47dB). High construction activity. Background noise includes birds (32dB) and crickets (22dB approx). | Construction noise above noise goal and slightly (0.9dB) above predicted noise level. No additional mitigation measures feasible. No complaints received. |
| CP_15 (15A) | 79 Short Cut Rd | 17-Jun-14 | 11:20 AM | Earthworks | 46 | 56 | 58.8 | N | Construction noise audible. Works include earthworks and material movements. Truck and dogs unloading rock (58dB), excavator moving rock (57dB), grader working adjacent to South arm on haul rd (54dB). Background noise | Construction noise above noise goal and slightly (2.8dB) above predicted noise level. Rock unloading activities near this receiver have now been completed. |

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| | | | | | | | | | includes trucks braking along Short Cut (64dB peak) and birds (48dB). | |
| CP_16 (16A) | 63 Waterfall Way | 17-Jun-14 | 12:40 PM | Clearing | 54 | 36 | 51 | Y | Construction audible. Works include general earthworks and clearing. Clearing excavator (50dB), tractor moving logs (49dB), faint reversing beeper (51dB). Vegetation and terrain helps shield noise from clearing. Background noise includes Pac Hwy traffic (58dB peak) and birds (48dB). | Construction noise below noise goal. |
| CP_17 (17A) | 100 Old Pacific Hwy | 17-Jun-14 | 2:25 PM | Earthworks | 57 | 55 | 51.8 | Y | Construction audible but Pac Hwy traffic is dominant noise source. Works include general earthworks and clearing at Waterfall Way. Excavator (47dB), clearing excavator (46dB), clearing tractor (inaudible). Works on Eastern side of Pac Hwy are shielded by terrain, dominant construction noise is from clearing works. Pac Hwy traffic (59dB). | Construction noise below noise goal. |
| Receiver 281 | McCombies, Gossips rd | 18-Jun-14 | 11:30 AM | Earthworks | 40 | 47 | 73.1 | N | Construction noise audible, works include truck movements and placing rock. Trucks tipping rock (49dB), trucks along Gossips (46dB). During monitoring cows came towards monitor (74dB peak). Other background noise includes birds (38dB). | Construction noise above noise goal and slightly (2dB) above predicted noise level. No additional mitigation measures feasible during unloading rock. No complaints received. |
| Receiver 170 | Oyster Dr (in response to a complaint) | 12-Jun-14 | 8:52 AM | Earthworks | 50 | 52 | 57.3 | Y | Construction noise audible but Pac Hwy traffic dominant noise source. Works include earthworks (1 x excavator ~46dB), roller (inaudible), Pac Hwy traffic (average 60dB), birds (52dB intermittent), trucks along Pac Hwy (64dB peak) | Construction noise measured below noise goals. |
| **Jul-14** | | | | | | | | | | |
| CP_1 (1A) | 70 Foxes Rd | 16-Jul-14 | 4.05pm | Earthworks | 45 | 44 | 48.6 | Y | Construction noise mostly inaudible. Construction noise is only audible as occasional reverse alarms (<40dB). Background noise includes; constant dog barking ((45-55dB), birds (45-50dB); resident whistling (<40dB); Pac Hwy traffic is also audible (39dB); | Construction noise inaudible. |

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| | | | | | | | | | plane (55-60 dB). Dog barking is the dominant noise source | |
| CP_2 (2A) | 47 Boggy Creek Rd | 16-Jul-14 | 4.36pm | Earthworks | 48 | 59 | 50.7 | Y | Construction audible. Dominant noise source was dozer working stockpile and tracking (52dB). Other sources include occasional reversing alarms (45dB). Background noise includes; birds (40dB); traffic on Pacific Highway (40dB) | Construction noise above noise goal but below predicted noise level |
| CP_3 (2) | 21 Auld Cl | 16-Jul-14 | 3.42pm | Earthworks | 57 | 60 | 48.6 | Y | Construction audible but traffic on the Pacific Highway is the dominant noise source (45-55 dB), other sources include birds (45 dB), and residential power tools (42dB). Construction noise includes excavator (40dB) and reverse alarms. | Construction noise below noise goals. |
| CP_4 (3) | 19 Valla Rd | 17-Jul-14 | 1.00pm | Earthworks | 57 | 65 | 48.9 | Y | Construction noise inaudible. Background noise includes birds, traffic on Pacific Highway (46-50dB). | Construction noise inaudible. |
| CP_5 (5) | 7119B Pacific Hwy | 17-Jul-14 | 1.24pm | Earthworks | 55 | 53 | 54.9 | Y | Construction audible. Dominant noise source was dog barking within 5m of monitoring location (60dB), traffic on Pacific Highway (50 dB) and aeroplane (55 dB). Construction noise included 30T excavator working on driveway - within 20m of monitoring location (56dB) for 5 minute period. | Construction noise below noise goals. |
| CP_6 (6A) | 7 Valla Beach Rd | 17-Jul-14 | 12.30pm | Earthworks | 55 | 43 | 56.9 | Y | Construction noise inaudible. Background noise includes traffic on Valla Road (50-65dB); Pacific Highway traffic ( 45-50dB), children playing and birds. | Construction noise inaudible. |
| CP_7 (7) | 6 East West Rd | 17-Jul-14 | 1.50pm | Earthworks | 57 | 64 | 49.7 | Y | Construction noise inaudible. Background noise dominated by birds and traffic on Pacific Highway (45-55dB). | Construction noise inaudible. |
| CP_8 (8A) | 7440 Pacific Hwy | 17-Jul-14 | 2.45pm | Earthworks | 50 | 47 | 57.4 | Y | Construction noise inaudible. Background noise dominated by traffic on Pacific Highway, birds and an aeroplane. | Construction noise inaudible. |
| CP_9 (9A) | 7443 Pacific Hwy | 17-Jul-14 | 2.10pm | Earthworks | 55 | 53 | 52.2 | Y | Construction audible but background noise is the dominant noise source. Background noise includes traffic on Pacific Highway | Construction noise below noise goals. |

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| | | | | | | | | | (48 - 54 dB), traffic on Burkes Lane traffic and birds. Construction noise includes; water cart (52dB), Scraper haul (53dB) at fill 14 and other general earthworks. | |
| CP_10 (11) | 7643 Pacific Hwy | 17-Jul-14 | 11.14am | Earthworks | 59 | 49 | 51.1 | Y | Construction audible but background noise dominant source and includes traffic on Pacific Highway (45-53 dB), pigs and farm animals (48 dB) and birds (50 dB). Construction noise includes roller (53dB); LV accessing site via 12B to Gate 62 (48dB); and hiab delivery. | Construction noise below noise goals. |
| CP_11 (11A) | 1316 Martells Rd | 9-Jul-14 | 8.06am | Earthworks | 52 | 23 | - | Y | Construction noise inaudible | Construction noise inaudible. |
| CP_12 (13A) | 354 South Arm Rd | 9-Jul-14 | 10.41am | Earthworks | 40 | 51 | 50.3 | Y | Construction audible. Construction noise includes "hum" of machinery, reversing alarms audible scrapers up to 60dB | Construction noise above noise goal but below predicted noise level |
| CP_13 (12A) | 358 South Arm Rd | 18-Jul-14 | 7.40am | Earthworks | 40 | 59 | 53.4 | Y | Construction audible. Construction works include earthworks and piling operation at Kalang River. Other background noise sources include dogs barking (peak 70dB). | Construction noise above noise goal but below predicted noise level |
| CP_14 (14A) | 17 Ridgewood Dr | 9-Jul-14 | 12.44pm | Earthworks | 45 | 52 | 50.6 | Y | Construction audible. Construction noise includes moxies/grader (peak 59dB),truck and dog (53-58dB). | Construction noise above noise goal but below predicted noise level |
| CP_15 (15A) | 79 Short Cut Rd | 9-Jul-14 | 10.11am | Earthworks | 46 | 56 | 48.4 | Y | Construction audible. Excavator, reversing alarms up to 58dB; truck movements compression braking on Short Cut road up to 70dB; trucks tipping up to 60dB; light tools up to 55dB. | Construction noise above noise goal but below predicted noise level |
| CP_16 (16A) | 63 Waterfall Way | 9-Jul-14 | 11.39am | Clearing | 54 | 36 | 55 | Y | Construction audible but not the dominant noise source. Pacific Highway background noise is the dominant noise source (peak at 64 dB). | Pacific Highway is the dominant noise source |
| CP_17 (17A) | 100 Old Pacific Hwy | 9-Jul-14 | 11.13am | Earthworks | 57 | 55 | 52.4 | Y | Construction audible. Construction works include mulcher operation and trucks on on-ramp (peak at 55dB). | Construction noise below noise goals. |
| Receiver 281 | McCombies, Gossips rd | 9-Jul-14 | 2.37pm | Earthworks | 40 | 47 | 46.4 | Y | Construction audible. Construction noise includes machinery tracking (45 dB); scrapers (48-52 dB) and trucks tipping up (peak 57dB). | Construction noise above noise goal but below predicted noise level |

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| Receiver 170 | Oyster Dr (in response to a complaint) | 17-Jul-14 | 12:05 PM | Earthworks | 50 | 52 | 51.1 | Y | Construction audible. Background noise includes traffic on Pacific Highway (53dB -59 dB); and birds. Construction noise includes reverse alarms (<40dB) and a dozer (49-51dB) | Construction noise above noise goal but below predicted noise level |
| **Aug-14** | | | | | | | | | | |
| CP_1 (1A) | 70 Foxes Rd | 6-Aug-14 | 11:00am | Earthworks | 45 | 44 | 47 | Y | **Construction inaudible.** Background noise includes dogs barking (59dB) peak, rooster (53dB peak). | Construction noise inaudible. |
| CP_2 (2A) | 47 Boggy Creek Rd | 6-Aug-14 | 12:52 | Earthworks | 48 | 59 | 48.7 | Y | Construction audible. Works include general earthworks and truck movements. Moxy's running (42dB). Dominant noise is background traffic along Pac Hwy (48dB peak), birds (42dB intermittent) and wind in trees (39dB). | Construction noise measured below noise goal and prediction. |
| CP_3 (2) | 21 Auld Cl | 6-Aug-14 | 10:38am | Earthworks | 57 | 60 | 56 | Y | Construction audible but background noise from Pac Hwy dominant. Works include general earthworks and piling. Excavator operating 46dB, piling rig (intermittent 50dB). Background noise includes Pac Hwy traffic 62dB, trucks braking on Hwy (65dB peak), birds (51dB) and wind in trees (49dB). | Construction noise below noise goals. |
| CP_4 (3) | 19 Valla Rd | 6-Aug-14 | 1:30pm | Earthworks | 57 | 65 | 55.5 | Y | Construction audible, but background noise dominates. Construction works include loading of excavator, light vehicle movements. Excavator (48dB), roller (42dB). Background noise includes Pac Hwy traffic (54dB) and birds (49dB). | Construction noise below noise goals. |
| CP_5 (5) | 7119B Pacific Hwy | 6-Aug-14 | 1:55pm | Earthworks | 55 | 53 | 60.2 | Y | Construction audible. Works include general earthworks. Scrapers running (52dB), backhoe (47dB), dozer (49dB). Pacific Hwy background noise 65dB. Resident pulling up on driveway (68dB peak). | Construction noise measured below noise goal and prediction. |
| CP_6 (6A) | 7 Valla Beach Rd | 6-Aug-14 | 11:26am | Earthworks | 55 | 43 | 54.3 | Y | **Construction inaudible.** Works include general earthworks (inaudible). Background noise includes traffic on Pac Hwy. | Construction noise inaudible. |
| CP_7 (7) | 6 East West Rd | 6-Aug-14 | 2.30pm | Earthworks | 57 | 64 | 56.4 | Y | **Construction inaudible.** Background noise dominated by Pac Hwy traffic (62dB), trucks | Construction noise inaudible. |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | braking along Hwy (64dB peak). Other noise sources include wind in trees. | |
| CP_8 (8A) | 7440 Pacific Hwy | 6-Aug-14 | 10:06am | Earthworks | 50 | 47 | 58.6 | Y | **Construction inaudible.** Works include plant movements and general earthworks. Background noise includes Pac Hwy traffic (58dB), trucks braking on Hwy (63dB peak), birds (49dB) and wind in trees (50dB). | Construction noise inaudible. |
| CP_9 (9A) | 7443 Pacific Hwy | 14-Aug-14 | 12.10am | Earthworks | 55 | 53 | 53 | Y | Construction noise is the dominant noise source and includes: Scraper haul from cut 15 to fill 15 (55dB). Scraper fleet includes 4 x 637 scrapers, 3 x water carts, 1 x 825 Compactor. 1 x truck and digger also working at B69.07. Background noise includes Pac Hwy Traffic (50dB), birds and minimal traffic on Burkes Lane. | Construction noise below noise goals. |
| CP_10 (11) | 7643 Pacific Hwy | 14-Aug-14 | 1.00pm | Earthworks | 59 | 49 | 61 | Y | **Construction noise inaudible.** Background noise is dominated by Pac Hwy Traffic (60dB) and cows within 10m of monitor ( 65db peaks). Other noise includes birds and rustling leaves. | Construction noise inaudible. |
| CP_11 (11A) | 1316 Martells Rd | 13-Aug-14 | 11.15am | Earthworks | 52 | 23 | - | Y | **Construction noise inaudible** | Construction noise inaudible. |
| CP_12 (13A) | 354 South Arm Rd | 8-Aug-14 | 11.21am | Earthworks | 40 | 51 | 56.9 | N | Construction audible; harvester loading habitat logs 58dB; front end loader loading logs and bogies up to 66.9 dB | Construction noise above noise goal and slightly (5.9dB) above predicted noise level. No additional mitigation measures feasible. Works short duration. No complaints received. |
| CP_13 (12A) | 358 South Arm Rd | 6-Aug-14 | 3:20pm | Earthworks | 40 | 59 | 57.1 | Y | Construction audible. Works include dozer and truck and dog movements (53dB peak), workers fixing steel rigging (47dB intermittent), water cart operating in main alignment (inaudible). Background noise includes wind in trees (49dB). | Construction noise above noise goal but below predicted noise level |
| CP_14 (14A) | 17 Ridgewood Dr | 12-Aug-14 | 12.37pm | Earthworks | 45 | 52 | 51.7 | Y | construction audible; reversing alarms general 'hum' of machinery operating (not registering on meter). Watercart 52; grader 57.2; truck and dog 59dB | Construction noise above noise goal but below predicted noise level |

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| CP_15 (15A) | 79 Short Cut Rd | 8-Aug-14 | 4.01pm | Earthworks | 46 | 56 | 57.9 | N | hum of construction dominant background noise up to 59dB; truck and dog on Short Cut Road 60-70.4dB; occasional tail gate slamming up to 63dB | Construction noise above noise goal and slightly (1.9dB) above predicted noise level. No additional mitigation measures feasible. No complaints received. |
| CP_16 (16A) | 63 Waterfall Way | 12-Aug-14 | 3:42pm | Earthworks | 54 | 51 | 55.2 | Y | Highway noise constant background. Construction inaudible | Construction noise inaudible. |
| CP_17 (17A) | 100 Old Pacific Hwy | 8-Aug-14 | 3.30pm | Earthworks | 57 | 55 | 52.9 | Y | Main back ground noise Hwy traffic 62-64; construction audible but not registering on meter, reversing alarm , excavator tracking | Construction noise inaudible. |
| Receiver 281 | McCombies, Gossips rd | 13-Aug-14 | 11.33am | Earthworks | 40 | 47 | 52.7 | N | Construction audible; rock hammer 59-62 dominant background noise rock loading/tipping to/from moxies 57-67 | Construction noise above noise goal and slightly (5.7dB) above predicted noise level. No additional mitigation measures feasible during unloading rock. No complaints received. |
| | | | | | | | | | | |
| **Sep-14** | | | | | | | | | | |
| CP_1 (1A) | 70 Foxes Rd | 26-Sep-14 | 11.53am | Earthworks | 45 | 44 | 48 | Y | **Construction inaudible** at receiver location. Background noise (wind 45 -58, highway traffic: 50 -55) dominated noise recording. | Construction noise inaudible. |
| CP_2 (2A) | 47 Boggy Creek Rd | 26-Sep-14 | 12.19pm | Earthworks | 48 | 59 | 51.5 | Y | Construction noise audible, scrapers passing on haul: 47 -50, D11 Dozer tracking: 49. Background noise (birds:54 - 56, highway traffic: 48 -52, wind: 50 - 60) dominated noise recording. | Construction noise above noise goal but below predicted noise level |
| CP_3 (2) | 21 Auld Cl | 26-Sep-14 | 8.03am | Earthworks | 57 | 60 | 48.8 | Y | Construction audible: Grader 45 - 46, Excavator loading trucks: 42 - 47. Background noise (highway traffic: 50 -62, birds: 50) dominated noise recording. | Construction noise below noise goal. |
| CP_4 (3) | 19 Valla Rd | 26-Sep-14 | 8.30am | Earthworks | 57 | 65 | 46.7 | Y | Construction audible at receiver location: Concrete truck: 50, LVs on site: 45 -48. Background (highway traffic: 40 -58, birds: 50 - 59) dominated noise recording | Construction noise below noise goal. |
| CP_5 (5) | 7119B Pacific Hwy | 26-Sep-14 | 9:00am | Earthworks | 55 | 53 | 54.7 | Y | Construction audible: D10 Dozer pushing scrapers: 50 -55, roller reverse beeper: 55. Background noise (highway traffic: 50 - 60, | Construction noise below noise goal. |

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | birds: 45 -58) | |
| CP_6 (6A) | 7 Valla Beach Rd | 26-Sep-14 | 1.00pm | Earthworks | 55 | 43 | 53 | Y | Construction inaudible at receiver location. Background noise (wind 45 -55, highway traffic: 50 -55) dominated noise recording. | Construction noise inaudible. |
| CP_7 (7) | 6 East West Rd | 26-Sep-14 | 2.14pm | Earthworks | 57 | 64 | 55.1 | Y | Construction audible: Grader 48 - 52, Excavator loading trucks: 45 - 50. Background noise (highway traffic: 50 -60, birds: 55) dominated noise recording. | Construction noise below noise goal. |
| CP_8 (8A) | 7440 Pacific Hwy | 26-Sep-14 | 2.53pm | Earthworks | 50 | 47 | 54 | Y | **Construction inaudible.** Background noise (Highway traffic: 58, wind:50 and birds: 50 -55) dominated noise recording. | Construction noise inaudible. |
| CP_9 (9A) | 7443 Pacific Hwy | 26-Sep-14 | 3.45pm | Earthworks | 55 | 53 | 53.5 | Y | Construction audible: Grader 48 - 53, Excavator: 45 -52. Background noise (highway traffic: 49 -60, birds: 55) dominated noise recording. | Construction noise below noise goal. |
| CP_10 (11) | 7643 Pacific Hwy | 26-Sep-14 | 4.22pm | Earthworks | 59 | 49 | 58.6 | Y | **Construction inaudible** at receiver location. Background noise (wind 45 -55, highway traffic: 50 -60, farm animals:50-65 ) dominated noise recording. | Construction noise inaudible. |
| CP_11 (11A) | 1316 Martells Rd | 9-Sep-14 | 3.10pm | Earthworks | 52 | 23 | 53.2 | Y | **Construction inaudible** highway traffic and wind in trees main background noise 51-58dB | Construction noise inaudible. |
| CP_12 (13A) | 354 South Arm Rd | 10-Sep-14 | 8.13am | Earthworks | 40 | 51 | 47.9 | Y | Construction audible: form workers 42-48, traffic on south arm 47-56, machinery in distance (not registering) | Construction noise above noise goal but below predicted noise level |
| CP_13 (12A) | 358 South Arm Rd | 4-Sep-14 | 12.31pm | Earthworks | 40 | 59 | 48.7 | Y | Scrapers audible on fill 31 51-55dB main background noise | Construction noise above noise goal but below predicted noise level |
| CP_14 (14A) | 17 Ridgewood Dr | 10-Sep-14 | 08.49am | Earthworks | 45 | 52 | 50.4 | Y | Construction audible dozer tracking up to 49dB, concrete saw from shortcut audible not registering. Chainsaw and tree works from neighbour main influence on record | Construction noise above noise goal but below predicted noise level |
| CP_15 (15A) | 79 Short Cut Rd | 4-Sep-14 | 10.09am | Drainage Works | 46 | 42 | 53.4 | N | Concrete saw from pipe works audible 53-59dB main noise during event. Reversing alarms and hum of machinery audible but not registering. Traffic on short cut up to 59 (mostly paused out) | Construction noise above noise goal and above predicted noise level. Pipe saw cut short duration and equivalent to traffic on Shortcut. No additional mitigation measures deemed necessary. No |

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| | | | | | | | | | | complaints received. |
| CP_16 (16A) | 63 Waterfall Way | 4-Sep-14 | 8.54am | Earthworks | 54 | 51 | 52.6 | Y | construction audible but not registering above Hwy background | Construction noise inaudible. |
| CP_17 (17A) | 100 Old Pacific Hwy | 4-Sep-14 | 8.25am | Earthworks | 57 | 55 | 55.8 | Y | Highway main background noise 57-58dB, construction audible but not registering above background | Construction noise below noise goal |
| Receiver 281 | McCombies, Gossips rd | 9-Sep-14 | 3.50pm | Earthworks | 40 | 47 | 56.4 | N | Construction audible dozer tracking 57-59 (main BG noise) constant wind may be a factor in high reading | Construction noise above noise goal and above predicted noise level (9.4dB). No additional mitigation measures feasible. No complaints received. |
| **Oct-14** | | | | | | | | | | |
| CP_1 (1A) | 70 Foxes Rd | 29-Oct-14 | 9.58am | Earthworks | 45 | 44 | - | Y | Construction noise inaudible. | Construction noise inaudible. |
| CP_2 (2A) | 47 Boggy Creek Rd | 29-Oct-14 | 8.33am | Earthworks | 48 | 59 | 42.9 | Y | Local traffic 45-47 Hwy hum audible at around 40. construction audible; scrapers in cut excavator tracking reversing alarms 43-47. birds in background up to 50 (mostly paused out) | Construction noise below noise goal. |
| CP_3 (2) | 21 Auld Cl | 29-Oct-14 | 9.12am | Earthworks | 57 | 60 | 58.1 | Y | construction audible excavator bucket peaking up to 66, reversing alarms 57. Hwy noise constant 60-64. birds in background up to 58 | Construction noise above noise goal but below predicted noise level |
| CP_4 (3) | 19 Valla Rd | 29-Oct-14 | 10.50am | Earthworks & Bridgeworks | 57 | 65 (earthworks), 41 (Bridgeworks) | 63.4 | Y | Earthworks and bridge works occurring; Piling rig up to 67, auger 64, shaking off material 72; reversing alarms 62 | Construction noise above noise goal but below predicted noise level |
| CP_5 (5) | 7119B Pacific Hwy | 29-Oct-14 | 11.19am | Earthworks | 55 | 53 | 53.9 | Y | Highway noise constant background trucks on Hwy up to 56. Some construction audible at around 52 | Construction noise below noise goal. |
| CP_6 (6A) | 7 Valla Beach Rd | 29-Oct-14 | 10.00am | Earthworks | 55 | 43 | - | Y | Highway noise constant background. Construction inaudible | Construction noise inaudible. |
| CP_7 (7) | 6 East West Rd | 29-Oct-14 | 11.45am | Earthworks | 57 | 64 | 56.2 | Y | Highway noise constant background trucks on Hwy up to 56. Construction audible excavator placing rock up to 60 with peaks at 74 from unloading rock from moxie; reversing alarms audible at 52 | Construction noise below noise goal. |

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| CP_8 (8A) | 7440 Pacific Hwy | 29-Oct-14 | 2.52 pm | Earthworks | 50 | 47 | 49 | Y | Construction visible but mostly inaudible. Hwy noise dominant background at a constant 47-48. Excavator from pipe laying occasionally audible at 53. reverse alarms audible but not registering | Construction noise below noise goal. |
| CP_9 (9A) | 7443 Pacific Hwy | 29-Oct-14 | 12.15pm | Earthworks & Drainage | 55 | 53 (earthworks), 42 (drainage) | 57.4 | N | Hwy traffic up to 57 with peaks up to 61. Pipe layers (pavement drainage) 54, concrete saw up to 61; water truck 64. Light vehicle from survey reversing alarm up to 59 | Construction noise above noise goal (by 2.4dB) and above predicted noise level (4.4dB). No additional mitigation measures feasible. No complaints received. |
| CP_10 (11) | 7643 Pacific Hwy | 29-Oct-14 | 2.30pm | Earthworks | 59 | 49 | 53.8 | Y | Construction audible; scrapers reverse alarms and excavators combined around 57 dominant noise | Construction noise below noise goal. |
| CP_11 (11A) | 1316 Martells Rd | 17-Oct-14 | 2.30pm | Earthworks | 52 | 23 | - | Y | Construction inaudible | Construction inaudible |
| CP_12 (13A) | 354 South Arm Rd | 17-Oct-14 | 4.02pm | Earthworks | 40 | 51 | 47.4 | Y | Construction audible Scrapers in cut 47; water cart at stockpile up to 57; traffic control packing up on Short Cut Rd 58 | Construction noise above noise goal but below predicted noise level |
| CP_13 (12A) | 358 South Arm Rd | 17-Oct-14 | 3.34 pm | Earthworks | 40 | 59 | 49.4 | Y | Construction audible Scrapers in cut up to 54-56, birds in background up to 48 | Construction noise above noise goal but below predicted noise level |
| CP_14 (14A) | 17 Ridgewood Dr | 17-Oct-14 | 11.15am | Earthworks | 45 | 52 | 47.8 | Y | construction generally inaudible light vehicles on alignment up to 48, watertruck up to 56 | Construction noise above noise goal but below predicted noise level |
| CP_15 (15A) | 79 Short Cut Rd | 17-Oct-14 | 3.07pm | Earthworks | 46 | 56 | 53.8 | Y | Construction audible scrapers across Short Cut up to 64. Dominant background noise traffic on Short Cut 54; birds in background up to 53 | Construction noise above noise goal but below predicted noise level |
| CP_16 (16A) | 63 Waterfall Way | 17-Oct-14 | 10.50pm | Earthworks | 54 | 51 | 55.1 | Y | Highway noise constant background trucks on Hwy up to 56. Construction visible not registering | Construction noise inaudible. |
| CP_17 (17A) | 100 Old Pacific Hwy | 17-Oct-14 | 10.25am | Earthworks | 57 | 55 | 51 | Y | construction mostly inaudible over existing Hwy noise 51; truck and dogs on onramp 63; occasional shaking of excavator bucket audible 48-50 | Construction noise below noise goal. |
| Receiver 281 | McCombies, Gossips rd | 17-Oct-14 | 2.03pm | Earthworks & Bridgeworks | 40 | 47 (earthworks), 43 (Bridgeworks) | 47.9 | N | Piling audible registering on meter at 46 overall construction generally inaudible. Field birds up to 58, residents talking 55-57 | Construction noise above noise goal and marginally above predicted noise level (0.9 dB). No additional mitigation measures |

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| | | | | | | | | | | feasible. No complaints received. |
| **Nov-14** | | | | | | | | | | |
| CP_1 (1A) | 70 Foxes Rd (2) | 26-Nov-14 | 1.00pm | Earthworks | 45 | 44 | - | Y | Construction noise inaudible. | Construction noise inaudible. |
| CP_2 (2A) | 47 Boggy Creek Rd (7) | 26-Nov-14 | 2.10pm | Earthworks | 48 | 59 | 58.1 | Y | Construction barely audible, excavator tracking on fill 55dB. Background noise dominated by wind and non-project traffic. | Construction noise above noise goal but below predicted noise level. |
| CP_3 (2) | 21 Auld Cl (3) | 26-Nov-14 | 2.35pm | Earthworks | 57 | 60 | 61.1 | Y | Construction audible, D11 tracking north of Valla Rd up to 57dB. Background noise dominated by non-project traffic. | Measured construction noise equal to noise goal and below predicted noise level. |
| CP_4 (3) | 19 Valla Rd | 26-Nov-14 | 3.00pm | Earthworks | 57 | 65 | 58.8 | Y | Construction inaudible - limited works in progress. LVs visible but inaudible above background highway traffic noise. | Construction noise inaudible. |
| CP_5 (5) | 7119B Pacific Hwy (42) | 26-Nov-14 | 4.20pm | Earthworks | 55 | 53 | - | Y | Construction inaudible. Constant highway traffic noise. | Construction noise inaudible. |
| CP_6 (6A) | 7 Valla Beach Rd (97) | 26-Nov-14 | 11.00am | Earthworks | 55 | 43 | - | Y | Construction inaudible. Constant highway traffic noise. | Construction noise inaudible. |
| CP_7 (7) | 6 East West Rd | 26-Nov-14 | 10.15am | Earthworks | 57 | 64 | 62.3 | Y | Construction audible, Moxy's on haul 60 - 62dB, Excavator loading 50 -60dB. Background noise dominated by wind and local traffic. | Construction noise above noise goal but below predicted noise level. |
| CP_8 (8A) | 7440 Pacific Hwy | 26-Nov-14 | 9.45am | Earthworks | 50 | 47 | 59.3 | Y | Construction inaudible - limited works in progress. Background noise dominated by highway traffic noise. | Construction noise inaudible. |
| CP_9 (9A) | 7443 Pacific Hwy | 26-Nov-14 | 9.05am | Earthworks | 55 | 53 | - | Y | Construction noise inaudible. | Construction noise inaudible. |
| CP_10 (11) | 7643 Pacific Hwy | 26-Nov-14 | 8.30am | Earthworks | 59 | 49 | 60.2 | Y | Construction audible; reverse alarms 50 - 55dB dominant construction noise. Highway traffic dominated background. | Measured construction noise below noise goal |

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| CP_11 (11A) | 1316 Martells Rd | 11-Nov-14 | 3.30pm | Earthworks | 52 | 23 | - | Y | Construction inaudible | Construction inaudible |
| CP_12 (13A) | 354 South Arm Rd (196) | 7-Nov-14 | 2.17pm | Earthworks | 40 | 51 | 45.4 | Y | Local traffic 45-48, Agi on local Rd 60. Gardening equipment from neighbour 42; construction mostly inaudible; rock unloading at culvert 45; watercart 49; bogie tailgate 48; roller 45. | Construction noise above noise goal but below predicted noise level |
| CP_13 (12A) | 358 South Arm Rd (197) | 7-Nov-14 | 2.00pm | Earthworks | 40 | 59 (earthworks), 49 (Bridgeworks) | 44 | Y | Construction audible not visible with peaks up to 45. culvert works audible on fill 32 not registering above background 43-50 bird calls | Construction noise above noise goal but below predicted noise level |
| CP_14 (14A) | 17 Ridgewood Dr (214) | 11-Nov-14 | 2.57pm | Earthworks | 45 | 52 | 57.7 | N | Construction audible. Bogie unloading rock for drains (Peak 72dB); truck and dogs (Peak 59dB); graders (Peak 57dB); scrapers in cut 40 (Peak 60dB); dozer (Peak 52dB). | Construction noise above noise goal and above predicted noise level (5.7 dB). No additional mitigation measures feasible. No complaints received. |
| CP_15 (15A) | 79 Short Cut Rd (219) | 5-Nov-14 | 11.40am | Earthworks | 46 | 56 | 58.2 | N | Construction audible. D11 Dozer (Peak 55dB); Scrapers crossing Shortcut Road (peak 62dB). Constant dog barking in background (Peak 65dB). | Construction noise above noise goal and marginally above predicted noise level (2.2 dB). No additional mitigation measures feasible. No complaints received. |
| CP_16 (16A) | 63 Waterfall Way (240) | 5-Nov-14 | 12.05pm | Earthworks | 54 | 51 | 52.1 | Y | Construction was not audible. Dominant noise source was traffic on Pacific Highway (Peak54dB) | Construction inaudible |
| CP_17 (17A) | 100 Old Pacific Hwy (250) | 5-Nov-14 | 11.00am | Earthworks | 57 | 55 | 50.8 | Y | Construction visible not audible. Pacific Hwy main BG noise 46-55. Trucks on off-ramp up to 64 | Construction noise below noise goal. |
| Receiver 281 | McCombies, Gossips Rd | 5-Nov-14 | 12.45pm | Earthworks | 40 | 47 | 55.3 | N | Construction audible but not dominant noise source. Work being undertaken by resident is dominant noise source. Residents talking (peak 51dB), dogs barking (peak 64dB); resident wrecking old residence (Peak 72dB). Construction audible (Peak 48dB). | Construction noise marginally above noise goal and predicted noise level (1dB). Dominant noise source generated by resident's activities. No additional mitigation measures feasible. No complaints received. |

## NH2U – Vibration Monitoring Summary May 2014 to November 2014

| Date | Time | Location | Activity | Monitoring Duration | Vibration Classification | Structural Criteria | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | PPV (mm/s) | | | PVS (mm/s) | DIN 4150-3 Min. Safe Limit | |
| | | | | | | x axis | z axis | y axis | | | |
| 19.6.14 | 12:05pm | 1129 Martell's Rd | piling in Kalang blast at cut 26 | 1hr 45mins | intermittent | 0.331 | 0.04 | 0.363 | 0.366 | 5mm/s | Vibration levels compliant. Resident indicated some concerns over structural damage from piling/blasting activity. Monitoring was undertaken during blasting. |
| 30.7.14 | 8.47am | 17 Ridgewood Drive | Compacting fill general earthworks | 8.7hrs | intermittent | 0.205 | 0.307 | 0.26 | 0.365 | 5mm/s | Vibration levels compliant. Concerns raised by real estate regarding structural damage from compacting fill. |
| 11.9.14 | 8.03am | 8 South Arm Rd | Compacting fill general earthworks | 19.17 hrs | intermittent | 0.158 | 0.615 | 0.229 | 0.647 | 5mm/s | Vibration levels compliant. Concerns raised by owner regarding structural damage from compacting fill. |
| 19.9.14 | 8.26am | 8 South Arm Rd | Compacting fill general earthworks | 7.67hrs | intermittent | 0.15 | 0.355 | 0.173 | 0.368 | 5mm/s | Vibration levels compliant. Concerns raised by owner regarding structural damage from compacting fill. |
| 14.10.14 | 7.26am | 354 South Arm Rd | General earthworks | 7.68 hrs | intermittent | 0.355 | 0.205 | 0.3 | 0.463 | 5mm/s | Vibration levels compliant. Concerns raised by owner regarding structural damage from compacting fill. |
| 17.10.14 | 9.18 am | 98 Old Pacific Hwy | General earthworks | 6.67hrs | intermittent | 0.11 | 0.221 | 0.181 | 0.245 | 5mm/s | Vibration levels compliant. Concerns raised by owner regarding structural damage from compacting fill. |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 07.11.14 | 09.24am | 353 South arm Rd | General earthworks | 4.2hrs | intermittent | 0.142 | 0.205 | 0.181 | 0.246 | 5mm/s | Vibration levels compliant. Concerns raised by owner regarding structural damage. |
| 18.11.14 | 10.49am | 354 South arm Rd | General earthworks | 7.2 hrs | intermittent | 0.11 | 0.134 | 0.213 | 0.222 | 5mm/s | Vibration levels compliant. Concerns raised by owner regarding structural damage. |
| 19.11.14 | 9.04am | 355 South arm Rd | General earthworks | 4.5 hrs | intermittent | 0.244 | 0.197 | 0.394 | 0.437 | 5mm/s | Vibration levels compliant. Concerns raised by owner regarding structural damage. |

## NH2U – Blasting Monitoring Summary May 2014 to November 2014

| Blast Number: | Date: | Time: | Monitor location (nearest affected residence) | Peak Vector Sum (mm/s) | DIN 4150-1999 Vibration Limit mm/s | Recorded Peak Overpressure: | AS2187.2 Overpressure Limit dBL | Compliant: |
|---|---|---|---|---|---|---|---|---|
| 1 | 8/05/2014 | 1:30pm | 1314 Martells Road | 0.903 | 5 | 104.9 | 115 | yes |
| 2 | 16/05/2014 | 1:30pm | 1314 Martells Road | 1.07 | 5 | 103.6 | 115 | yes |
| 3 | 22/05/2014 | 1:30pm | 1314 Martells Road | 0.878 | 5 | 101.4 | 115 | yes |
| 4 | 29/05/2014 | 1:30pm | 1314 Martells Road | Did Not Trigger (<0.5mm/s) | 5 | Did Not Trigger | 115 | yes |
| 5 | 5/06/2014 | 1:30pm | 1314 Martells Road | 1.24 | 5 | 103.5 | 115 | yes |
| 6 | 19/06/2014 | 1:30pm | 1314 Martells Road | 0.706 | 5 | 107 | 115 | yes |
| 7 | 26/06/2014 | 1:30pm | 1314 Martells Road | Did Not Trigger (<0.5mm/s) | 5 | Did Not Trigger | 115 | yes |
| 8 | 17/07/2014 | 3:00pm | 1314 Martells Road | 0.949 | 5 | 103.1 | 115 | yes |
| 9 | 17/10/2014 | 1:30pm | 1314 Martells Road | 0.422 | 5 | Overpressure did not record due to malfunction | 115 | yes |
| 10 | 23/10/2014 | 1:30pm | 1314 Martells Road | 1.01 | 5 | Overpressure did not record due to malfunction | 115 | yes |
| 11 | 6/11/2014 | 1:16pm | 1314 Martells Road | 1.13 | 5 | 106.5* | 115 | yes |

*analysed from histogram relative to the time of the blast

## NH2U - Dust Monitoring Summary May 2014 to November 2014

| Dust Deposition Gauge (DDG) Number | Location |
|---|---|
| 1 | 70 Foxs Road, Nambucca |
| 2 | 47 Boggy Creek Road, Valla |
| 3 | 2 Auld Close, Valla |
| 4 | Western corridor boundary (Ch64350), Valla |
| 5 | 23 East West Road, Valla |
| 6 | 7 Valla Beach Road, Valla |
| 7 | 7443 Pacific Highway, Valla |
| 7B | Oyster Drive, Valla |
| 8 | 7643 Pacific Highway, Valla |
| 11 | 1053 Martells Road, Urunga |
| 12 | 358 South Arm Road, Urunga |
| 13 | South of Short Cut Road, Off South Arm Road, Raleigh |
| 14 | 79 Short Cut Road, Urunga |
| 15 | 100 Old Pacific Highway, Raleigh |
| 16 | 63 Waterfall Way, Raleigh |
| 17 | 2/2 Thompson Valla Beach -Control |
| 18 | 1129 Martells Road Urunga (Smiths residence) |
| 19 | 6 Ridgewood Drive, Raleigh |
| 20 | 7115 Pacific Highway, Valla |

**Table 5-1 Air quality monitoring criteria for deposited dust[a]**

| Pollutant | Annual concentration | | Source |
|---|---|---|---|
| Deposited dust[b] | 2 g/m2/month[c] | 4 g/m2/month[d] | NERDDC (1998) |

*Note:*

a. *Adapted from DECCW guideline; Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (DECCW 2005).

b. *Dust is assessed as insoluble solids as defined by AS 3580.10.1-2003 (AM-19).*

c. *Maximum increase in deposited dust level.*

d. *Maximum total deposited dust level.*

| | Month | May-14 | June-14 | July-14 | Aug-14 | Sept-14 | Oct-14 |
|---|---|---|---|---|---|---|---|
| | **Period** | **9/05/2014 – 6/06/2014** | **06/06/2014 – 04/07/2014** | **04/07/2014 – 05/08/2014** | **05/08/2014 – 05/09/2014** | **05/09/2014 – 03/10/2014** | **03/10/2014 - 05/11/2014** |
| **DDG01** | Total Insoluble Matter ($g/m^2$/month) | 0.3 | 1.4 | 2.7 | 1.2 | 0.4 | 1.0 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.5 | 0.4 | 0.7 | 0.7 | 0.7 | 0.8 |
| **DDG02** | Total Insoluble Matter ($g/m^2$/month) | 1.2 | 0.7 | 0.7 | 3.5 | 1.3 | 6.9 |
| | Annual Insoluble Average ($g/m^2$/month) | 1.6 | 1.6 | 1.6 | 1.9 | 1.6 | 2.1 |
| | Comments | - | - | - | - | - | Dust off Boggy Creek Rd also contributes to this gauge. No complaints received. Annual average remains below 4$g/m^2$/month. |
| **DDG03** | Total Insoluble Matter ($g/m^2$/month) | 0.7 | 0.4 | 0.5 | 1.7 | 0.3 | 0.9 |

| | Month | May-14 | June-14 | July-14 | Aug-14 | Sept-14 | Oct-14 |
|---|---|---|---|---|---|---|---|
| | Period | 9/05/2014 – 6/06/2014 | 06/06/2014 – 04/07/2014 | 04/07/2014 – 05/08/2014 | 05/08/2014 – 05/09/2014 | 05/09/2014 – 03/10/2014 | 03/10/2014 - 05/11/2014 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.7 | 0.7 | 0.7 | 0.8 | 0.7 | 0.8 |
| **DDG04** | Total Insoluble Matter ($g/m^2$/month) | 2.8 | 0.4 | Sample Jar Missing | Sample Jar Missing | 0.8 | 3.3 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 1.1 |
| **DDG05** | Total Insoluble Matter ($g/m^2$/month) | 0.6 | 0.3 | 0.5 | 0.8 | 0.3 | 1.5 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.5 | 0.5 | 0.5 | 0.6 | 0.5 | 0.7 |
| **DDG06** | Total Insoluble Matter ($g/m^2$/month) | 0.7 | 0.7 | 1.3 | 0.6 | 0.9 | 1.5 |
| | Annual Insoluble Average ($g/m^2$/month) | 1.0 | 0.9 | 0.9 | 1.0 | 1.0 | 0.9 |

| | Month | May-14 | June-14 | July-14 | Aug-14 | Sept-14 | Oct-14 |
|---|---|---|---|---|---|---|---|
| | **Period** | **9/05/2014 – 6/06/2014** | **06/06/2014 – 04/07/2014** | **04/07/2014 – 05/08/2014** | **05/08/2014 – 05/09/2014** | **05/09/2014 – 03/10/2014** | **03/10/2014 - 05/11/2014** |
| **DDG07** | Total Insoluble Matter ($g/m^2$/month) | 0.6 | 0.0 | 2.4 | 0.9 | 2.4 | 2.8 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.5 | 0.5 | 0.6 | 0.7 | 0.8 | 1.0 |
| **DDG07B** | Total Insoluble Matter ($g/m^2$/month) | Gauge installed in June | 0.2 | 1.9 | 1.8 | 2.2 | 3.7 |
| | Annual Insoluble Average ($g/m^2$/month) | Gauge installed in June | 0.2 | 1.1 | 1.3 | 1.5 | 2.0 |
| **DDG08** | Total Insoluble Matter ($g/m^2$/month) | 1.8 | 0.4 | 1.4 | 2.0 | 0.7 | 2.0 |
| | Annual Insoluble Average ($g/m^2$/month) | 1.8 | 1.6 | 1.6 | 1.5 | 1.3 | 1.5 |
| **DDG11** | Total Insoluble Matter ($g/m^2$/month) | 0.9 | 0.3 | 1.1 | 2.3 | 0.9 | 1.9 |

| | Month | May-14 | June-14 | July-14 | Aug-14 | Sept-14 | Oct-14 |
|---|---|---|---|---|---|---|---|
| | **Period** | **9/05/2014 – 6/06/2014** | **06/06/2014 – 04/07/2014** | **04/07/2014 – 05/08/2014** | **05/08/2014 – 05/09/2014** | **05/09/2014 – 03/10/2014** | **03/10/2014 - 05/11/2014** |
| | Annual Insoluble Average ($g/m^2$/month) | 0.9 | 0.8 | 0.9 | 0.9 | 1.0 | 1.1 |
| **DDG12** | Total Insoluble Matter ($g/m^2$/month) | 1.7 | 0.2 | 0.8 | 15.1 | 4.4 | 4.3 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.8 | 0.8 | 0.8 | 2.1 | 2.4 | 2.7 |
| | Comments | - | - | - | New resident with heavy vehicle. Dust off local Rd also contributing to this gauge. No complaints received. Annual average remains below $4g/m^2$/month. | New resident with heavy vehicle. Dust off local Rd also contributing to this gauge. No complaints received. Annual average remains below $4g/m^2$/month. | New resident with heavy vehicle. Dust off local Rd also contributing to this gauge. No complaints received. Annual average remains below $4g/m^2$/month. |
| **DDG13** | Total Insoluble Matter ($g/m^2$/month) | 2.6 | 1.1 | 3.3 | 2.1 | 0.9 | 1.8 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.7 | 0.7 | 1.0 | 1.2 | 1.2 | 1.3 |

| | Month | May-14 | June-14 | July-14 | Aug-14 | Sept-14 | Oct-14 |
|---|---|---|---|---|---|---|---|
| | **Period** | **9/05/2014 – 6/06/2014** | **06/06/2014 – 04/07/2014** | **04/07/2014 – 05/08/2014** | **05/08/2014 – 05/09/2014** | **05/09/2014 – 03/10/2014** | **03/10/2014 - 05/11/2014** |
| **DDG14** | Total Insoluble Matter ($g/m^2$/month) | 0.7 | 0.5 | 1.0 | 5.4 | 0.6 | 1.4 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.6 | 0.5 | 0.5 | 0.9 | 1.0 | 1.1 |
| | Comments | - | - | - | High level of organic matter present in sample. Organic matter is not from construction works. Annual average remains below 4$g/m^2$/month. | - | - |
| **DDG15** | Total Insoluble Matter ($g/m^2$/month) | 0.4 | 0.2 | 0.4 | 4.1 | 1.6 | 1.5 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.4 | 0.4 | 0.4 | 0.7 | 0.8 | 0.9 |
| | Comments | - | - | - | High level of organic matter present in sample. Organic matter is not from construction works. Annual average remains below 4$g/m^2$/month. | - | - |

| | Month | May-14 | June-14 | July-14 | Aug-14 | Sept-14 | Oct-14 |
|---|---|---|---|---|---|---|---|
| | **Period** | **9/05/2014 – 6/06/2014** | **06/06/2014 – 04/07/2014** | **04/07/2014 – 05/08/2014** | **05/08/2014 – 05/09/2014** | **05/09/2014 – 03/10/2014** | **03/10/2014 - 05/11/2014** |
| **DDG16** | Total Insoluble Matter ($g/m^2$/month) | 0.2 | 0.2 | 0.3 | 5.8 | 0.8 | 0.8 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.5 | 0.5 | 0.5 | 0.9 | 1.0 | 1.0 |
| | Comments | - | - | - | High level of organic matter present in sample. Organic matter is not from construction works. Annual average remains below 4$g/m^2$/month. | - | - |
| **DDG17** | Total Insoluble Matter ($g/m^2$/month) | 0.5 | 0.2 | 0.4 | 2.7 | 0.3 | 3.3 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.7 | 0.7 | 0.7 | 0.9 | 0.9 | 1.1 |
| **DDG18** | Total Insoluble Matter ($g/m^2$/month) | 0.4 | 0.5 | 0.3 | 1.7 | 0.5 | 0.7 |

| | Month | May-14 | June-14 | July-14 | Aug-14 | Sept-14 | Oct-14 |
|---|---|---|---|---|---|---|---|
| | **Period** | **9/05/2014 – 6/06/2014** | **06/06/2014 – 04/07/2014** | **04/07/2014 – 05/08/2014** | **05/08/2014 – 05/09/2014** | **05/09/2014 – 03/10/2014** | **03/10/2014 - 05/11/2014** |
| | Annual Insoluble Average ($g/m^2$/month) | 0.8 | 0.7 | 0.6 | 0.8 | 0.8 | 0.7 |
| **DDG19** | Total Insoluble Matter ($g/m^2$/month) | 0.6 | 0.7 | 0.5 | 1.6 | 0.6 | 0.8 |
| | Annual Insoluble Average ($g/m^2$/month) | 0.9 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 |
| **DDG20** | Total Insoluble Matter ($g/m^2$/month) | 1.0 | 3.0 | 1.1 | 3.0 | 0.6 | 6.5 |
| | Annual Insoluble Average ($g/m^2$/month) | 1.2 | 1.8 | 1.6 | 1.9 | 1.7 | 2.4 |
| | Comments | - | - | - | - | - | High level of algae growth present in sample impacting the results. Annual average remains below 4$g/m^2$/month. |

## NH2U – Surface Water Monitoring Summary May 2014 to November 2014

| ANZECC Guidelines | | |
|---|---|---|
| Arsenic | 0.007 | mg/L |
| Copper | 2 | mg/L |
| Iron | 0.3 | mg/L |
| Maganese | 0.5 | mg/L |
| Nickel | 0.02 | mg/L |
| Nitrate | 50 | mg/L |
| Nitrite | 3 | mg/L |
| Selenium | 0.01 | mg/L |
| Zinc | 3 | mg/L |
| TotalPhosphorus | 0.05 | mg/L |
| Phosphate | 0.02 | mg/L |
| Total Nitrogen | 0.5 | mg/L |
| Nitrogen Oxides | 0.04 | mg/L |
| Ammonia | 0.02 | mg/L |

| Trigger Values | |
|---|---|
| = p80 (+/- Std Dev) < or > Downstream Value | |
| = | "Triggered" value, but below corresponding upstream value |
| = | "Triggered" value, but within P80 std dev |
| = | "Triggered" value |

| EPL Limits | |
|---|---|
| Oil and Grease | Nil |
| pH | 6.5-7.5 |
| TSS | 50 mg/L |
| NTU | 70 |

| Site ID | Sampling Date | Sampling Event | Sampling Time | Compliance Comments | Temp. (°C) | pH | EC (mS/cm) | Turbidity (NTU) | DO (mg/L) | TDS (mg/L) | Salinity (ppt) | TSS (mg/L) | Oil and Grease | Total Phosphorus (mg/L P) | Phosphate (mg/L P) | Total Nitrogen (mg/L N) | Total Kjeldahl Nitrogen (mg/L N) | NOx | Nitrate (mg/L N) | Nitrite (mg/L N) | Ammonia (mg/L N) | Silver (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Chromium (mg/L) | Copper (mg/L) | Iron (mg/L) | Manganese (mg/L) | Nickel (mg/L) | Lead (mg/L) | Selenium (mg/L) | Zinc (mg/L) | Mercury (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location Cow Creek** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21701 US | 28.05.14 | Dry | 8:41am | | 19.39 | 6.57 | 13.4 | 0.9 | 2.01 | 2.17 | 1.8 | 2 | Nil | 0.02 | <0.005 | 0.26 | 0.263 | - | 0.025 | 0.001 | 0.069 | <0.001 | 0.005 | 0.002 | <0.001 | <0.001 | <0.001 | 0.134 | 0.220 | <0.001 | <0.001 | <0.005 | <0.01 | <0.0005 |
| 21701 DS | 28.05.14 | Dry | 8:29am | Construction works yet to commence at this location. Results due to natural fluctuation. | 18.65 | 6.31 | 18.5 | 1.2 | 2.24 | 11.5 | 10.9 | 3 | Nil | 0.03 | <0.005 | 0.34 | 0.34 | - | 0.046 | 0.001 | 0.075 | <0.001 | <0.001 | 0.002 | <0.001 | <0.001 | <0.001 | 0.025 | 0.291 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 |
| 21701 US | 27.06.14 | Dry | - | No flow from upstream. No construction impacts observed. | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21701 DS | 27.06.14 | Dry | 10:18am | Results within EPL criteria. | 16.03 | 7.43 | 41.7 | 0.3 | 0.64 | 25.5 | 26.5 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21701 US | 17.07.14 | Dry | 12.30pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 15.11 | 7.5 | 3.7 | 13.8 | 1.34 | 2.38 | 1.9 | 4.5 | Nil | 0.014 | 0.005 | 0.155 | 0.143 | 0.012 | 0.012 | <0.001 | 0.07 | <0.001 | 0.02 | 0.003 | <0.001 | <0.001 | <0.001 | 1.209 | 0.521 | <0.001 | <0.001 | <0.010 | 0.002 | <0.005 |
| 21701 DS | 17.07.14 | Dry | 10.55am | | 14.6 | 7.23 | 24.3 | 11.8 | 2.1 | 15 | 14.6 | 5.5 | Nil | 0.017 | <0.005 | 0.147 | 0.115 | 0.032 | 0.03 | 0.002 | 0.064 | <0.001 | 0.041 | 0.005 | <0.001 | 0.001 | 0.001 | 0.439 | 0.322 | 0.002 | <0.001 | <0.010 | 0.005 | <0.005 |
| 21701 US | 21.08.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21701 DS | 21.08.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21701 US | 25.08.14 | Wet | 1.35pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 18.6 | 6.48 | 0.388 | 0 | 5.04 | 0.252 | 0.2 | 6 | Nil | 0.02 | 0.016 | 0.33 | 0.31 | 0.022 | 0.020 | 0.002 | 0.026 | <0.001 | 0.033 | 0.002 | <0.001 | <0.001 | 0.001 | 0.253 | 0.027 | 0.001 | <0.001 | <0.002 | 0.002 | <0.0005 |
| 21701 DS | 25.08.14 | Wet | 1.40pm | | 18.5 | 7 | 0.349 | 0 | 5.7 | 0.227 | 0.2 | 3 | Nil | 0.019 | 0.013 | 0.39 | 0.37 | 0.016 | 0.016 | <0.001 | <0.005 | <0.001 | 0.036 | 0.002 | <0.001 | <0.001 | 0.001 | 0.257 | 0.026 | 0.001 | <0.001 | <0.002 | 0.002 | <0.0005 |
| 21701 US | 27.08.14 | Wet | - | site inaccessible | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21701 DS | 27.08.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21701 US | 29.9.14 | Dry | 2.15pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. | 24.2 | 5.2 | 0.256 | 0.6 | 4.88 | 0.166 | 0.1 | 6 | Nil | 0.04 | 0.020 | 0.24 | 0.23 | 0.007 | 0.005 | 0.002 | 0.023 | <0.001 | 0.019 | 0.003 | <0.001 | <0.001 | <0.001 | 0.471 | 0.071 | <0.001 | <0.001 | <0.002 | 0.002 | <0.0005 |
| 21701 DS | 29.9.14 | Dry | 2.25pm | | 25.6 | 5.39 | 0.229 | 0.9 | 5.2 | 0.149 | 0.1 | 1 | Nil | 0.033 | 0.008 | 0.232 | 0.23 | 0.005 | 0.005 | <0.001 | 0.005 | <0.001 | 0.017 | 0.002 | <0.001 | <0.001 | 0.001 | 0.416 | 0.005 | <0.001 | <0.001 | <0.002 | 0.002 | <0.0005 |
| 21701 US | 27.10.14 | Dry | 9.00am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. Tidal influence at downstream site. | 21.64 | 7.5 | 0.676 | 5.8 | 8.43 | 0.44 | 0.3 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21701 DS | 27.10.14 | Dry | 9.15am | | 21.94 | 7.58 | 20.4 | 3.3 | 4.89 | 12.7 | 12.2 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21701 US | 6.11.14 | wet | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21701 DS | 6.11.14 | wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21701 US | 28.11.14 | wet | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 21701 DS | 28.11.14 | wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Site ID | Sampling Date | Sampling Event | Sampling Time | Compliance Comments | Temp (°C) | pH | EC (mS/cm) | Turbidity (NTU) | DO (mg/L) | TDS (mg/L) | Salinity (ppt) | TSS (mg/L) | Oil and Grease | Total Phosphorus (mg/L P) | Phosphate (mg/L P) | Total Nitrogen (mg/L N) | Total Kjeldahl Nitrogen (mg/L N) | NOx | Nitrate (mg/L N) | Nitrite (mg/L N) | Ammonia (mg/L N) | Silver (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Chromium (mg/L) | Copper (mg/L) | Iron (mg/L) | Manganese (mg/L) | Nickel (mg/L) | Lead (mg/L) | Selenium (mg/L) | Zinc (mg/L) | Mercury (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location Boggy Creek** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20800 US | 28.05.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 DS | 28.05.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 US | 27.06.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 DS | 27.06.14 | Dry | 10:38am | No flow from upstream. No construction impacts observed. Results within EPL criteria. | 14.89 | 6.96 | 33.9 | 0 | 0.02 | 20.7 | 21 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 US | 17.07.14 | Dry | 12.15pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 15.7 | 7.28 | 29.2 | 12.5 | 2 | 20.1 | 1.9 | 5.5 | Nil | 0.025 | <0.005 | 0.309 | 0.277 | 0.032 | 0.029 | 0.003 | 0.131 | <0.001 | 0.015 | 0.005 | <0.001 | 0.001 | <0.001 | 0.121 | 1.074 | 0.002 | <0.001 | <0.010 | 0.005 | <0.005 |
| 20800 DS | 17.07.14 | Dry | 11.20am | | 14.7 | 7.5 | 43.5 | 8.9 | 1.3 | 26.6 | 27.7 | 2.5 | Nil | 0.015 | <0.005 | 0.148 | 0.124 | 0.024 | 0.024 | <0.001 | 0.041 | <0.001 | 0.013 | 0.004 | <0.001 | 0.001 | <0.001 | 0.052 | 0.115 | 0.001 | 0.002 | <0.010 | 0.003 | <0.005 |
| 20800 US | 21.08.14 | Dry | 8.00am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 16.2 | 7.4 | 32.2 | 10 | 2.1 | 23.2 | 22 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 DS | 21.08.14 | Dry | 8.15am | | 16.5 | 7.5 | 35.6 | 14 | 2 | 22.8 | 23 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 US | 25.08.14 | Wet | 1.15pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 18.2 | 7.6 | 1.22 | 1.9 | 6.85 | 0.78 | 0.6 | 8 | Nil | 0.03 | 0.013 | 0.27 | 0.26 | 0.012 | 0.012 | <0.001 | 0.101 | <0.001 | 0.078 | 0.001 | <0.001 | <0.001 | 0.001 | 0.408 | 0.317 | 0.002 | <0.001 | <0.002 | 0.012 | <0.0005 |
| 20800 DS | 25.08.14 | Wet | 1.25pm | | 18.3 | 7.35 | 1.37 | 7.6 | 6.3 | 0.876 | 0.7 | 15 | Nil | 0.025 | 0.019 | 0.30 | 0.28 | 0.024 | 0.022 | 0.002 | 0.035 | <0.001 | 0.076 | 0.001 | <0.001 | <0.001 | 0.001 | 0.451 | 0.329 | 0.002 | <0.001 | <0.002 | 0.008 | <0.0005 |
| 20800 US | 27.8.14 | Wet | 4.15pm | Elevated turbidity levels recorded. Significant rain event of up to 271mm was recorded. All construction water went through control measures. Rain event was above the design criteria of 55.4mm. Some areas of improvement and maintenance were identified and addressed. | 21.0 | 7.05 | 0.216 | 66 | 6.05 | 0.141 | 0.1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 DS | 27.8.14 | Wet | 4.20pm | | 21.0 | 6.83 | 0.218 | 160 | 5.35 | 0.142 | 0.1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 US | 29.9.14 | Dry | 3.10pm | Overall compliant. Drop in pH level, cause unknown. No construction impacts observed. | 23.9 | 7.27 | 1.38 | 4.5 | 6.73 | 0.863 | 0.7 | 28 | Nil | 0.04 | 0.013 | 0.32 | 0.31 | 0.010 | 0.007 | 0.003 | 0.029 | 0.001 | 0.055 | 0.002 | 0.001 | <0.001 | 0.001 | 0.248 | 0.009 | 0.001 | 0.001 | <0.002 | 0.002 | <0.0005 |
| 20800 DS | 29.9.14 | Dry | 3.30pm | | 23.2 | 5.29 | 0.957 | 3.1 | 6.23 | 0.612 | 0.5 | 13 | Nil | 0.033 | 0.008 | 0.276 | 0.27 | 0.005 | <0.005 | 0.003 | 0.020 | <0.001 | 0.044 | 0.002 | <0.001 | <0.001 | 0.001 | 0.24 | 0.005 | 0.001 | <0.001 | <0.002 | 0.002 | <0.0005 |
| 20800 US | 27.10.14 | Dry | 08.00am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. Tidal influence at downstream site. | 19.6 | 7.52 | 1.57 | 18.2 | 8.65 | 0.976 | 0.8 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 DS | 27.10.14 | Dry | 08.15am | | 21.0 | 7.74 | 26.8 | 12.2 | 7.4 | 16.8 | 16.5 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 US | 6.11.14 | wet | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 DS | 6.11.14 | wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 US | 28.11.14 | wet | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 20800 DS | 28.11.14 | wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Site ID | Sampling Date | Sampling Event | Sampling Time | Compliance Comments | Temp (°C) | pH | EC (mS/cm) | Turbidity (NTU) | DO (mg/L) | TDS (mg/L) | Salinity (ppt) | TSS (mg/L) | Oil and Grease | Total Phosphorus (mg/L P) | Phosphate (mg/L P) | Total Nitrogen (mg/L N) | Total Kjeldahl Nitrogen (mg/L N) | NOx | Nitrate (mg/L N) | Nitrite (mg/L N) | Ammonia (mg/L N) | Silver (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Chromium (mg/L) | Copper (mg/L) | Iron (mg/L) | Manganese (mg/L) | Nickel (mg/L) | Lead (mg/L) | Selenium (mg/L) | Zinc (mg/L) | Mercury (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location Deep Creek** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23100 US | 28.05.14 | Dry | 12:09pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 21.64 | 7.8 | 42.1 | 0 | 1.25 | 25.7 | 27 | 13 | Nil | 0.02 | <0.005 | 0.38 | 0.38 | | <0.005 | <0.001 | 0.022 | <0.001 | 0.003 | 0.003 | <0.001 | <0.001 | <0.001 | 0.013 | 0.006 | <0.001 | <0.001 | <0.005 | <0.001 | <0.0005 |
| 23100 DS | 28.05.14 | Dry | 12:04pm | | 21.26 | 7.54 | 40.9 | 0 | 1.94 | 24.9 | 26.1 | 14 | Nil | 0.02 | 0.009 | 0.38 | 0.38 | | <0.005 | <0.001 | 0.069 | <0.001 | 0.007 | 0.003 | <0.001 | <0.001 | 0.002 | 0.012 | 0.010 | <0.001 | <0.001 | <0.005 | <0.001 | <0.0005 |
| 23100 US | 27.06.14 | Dry | 10:04am | compliant | 15.81 | 7.86 | 43.9 | 0 | 1.91 | 26.8 | 28 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23100 DS | 27.06.14 | Dry | 9:53am | | 14.75 | 7.68 | 42.1 | 0 | 1.7 | 25.7 | 26.7 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23100 US | 17.7.14 | Dry | 10.45am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 14.9 | 7.8 | 43.1 | 17 | 5.3 | 20.5 | 27.6 | 5.5 | Nil | 0.019 | <0.005 | 0.135 | 0.13 | 0.005 | 0.003 | 0.002 | 0.012 | <0.001 | 0.04 | 0.009 | <0.001 | 0.002 | <0.001 | 0.074 | 0.058 | 0.001 | <0.001 | <0.010 | 0.006 | <0.005 |
| 23100 DS | 17.7.14 | Dry | 10.40am | | 15.6 | 7.9 | 43.2 | 18 | 7.8 | 26.3 | 27.4 | 23.5 | Nil | 0.017 | <0.005 | 0.09 | 0.08 | 0.01 | 0.002 | 0.008 | 0.005 | <0.001 | 0.018 | 0.007 | <0.001 | 0.001 | <0.001 | 0.039 | 0.038 | 0.001 | <0.001 | <0.010 | 0.004 | <0.005 |
| 23100 US | 21.08.14 | Dry | 8.45am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 14.5 | 7.7 | 42.1 | 16 | 5.4 | 21.2 | 25.5 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23100 DS | 21.08.14 | Dry | 9.00am | | 14.9 | 7.8 | 42 | 17 | 6.9 | 24.4 | 23.5 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23100 US | 25.08.14 | Wet | 2.00pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 18.3 | 6.3 | 17.6 | 0 | 4.72 | 10.9 | 10.4 | 8 | Nil | 0.01 | 0.005 | 0.78 | 0.39 | 0.394 | 0.394 | <0.001 | 0.127 | <0.001 | 0.045 | <0.001 | 0.001 | <0.001 | 0.004 | <0.005 | 0.787 | 0.009 | <0.001 | 0.005 | 0.031 | <0.0005 |
| 23100 DS | 25.08.14 | Wet | 2.10pm | | 17.34 | 6.28 | 22 | 0.8 | 5.43 | 13.7 | 13.3 | 12 | Nil | 0.012 | <0.005 | 0.675 | 0.47 | 0.205 | 0.205 | <0.001 | 0.131 | <0.001 | 0.044 | <0.001 | 0.001 | <0.001 | 0.006 | <0.005 | 0.976 | 0.007 | <0.001 | <0.002 | 0.033 | <0.0005 |
| 23100 US | 27.8.14 | Wet | 4.35pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. | 20.0 | 6.43 | 3.07 | 60 | 5.3 | 1.98 | 1.6 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23100 DS | 27.8.14 | Wet | 4.40pm | | 20.0 | 6.6 | 3.34 | 62 | 5.7 | 2.14 | 1.7 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23100 US | 29.9.14 | Dry | 2.50pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. | 27.58 | 6.38 | 28.6 | 1.9 | 5.25 | 17.7 | 17.5 | 9 | Nil | 0.03 | <0.005 | 0.22 | 0.22 | <0.005 | <0.005 | <0.001 | 0.010 | <0.001 | 0.008 | 0.002 | <0.001 | <0.001 | 0.001 | <0.001 | 0.033 | 0.001 | <0.001 | 0.002 | 0.004 | <0.0005 |
| 23100 DS | 29.9.14 | Dry | 2.41pm | | 29.88 | 6.36 | 26.7 | 1.2 | 5.85 | 16.6 | 8.1 | 9 | Nil | 0.022 | <0.005 | 0.29 | 0.29 | <0.005 | <0.005 | <0.001 | 0.005 | <0.001 | 0.008 | 0.001 | <0.001 | <0.001 | 0.001 | <0.001 | 0.033 | <0.001 | <0.001 | <0.002 | 0.007 | <0.0005 |
| 23100 US | 27.10.14 | Dry | 7.00am | Compliant | 20.18 | 7.76 | 44.6 | 4.9 | 7.3 | 27.2 | 28.7 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23100 DS | 27.10.14 | Dry | 7.15am | | 20.7 | 7.77 | 45.4 | 4.2 | 7.51 | 27.7 | 29.3 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23100 US | 6.11.14 | wet | 1.30pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 21 | 7.66 | 45.8 | 6.1 | 7.61 | 27.1 | 28.8 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23100 DS | 6.11.14 | wet | 1.44pm | | 21.2 | 7.72 | 45.2 | 3 | 7.56 | 27.6 | 28.1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23100 US | 28.11.14 | wet | 1.30pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 23.6 | 7.6 | 46 | 11.2 | 3.66 | 28.1 | 29.9 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23100 DS | 28.11.14 | wet | 1.45pm | | 23.5 | 7.61 | 46.1 | 6.7 | 2.8 | 28 | 29.7 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Site ID | Sampling Date | Sampling Event | Sampling Time | Compliance Comments | Temp. (°C) | pH | EC (mS/cm) | Turbidity (NTU) | DO (mg/L) | TDS (mg/L) | Salinity (ppt) | TSS (mg/L) | Oil and Grease | Total Phosphorus (mg/L P) | Phosphate (mg/L P) | Total Nitrogen (mg/L N) | Total Kjeldahl Nitrogen (mg/L N) | NOx | Nitrate (mg/L N) | Nitrite (mg/L N) | Ammonia (mg/L N) | Silver (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Chromium (mg/L) | Copper (mg/L) | Iron (mg/L) | Manganese (mg/L) | Nickel (mg/L) | Lead (mg/L) | Selenium (mg/L) | Zinc (mg/L) | Mercury (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location Dalhousie Creek** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31500 US | 28.05.14 | Dry | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 DS | 28.05.14 | Dry | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 US | 27.06.14 | Dry | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 DS | 27.06.14 | Dry | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 US | 17.7.14 | Dry | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 DS | 17.7.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 US | 21.08.14 | Dry | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 DS | 21.08.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 US | 25.08.14 | Wet | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 DS | 25.08.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 US | 27.8.14 | Wet | 2.00pm | Elevated turbidity levels recorded. Significant rain event of up to 271mm was recorded. All construction water went through control measures. Rain event was above the design criteria of 55.4mm. Some areas of improvement and maintenance were identified and addressed. | 15.9 | 6.83 | 0.201 | 29.5 | 4.95 | 0.134 | 0.1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 DS | 27.8.14 | Wet | 2.41pm | | 16.36 | 7.21 | 0.176 | 67.5 | 5.45 | 0.114 | 0.1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 US | 24.9.14 | Dry | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 DS | 24.9.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 US | 27.10.14 | Dry | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 DS | 27.10.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 US | 06.11.14 | Wet | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 DS | 06.11.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 US | 28.11.14 | wet | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 31500 DS | 28.11.14 | wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Site ID | Sampling Date | Sampling Event | Sampling Time | Compliance Comments | Temp. (°C) | pH | EC (mS/cm) | Turbidity (NTU) | DO (mg/L) | TDS (mg/L) | Salinity (ppt) | TSS (mg/L) | Oil and Grease | Total Phosphorus (mg/L P) | Phosphate (mg/L P) | Total Nitrogen (mg/L N) | Total Kjeldahl Nitrogen (mg/L N) | NOx | Nitrate (mg/L N) | Nitrite (mg/L N) | Ammonia (mg/L N) | Silver (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Chromium (mg/L) | Copper (mg/L) | Iron (mg/L) | Manganese (mg/L) | Nickel (mg/L) | Lead (mg/L) | Selenium (mg/L) | Zinc (mg/L) | Mercury (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location McGraths Creek** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30100 US | 28.05.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 DS | 28.05.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 US | 27.06.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 DS | 27.06.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 US | 17.7.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 DS | 17.7.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 US | 21.08.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 DS | 21.08.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 US | 25.08.14 | Wet | 3.05pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 19 | 7.3 | 0.494 | 224 | 3.7 | 0.318 | 0.2 | 163 | Nil | 0.06 | <0.005 | 0.68 | 0.65 | 0.030 | 0.027 | 0.003 | 0.060 | <0.001 | 1.028 | 0.002 | <0.001 | <0.001 | 0.005 | 1.393 | 0.139 | 0.002 | 0.001 | 0.002 | 0.040 | <0.0005 |
| 30100 DS | 25.08.14 | Wet | 3.15pm | | 18.9 | 7.2 | 0.6 | 34.7 | 4.11 | 0.762 | 0.6 | 40 | Nil | 0.021 | 0.008 | 0.267 | 0.20 | 0.066 | 0.066 | <0.001 | 0.04 | <0.001 | 0.049 | <0.001 | <0.001 | <0.001 | 0.006 | 0.113 | 0.168 | 0.004 | <0.001 | <0.002 | 0.007 | <0.0005 |
| 30100 US | 27.8.14 | Wet | 4.55pm | Compliant | 21.9 | 6.5 | 0.261 | 29 | 4.9 | 0.168 | 0.1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 DS | 27.8.14 | Wet | - | | 21.0 | 6.5 | 0.261 | 29 | 4.9 | 0.168 | 0.1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 US | 29.9.14 | Dry | - | Compliant | 24.6 | 5.37 | 0.995 | 2.5 | 5.51 | 0.611 | 0.5 | 7 | Nil | 0.04 | 0.014 | 0.34 | 0.34 | <0.005 | <0.005 | 0.001 | 0.079 | <0.001 | 0.008 | 0.001 | <0.001 | <0.001 | <0.001 | 0.332 | 0.463 | 0.001 | <0.001 | <0.002 | 0.007 | <0.0005 |
| 30100 DS | 29.9.14 | Dry | - | | 23.7 | 5.2 | 0.653 | 0.8 | 5.2 | 0.418 | 0.3 | 4 | Nil | 0.038 | 0.011 | 0.216 | 0.22 | <0.005 | <0.005 | 0.001 | 0.028 | <0.001 | 0.008 | 0.001 | <0.001 | <0.001 | <0.001 | 0.224 | 0.205 | 0.001 | <0.001 | <0.002 | 0.003 | <0.0005 |
| 30100 US | 27.10.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 DS | 27.10.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 US | 06.11.14 | Wet | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 DS | 06.11.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 US | 28.11.14 | Wet | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 30100 DS | 28.11.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Site ID | Sampling Date | Sampling Event | Sampling Time | Compliance Comments | Temp. (C) | pH | EC (mS/cm) | Turbidity (NTU) | DO (mg/L) | TDS (mg/L) | Salinity (ppt) | TSS (mg/L) | Oil and Grease | Total Phosphorous (mg/L P) | Phosphate (mg/L P) | Total Nitrogen (mg/L N) | Total Kjeldahl Nitrogen (mg/L N) | NOx | Nitrate (mg/L N) | Nitrite (mg/L N) | Ammonia (mg/L N) | Silver (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Chromium (mg/L) | Copper (mg/L) | Iron (mg/L) | Manganese (mg/L) | Nickel (mg/L) | Lead (mg/L) | Selenium (mg/L) | Zinc (mg/L) | Mercury (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location Oyster Creek** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26000 US | 28.05.14 | Dry | 9:15am | | 18.54 | 6.37 | 0.539 | 0 | 0.6 | 0.345 | 0.3 | 12 | Nil | 0.02 | <0.005 | 0.32 | 0.32 | | <0.005 | 0.001 | 0.006 | <0.001 | 0.030 | 0.002 | <0.001 | <0.001 | <0.001 | 1.658 | 0.898 | 0.002 | <0.001 | <0.005 | <0.01 | <0.0005 |
| 26000 DS | 28.05.14 | Dry | 9:29am | Compliant | 18.55 | 6.4 | 0.381 | 0 | 1.97 | 0.247 | 0.2 | 14 | Nil | 0.02 | <0.005 | 0.29 | 0.29 | | 0.003 | 0.002 | 0.050 | <0.001 | 0.031 | 0.002 | <0.001 | <0.001 | <0.001 | 1.300 | 0.765 | 0.002 | <0.001 | <0.005 | 0.010 | <0.0005 |
| 26000 US | 27.06.14 | Dry | 11:00am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 14.99 | 6.76 | 0.653 | 0 | 1.21 | 0.412 | 3.6 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 DS | 27.06.14 | Dry | 11:16am | | 14.04 | 6.82 | 0.521 | 0 | 1.52 | 0.334 | 0.3 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 US | 17.7.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 DS | 17.7.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 US | 21.08.14 | Dry | 10.30am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 21 | 6.6 | 0.6 | 5.4 | 3.02 | 0.401 | 0.4 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 DS | 21.08.14 | Dry | 10.40am | | 22 | 6 | 1.8 | 5.6 | 1.9 | 1.2 | 1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 US | 25.08.14 | Wet | 2.50pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 18 | 7.08 | 0.253 | 7.3 | 4.8 | 0.164 | 0.1 | 37 | Nil | 0.05 | <0.005 | 0.74 | 0.71 | 0.035 | 0.028 | 0.007 | 0.051 | <0.001 | 0.264 | 0.001 | <0.001 | <0.001 | 0.002 | 1.283 | 0.004 | 0.001 | <0.001 | <0.002 | 0.017 | <0.0005 |
| 26000 DS | 25.08.14 | Wet | 2.40pm | | 17.8 | 6.84 | 0.264 | 24 | 4.53 | 0.172 | 0.1 | 26.5 | Nil | 0.026 | 0.013 | 0.507 | 0.43 | 0.077 | 0.074 | 0.003 | 0.06 | <0.001 | 0.46 | 0.001 | <0.001 | <0.001 | 0.002 | 0.327 | 0.046 | 0.001 | <0.001 | <0.002 | 0.015 | <0.0005 |
| 26000 US | 27.8.14 | Wet | 7.15am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 21.2 | 6.6 | 0.121 | 33 | 7.78 | 0.077 | 0.1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 DS | 27.8.14 | Wet | 7.30am | | 21.2 | 6.6 | 0.109 | 47 | 4.96 | 0.071 | 0.1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 US | 29.9.14 | Dry | 5.15pm | Low pH levels recorded upstream and downstream. Investigation occurred. No construction influence identified. Low flows in creek maybe a contributing factor. | 20.63 | 4.15 | 0.228 | 8.6 | 9.1 | 0.148 | 0.1 | 37 | Nil | 0.10 | 0.012 | 0.90 | 0.89 | 0.019 | <0.005 | 0.017 | 0.125 | <0.001 | 0.139 | 0.003 | <0.001 | 0.001 | 0.001 | 2.390 | 0.068 | 0.002 | <0.001 | <0.002 | 0.008 | <0.0005 |
| 26000 DS | 29.9.14 | Dry | 5.25pm | | 21.33 | 3.76 | 0.227 | 0.5 | 5.18 | 0.148 | 0.1 | 8.5 | Nil | 0.045 | 0.006 | 0.517 | 0.51 | 0.006 | <0.005 | 0.009 | 0.024 | <0.001 | 0.173 | 0.002 | <0.001 | 0.001 | 0.002 | 1.966 | 0.01 | 0.001 | <0.001 | <0.002 | 0.007 | <0.0005 |
| 26000 US | 27.10.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 DS | 27.10.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 US | 06.11.14 | Wet | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 DS | 06.11.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 US | 28.11.14 | Wet | - | Waterway dry - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 26000 DS | 28.11.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Site ID | Sampling Date | Sampling Event | Sampling Time | Compliance Comments | Temp. (C) | pH | EC (mS/cm) | Turbidity (NTU) | DO (mg/L) | TDS (mg/L) | Salinity (ppt) | TSS (mg/L) | Oil and Grease | Total Phosphorous (mg/L P) | Phosphate (mg/L P) | Total Nitrogen (mg/L N) | Total Kjeldahl Nitrogen (mg/L N) | NOx | Nitrate (mg/L N) | Nitrite (mg/L N) | Ammonia (mg/L N) | Silver (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Chromium (mg/L) | Copper (mg/L) | Iron (mg/L) | Manganese (mg/L) | Nickel (mg/L) | Lead (mg/L) | Selenium (mg/L) | Zinc (mg/L) | Mercury (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location Kalang River** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35900 US | 28.05.14 | Dry | 10:39am | Compliant | 20.16 | 7.49 | 35.6 | 0 | 1.12 | 21.7 | 22.3 | 10 | Nil | 0.02 | <0.005 | 0.27 | 0.26 | | 0.012 | 0.001 | 0.025 | <0.001 | 0.014 | 0.002 | <0.001 | <0.001 | 0.002 | 0.013 | 0.028 | 0.001 | <0.001 | <0.005 | <0.01 | <0.0005 |
| 35901 DS | 28.05.14 | Dry | 10:25am | Compliant | 20.08 | 7.23 | 34 | 0.6 | 1.28 | 20.7 | 21.3 | 19 | Nil | 0.02 | <0.005 | 0.31 | 0.29 | | 0.020 | <0.001 | 0.023 | <0.001 | 0.014 | 0.002 | <0.001 | <0.001 | 0.001 | 0.010 | 0.084 | 0.001 | <0.001 | <0.005 | <0.01 | <0.0005 |
| 35900 US | 27.06.14 | Dry | 8.23am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 13.44 | 7.66 | 37.8 | 0 | 2.56 | 23.1 | 23.7 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35900 DS | 27.06.14 | Dry | 8.42am | | 13.99 | 7.72 | 35.4 | 0 | 3.05 | 22.6 | 23.6 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35900 US | 17.07.14 | Dry | 3.47pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 16.13 | 7.88 | 37.2 | 0 | 5.07 | 22.7 | 23.3 | 4.500 | Nil | 0.014 | <0.005 | 0.101 | 0.093 | 0.008 | 0.005 | 0.003 | 0.009 | <0.001 | 0.021 | 0.005 | 0.001 | 0.001 | <0.001 | 0.062 | 0.015 | 0.001 | <0.001 | <0.010 | 0.070 | <0.005 |
| 35900 DS | 17.07.14 | Dry | 3.21pm | | 17.23 | 7.99 | 38 | 0 | 5.23 | 23.1 | 23.9 | 13 | Nil | 0.012 | <0.005 | 0.055 | 0.055 | <0.005 | <0.005 | 0.03 | 0.006 | <0.001 | 0.022 | 0.004 | <0.001 | 0.001 | 0.003 | 0.037 | 0.015 | <0.001 | <0.001 | <0.010 | 0.003 | <0.005 |
| 35900 US | 21.08.14 | Dry | 8.20am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 15.96 | 7.9 | 39.6 | 4.79 | 7.15 | 24.1 | 25 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35900 DS | 21.08.14 | Dry | 8.30am | | 16.4 | 7.8 | 39.4 | 8.33 | 7.66 | 24 | 24.8 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35900 US | 25.08.14 | Wet | 2.21pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 18.35 | 7.36 | 37.1 | 0.9 | 2.02 | 22.6 | 23.4 | 13 | Nil | <0.01 | <0.005 | 0.22 | 0.21 | 0.014 | 0.014 | <0.001 | <0.005 | <0.001 | 0.022 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.016 | 0.003 | <0.001 | <0.002 | 0.009 | <0.0005 |
| 35900 DS | 25.08.14 | Wet | 2.42pm | | 18.52 | 7.66 | 37.3 | 1.2 | 4.33 | 22.8 | 23.5 | 9 | Nil | 0.011 | 0.009 | 0.297 | 0.29 | 0.006 | 0.006 | <0.001 | <0.005 | <0.001 | 0.026 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.012 | 0.003 | <0.001 | <0.002 | 0.011 | <0.0005 |
| 35900 US | 27.8.14 | Wet | 4.15pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 17.07 | 6.48 | 11.5 | 19.36 | 2.82 | 7.1 | 6.5 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35900 DS | 27.8.14 | Wet | 4.20pm | | 16.6 | 6.14 | 14.5 | 21.5 | 2.71 | 9.02 | 8.4 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35900 US | 24.9.14 | Dry | 1.20pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 18.16 | 6.68 | 31.1 | 11.7 | 2.1 | 19 | 19.2 | 14 | Nil | 0.02 | <0.005 | 0.24 | 0.22 | 0.021 | 0.017 | 0.004 | 0.007 | <0.001 | 0.010 | 0.002 | <0.001 | <0.001 | 0.001 | 0.007 | <0.001 | <0.001 | <0.001 | <0.002 | 0.001 | <0.0005 |
| 35900 DS | 24.9.14 | Dry | 1.42pm | | 18.59 | 6.75 | 33.1 | 9.6 | 2.74 | 20.2 | 20.6 | 20 | Nil | 0.022 | <0.005 | 0.247 | 0.23 | 0.022 | 0.018 | 0.004 | 0.007 | <0.001 | 0.008 | 0.001 | <0.001 | <0.001 | 0.001 | 0.002 | 0.001 | <0.001 | <0.001 | 0.003 | <0.001 | <0.0005 |
| 35900 US | 27.10.14 | Dry | 4.55pm | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 26.04 | 7.5 | 39.9 | 1.7 | 6.75 | 24.5 | 25.6 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35900 DS | 27.10.14 | Dry | 5.05pm | | 25.94 | 7.62 | 42.1 | 4.5 | 7.41 | 25.7 | 27.0 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35900 US | 06.11.14 | Wet | 11.50am | Compliant | 23.96 | 7.78 | 44.5 | 17.1 | 7 | 27 | 28.5 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35900 DS | 06.11.14 | Wet | 12.05pm | | 25.09 | 7.98 | 44.9 | 8.1 | 7.16 | 27.4 | 29.0 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35900 US | 28.11.14 | Wet | 9.28am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 25.96 | 7.12 | 41.7 | 8.56 | 3.37 | 25.5 | 26.8 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 35900 DS | 28.11.14 | Wet | 9.45am | | 26.44 | 7.37 | 21.5 | 36.7 | 2.52 | 25.9 | 27.3 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Site ID | Sampling Date | Sampling Event | Sampling Time | Compliance Comments | Temp. (C) | pH | EC (mS/cm) | Turbidity (NTU) | DO (mg/L) | TDS (mg/L) | Salinity (ppt) | TSS (mg/L) | Oil and Grease | Total Phosphorus (mg/L P) | Phosphate (mg/L P) | Total Nitrogen (mg/L N) | Total Kjeldahl Nitrogen (mg/L N) | NOx | Nitrate (mg/L N) | Nitrite (mg/L N) | Ammonia (mg/L N) | Silver (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Chromium (mg/L) | Copper (mg/L) | Iron (mg/L) | Manganese (mg/L) | Nickel (mg/L) | Lead (mg/L) | Selenium (mg/L) | Zinc (mg/L) | Mercury (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location SEPP 14-353** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SEPP 353 | 28.05.14 | Dry | 10:50am | Compliant | 19.47 | 7.37 | 31.6 | 0 | 0.71 | 19.3 | 19.6 | 11 | Nil | 0.03 | <0.005 | 0.6 | 0.58 | | 0.024 | 0.002 | 0.04 | <0.001 | 0.008 | 0.002 | <0.001 | <0.001 | 0.001 | 0.036 | 0.125 | 0.001 | <0.001 | <0.005 | <0.010 | <0.0005 |
| SEPP 353 | 27.06.14 | Dry | 12:00pm | Some results higher than preconstruction criteria. No construction impacts observed. Large fluctuations in salinity noted. Elevated nutrient levels may be due to surrounding land use i.e. agricultural activities and/or dry conditions. Turbidity and pH within EPL criteria. | 14.67 | 7.11 | 34 | 0 | 0.86 | 20.8 | 21.1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SEPP 353 | 17.07.14 | Dry | 3.38pm | | 17.17 | 7.82 | 37.5 | 0 | 3.54 | 22.9 | 23.600 | 13 | Nil | 0.014 | <0.005 | 0.25 | 0.222 | 0.028 | 0.026 | 0.002 | 0.055 | <0.001 | 0.024 | 0.003 | <0.001 | 0.001 | <0.001 | 0.048 | 0.041 | 0.002 | <0.001 | <0.010 | 0.004 | <0.005 |
| SEPP 353 | 21.08.14 | Dry | 12.40pm | | 17.4 | 7.36 | 30.7 | 1.2 | 1.92 | 18.8 | 19 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SEPP 353 | 25.08.14 | Wet | 2.54pm | | 19.05 | 7.78 | 10 | 0.8 | 2.76 | 6.21 | 5.6 | 6.5 | Nil | 0.02 | 0.01 | 1.375 | 1.26 | 0.114 | 0.102 | 0.012 | 0.53 | <0.001 | 0.041 | <0.001 | <0.001 | <0.001 | 0.002 | 0.215 | 0.55 | 0.003 | <0.001 | 0.003 | 0.012 | <0.0005 |
| SEPP 353 | 27.8.14 | Wet | 2.45pm | | 17.34 | 6.95 | 1.13 | 42.2 | 2.08 | 0.701 | 0.5 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SEPP 353 | 24.9.14 | Dry | 8.05 | | 15.62 | 7.83 | 2.59 | 19.15 | 1.73 | 1.65 | 1.3 | 17 | Nil | 0.089 | 0.01 | 1.789 | 1.65 | 0.136 | 0.032 | 0.104 | 0.375 | <0.001 | 0.098 | 0.001 | <0.001 | <0.001 | 0.001 | 4.701 | 0.087 | 0.002 | <0.001 | <0.002 | 0.004 | <0.0005 |
| SEPP 353 | 27.10.14 | Dry | 5.15pm | | 27.43 | 7.41 | 35.4 | 21.8 | 4.76 | 21.6 | 22.3 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SEPP 353 | 06.11.14 | Wet | - | Inaccessible: Bull in paddock | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SEPP 353 | 28.11.14 | Wet | 10.00am | Compliant | 25.27 | 7.27 | 35.6 | 14.3 | 2.41 | 21.7 | 22.5 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Site ID | Sampling Date | Sampling Event | Sampling Time | Compliance Comments | Temp. (C) | pH | EC (mS/cm) | Turbidity (NTU) | DO (mg/L) | TDS (mg/L) | Salinity (ppt) | TSS (mg/L) | Oil and Grease | Total Phosphorus (mg/L P) | Phosphate (mg/L P) | Total Nitrogen (mg/L N) | Total Kjeldahl Nitrogen (mg/L N) | NOx | Nitrate (mg/L N) | Nitrite (mg/L N) | Ammonia (mg/L N) | Silver (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Chromium (mg/L) | Copper (mg/L) | Iron (mg/L) | Manganese (mg/L) | Nickel (mg/L) | Lead (mg/L) | Selenium (mg/L) | Zinc (mg/L) | Mercury (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location 36000** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36000 US | 28.05.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 DS | 28.05.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 US | 27.06.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 DS | 27.06.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 US | 17.7.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 DS | 17.7.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 US | 21.08.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 DS | 21.08.14 | Dry | 12.20pm | No flow from upstream. No construction impacts observed. Results within EPL criteria. | 17.24 | 6.96 | 12.6 | 0.2 | 2.35 | 7.84 | 7.2 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 US | 25.08.14 | Wet | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 DS | 25.08.14 | Wet | 3.05pm | No flow from upstream. No construction impacts observed. Results within EPL criteria. | 18.34 | 6.85 | 6.78 | 2.8 | 0.92 | 4.26 | 3.7 | 30 | Nil | 0.02 | 0.014 | 1.336 | 1.26 | 0.077 | 0.071 | 0.006 | 0.819 | <0.001 | 0.005 | <0.001 | <0.001 | <0.001 | 0.003 | <0.005 | 1.617 | 0.007 | <0.001 | <0.002 | 0.017 | <0.0005 |
| 36000 US | 27.8.14 | Wet | 3.30pm | Upstream results correspond with down stream. Elevated turbidity levels recorded. Significant rain event of up to 271mm was recorded. All construction water went through control measures. Rain event was above the design criteria of 55.4mm. Some areas of improvement and maintenance were identified and addressed. | 16.54 | 6 | 0.191 | 228 | 3.23 | 0.124 | 0 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 DS | 27.8.14 | Wet | 3.40pm | | 16.46 | 6.09 | 0.325 | 252 | 3.27 | 0.211 | 0 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 US | 24.9.14 | Dry | 7.25am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 15.95 | 7.92 | 0.491 | 47.2 | 2.45 | 0.319 | 0.2 | 39 | Nil | 0.17 | 0.012 | 1.99 | 1.94 | 0.051 | <0.005 | 0.047 | 0.469 | <0.001 | 0.095 | 0.002 | <0.001 | <0.001 | 0.004 | 5.021 | 0.212 | 0.002 | <0.001 | <0.002 | 0.006 | <0.0005 |
| 36000 DS | 24.9.14 | Dry | 7.00am | | 15.47 | 7.97 | 0.708 | 32.3 | 2.75 | 0.453 | 0.3 | 33 | Nil | 0.144 | 0.018 | 1.869 | 1.83 | 0.043 | <0.005 | 0.041 | 0.545 | <0.001 | 0.2 | 0.003 | <0.001 | 0.001 | 0.002 | 7.538 | 0.231 | 0.002 | <0.001 | <0.002 | 0.005 | <0.0005 |
| 36000 DS | 27.10.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 DS | 27.10.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 DS | 06.11.14 | Wet | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 DS | 06.11.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 DS | 28.11.14 | Wet | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 36000 DS | 28.11.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

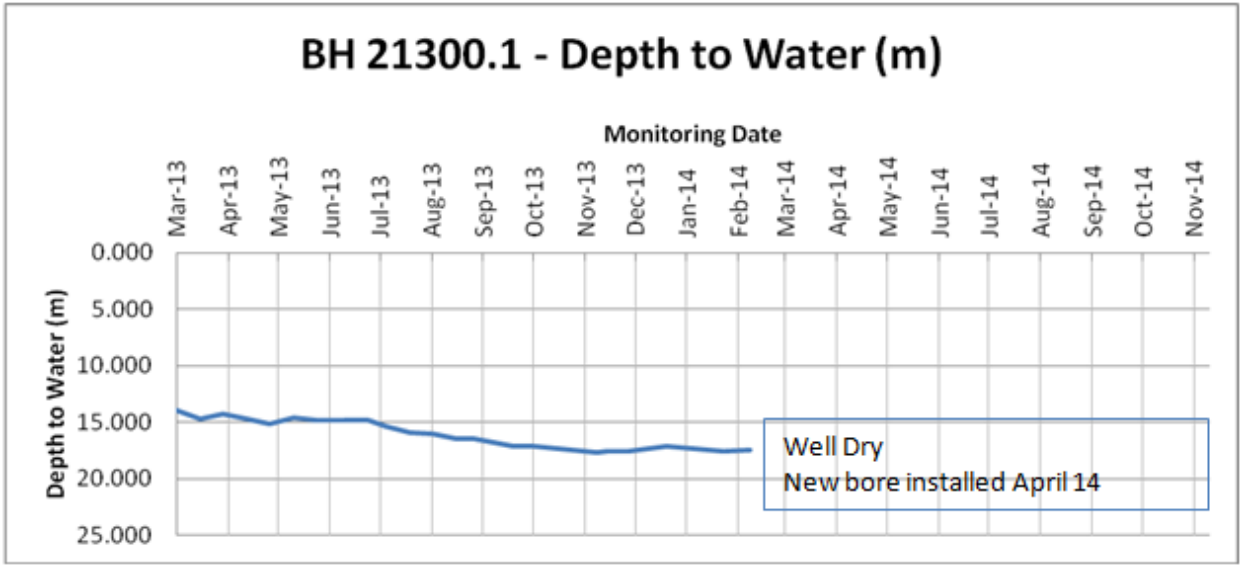
| Site ID | Sampling Date | Sampling Event | Sampling Time | Compliance Comments | Temp. (C) | pH | EC (mS/cm) | Turbidity (NTU) | DO (mg/L) | TDS (mg/L) | Salinity (ppt) | TSS (mg/L) | Oil and Grease | Total Phosphorus (mg/L P) | Phosphate (mg/L P) | Total Nitrogen (mg/L N) | Total Kjeldahl Nitrogen (mg/L N) | NOx | Nitrate (mg/L N) | Nitrite (mg/L N) | Ammonia (mg/L N) | Silver (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Chromium (mg/L) | Copper (mg/L) | Iron (mg/L) | Manganese (mg/L) | Nickel (mg/L) | Lead (mg/L) | Selenium (mg/L) | Zinc (mg/L) | Mercury (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location 38000** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38000 US | 28.05.14 | Dry | - | Pooled water / no flow - no sample taken | | | | | | | | | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 DS | 28.05.14 | Dry | - | | | | | | | | | | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 US | 27.06.14 | Dry | - | Pooled water / no flow - no sample taken | | | | | | | | | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 DS | 27.06.14 | Dry | - | | | | | | | | | | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 US | 17.7.14 | Dry | - | Pooled water / no flow - no sample taken | | | | | | | | | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 DS | 17.7.14 | Dry | - | | | | | | | | | | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 US | 21.08.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 DS | 21.08.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 US | 25.08.14 | Wet | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 DS | 25.08.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 US | 27.8.14 | Wet | 9.20am | Some results higher than preconstruction criteria however only marginally above upstream values. No construction impacts observed. Results within EPL criteria. | 16.87 | 6.31 | 0.106 | 20.9 | 4.15 | 0.068 | 0 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 DS | 27.8.14 | Wet | 9.24am | | 15.89 | 7.06 | 0.105 | 32.9 | 4.32 | 0.69 | 0 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 US | 24.9.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 DS | 24.9.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 US | 27.10.14 | Dry | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 DS | 27.10.14 | Dry | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 US | 06.11.14 | Wet | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 DS | 06.11.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 US | 28.11.14 | Wet | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 38000 DS | 28.11.14 | Wet | - | | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Site ID | Sampling Date | Sampling Event | Sampling Time | Compliance Comments | Temp. (C) | pH | EC (mS/cm) | Turbidity (NTU) | DO (mg/L) | TDS (mg/L) | Salinity (ppt) | TSS (mg/L) | Oil and Grease | Total Phosphorus (mg/L P) | Phosphate (mg/L P) | Total Nitrogen (mg/L N) | Total Kjeldahl Nitrogen (mg/L N) | NOx | Nitrate (mg/L N) | Nitrite (mg/L N) | Ammonia (mg/L N) | Silver (mg/L) | Aluminium (mg/L) | Arsenic (mg/L) | Cadmium (mg/L) | Chromium (mg/L) | Copper (mg/L) | Iron (mg/L) | Manganese (mg/L) | Nickel (mg/L) | Lead (mg/L) | Selenium (mg/L) | Zinc (mg/L) | Mercury (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location SEPP 14-351** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SEPP 351 | 28.05.14 | Dry | 11:23am | Some results higher than preconstruction criteria. No construction impacts observed. Turbidity and pH within EPL criteria. | 18.41 | 7.26 | 1.34 | 0 | 0.02 | 0.857 | 0.7 | 8 | Nil | 0.05 | <0.005 | 1.35 | 1.34 | - | 0.004 | 0.003 | 0.187 | <0.001 | 0.072 | 0.001 | <0.001 | <0.001 | 0.001 | 0.136 | 0.019 | 0.001 | <0.001 | <0.005 | <0.01 | <0.0005 |
| SEPP 351 | 27.06.14 | Dry | 8:59am | Some results higher than preconstruction criteria. No construction impacts observed. Turbidity and pH within EPL criteria. | 10.99 | 7.1 | 1.92 | 0 | 0.58 | 1.23 | 1 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SEPP 351 | 17.7.14 | Dry | 4.07pm | Some results higher than preconstruction criteria. No construction impacts observed. Elevated nutrient levels may be due to surrounding land use i.e. agricultural activities and/or dry conditions. Turbidity and pH within EPL criteria. | 13.69 | 8.05 | 1.37 | 0 | 0.21 | 0.755 | 0.6 | 17 | Nil | 0.093 | 0.03 | 3.095 | 3.00 | 0.09 | 0.06 | 0.031 | 1.943 | <0.001 | 0.06 | 0.00 | <0.001 | 0.00 | 0.00 | 0.20 | 0.04 | 0.00 | <0.001 | <0.010 | 0.01 | <0.005 |
| SEPP 351 | 21.08.14 | Dry | 11.44am | | 16.15 | 7.18 | 1.18 | 8.6 | 3.14 | 0.752 | 0.6 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SEPP 351 | 25.08.14 | Wet | 2.03pm | | 18.14 | 6.82 | 0.755 | 3.2 | 3.27 | 0.476 | 0.4 | 10 | Nil | 0.058 | 0.009 | 1.648 | 1.61 | 0.042 | 0.026 | 0.016 | 0.202 | <0.001 | 0.485 | 0.001 | <0.001 | <0.001 | 0.003 | 0.352 | 0.039 | 0.001 | <0.001 | <0.002 | 0.010 | <0.0005 |
| SEPP 351 | 27.8.14 | Wet | - | inaccessible due to flooding | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SEPP 351 | 24.9.14 | Dry | 8.40am | Some results higher than preconstruction criteria. No construction impacts observed. Elevated nutrient levels may be due to surrounding land use i.e. agricultural activities and/or dry conditions. Turbidity and pH within EPL criteria. | 16.09 | 6.81 | 0.503 | 9.6 | 3.27 | 0.32 | 0.2 | 5.5 | Nil | 0.07 | 0.015 | 1.72 | 1.68 | 0.041 | <0.005 | 0.047 | 0.326 | <0.001 | 0.485 | 0.003 | <0.001 | 0.001 | 0.002 | 3.108 | 0.127 | 0.003 | <0.001 | <0.002 | 0.006 | <0.0005 |
| SEPP 351 | 27.10.14 | Dry | 4.45pm | | 25.61 | 7.85 | 0.7 | 1.1 | 7.25 | 0.448 | 0.3 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SEPP 351 | 06.11.14 | Wet | 12.20pm | | 22.26 | 7.71 | 2.78 | 23.2 | 9.02 | 1.76 | 1.4 | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SEPP 351 | 28.11.14 | Wet | - | Pooled water / no flow - no sample taken | - | - | - | - | - | - | - | - | Nil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## NH2U – Ground Water Monitoring Summary May 2014 to November 2014

# Bore 21300.1

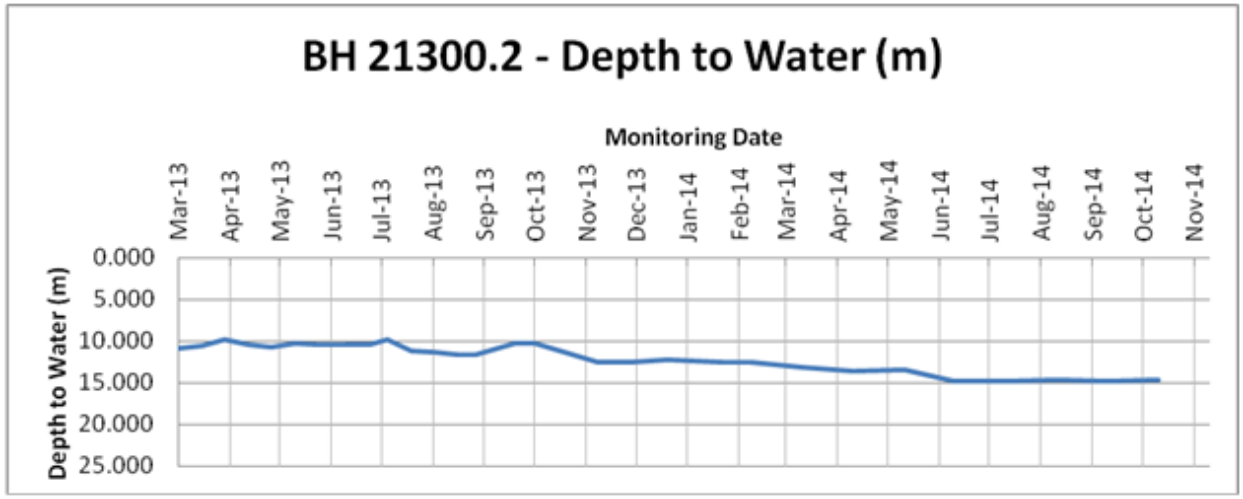
| 21300.1 | | Earthworks Activity during Monitoring | Date | Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SALTS (mg/L) | TOTAL DISSOLVED SOLIDS (mg/L) | BICARBONATE (ALKALINITY) (mg/L $CaCO_3$ equivalent) | WATER HARDNESS (mg/L $CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | May | Construction | 29/05/2014 | 12:30pm | DRY | DRY | DRY | DRY | | | | | | | | | |
| | June | Construction | 25/06/2014 | 9:30am | DRY | DRY | DRY | DRY | | | | | | | | | |
| | July | Construction | 31/07/2014 | 10:00am | DRY | DRY | DRY | DRY | Insufficient sample available to undertake lab testing | | | | | | | | |
| | August | Construction | 18/08/2014 | 9:40am | DRY | DRY | DRY | DRY | | | | | | | | | |
| | September | Construction | 24/09/2014 | 10:11am | DRY | DRY | DRY | DRY | | | | | | | | | |
| | October | Construction | 30/10/2014 | 8.30am | DRY | DRY | DRY | DRY | | | | | | | | | |
| | November | Construction | 20/11/2014 | 7.30am | DRY | DRY | DRY | DRY | Insufficient sample available to undertake lab testing | | | | | | | | |
| | | | | Data Analysis | Median | 20.885 | 0.275 | 5.57 | #NUM! | #NUM! | #NUM! | #NUM! | #NUM! | #NUM! | #NUM! | #NUM! | #NUM! |
| | | | | Compliance to background P80 | P80 value | 17.16 | 0.27 | 5.79 | 5.28 | 0.22 | 147.56 | 400 | 14 | 7.13 | 0.031 | 0.005 | 0.351 |
| | | | | | Standard Deviation | 0.91 | 0.03 | 0.26 | 0.16 | 0.02 | 11.41 | 341.76 | 3.19 | 2.12 | 0.02 | 0.01 | 0.10 |
| | | | | Comments | - | - | Minor parameter fluctuation | - | - | - | - | - | - | - | - | - | - |



# Bore 21300.2

| 21300.2 | | Well Depth:17.32m | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Earthworks Activity during Monitoring | Monitoring Event Date | Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SOLIDS (mg/L) | WATER HARDNESS (mg/L $CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) | NITRATE (mg/L N) | NITRITE (mg/L N) | AMMONIA (mg/L N) | SODIUM (mg/L) | POTASSIUM (mg/L) | CALCIUM (mg/L) | MAGNESIUM (mg/L) | SODIUM ABSORPTION RATIO | CHLORIDE (mg/L) | SULFATE (mg/L $SO_4^{2-}$) | CHLORIDE/SULFATE RATIO | SILVER (mg/L) | ALUMINIUM (mg/L) |
| 2014 | May | Construction | 29/05/2014 | 9:30am | 13.64 | 21.26 | 0.126 | 5.85 | | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 10:20am | 13.41 | 20.36 | 0.128 | 5.99 | | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 11:00am | 14.8 | 18.52 | 0.129 | 5.35 | 4.21 | 0.12 | 2,677 | 13.0 | 0.09 | <0.005 | 0.60 | 0.036 | <0.001 | 0.035 | 16.5 | 1.1 | 1.8 | 2.1 | 2.0 | 35 | 3 | 10.3 | <0.001 | 0.059 |
| | August | Construction | 18/08/2014 | 9:45am | 14.75 | 18.66 | 0.126 | 5.43 | | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 12:00pm | 14.69 | 19.5 | 0.128 | 5.61 | | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 10.25am | 14.78 | 21.25 | 0.13 | 5.71 | | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 11.22am | 14.73 | 21.31 | 0.128 | 5.98 | Sample under lab analysis | | | | | | | | | | | | | | | | | | | | | |
| | | | | Data | Median | 21.09 | 0.128 | 5.59 | 4.61 | 0.118 | 1347.5 | 12 | 0.055 | <0.005 | 0.425 | 0.038 | 0.002 | 0.030 | 16.1 | 0.835 | 1.93 | 1.78 | 2.000 | 34.1 | 5.71 | 7.30 | <0.001 | 0.0915 |
| | | | | Compliance to background P80 | P80 value | 20.26 | 0.178 | 5.21 | 4.71 | 0.132 | 100 | 14.69 | 0.011 | 0.01 | 0.097 | 0.041 | 0.002 | 0.025 | 17.6 | 0.41 | 2.17 | 2.49 | 2.268 | 36.1 | 3.96 | 23.52 | <0.001 | 0.200 |
| | | | | | Standard Deviation | 0.85 | 0.04 | 0.49 | 0.22 | 0.02 | 26.44 | 2.65 | 0.00 | 0.00 | 0.05 | 0.01 | 0.00 | 0.03 | 2.77 | 0.24 | 1.58 | 0.45 | 0.36 | 6.29 | 1.33 | 9.65 | - | 0.78 |
| | | | | Comments | | - | - | Minor parameter fluctuation | Minor parameter fluctuation, pH within acceptable range | Minor parameter fluctuation, pH within acceptable range | - | Well maintenance | - | Minor parameter fluctuation | - | Minor parameter fluctuation | - | - | Minor parameter fluctuation | - | Minor parameter fluctuation | - | - | - | Minor parameter fluctuation | Minor parameter fluctuation | - | - | - |

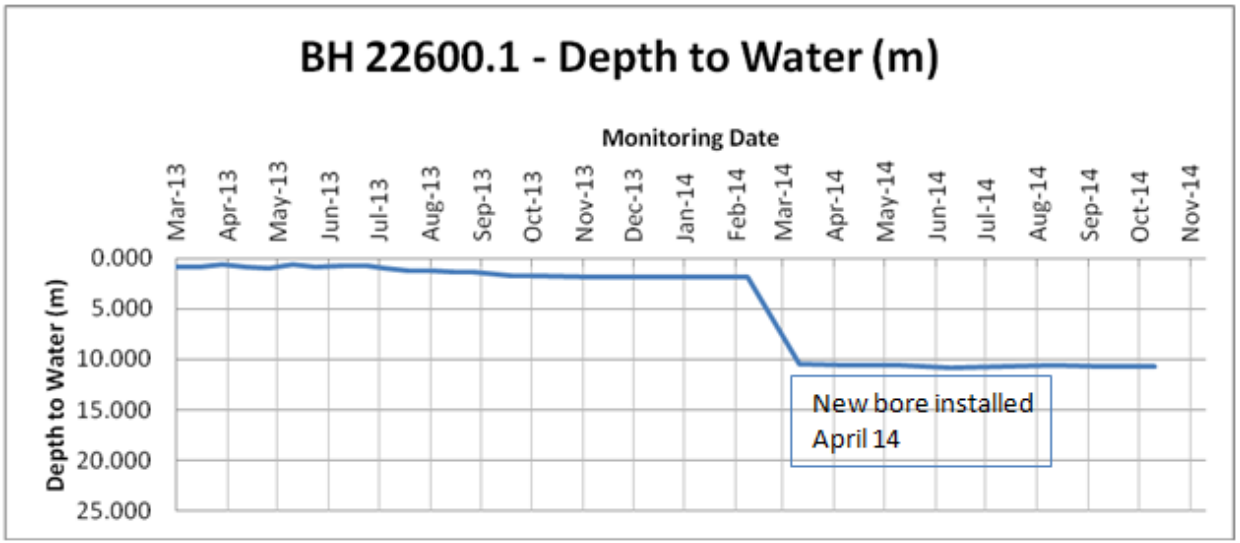
| 21300.2 | | Well Depth:17.32m | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Earthworks Activity during Monitoring | Monitoring Event Date | Time | Field Results: Depth to Water (m) | ARSENIC (mg/L) | CADMIUM (mg/L) | CHROMIUM (mg/L) | COPPER (mg/L) | IRON (mg/L) | MANGANESE (mg/L) | NICKEL (mg/L) | LEAD (mg/L) | SELENIUM (mg/L) | ZINC (mg/L) | MERCURY (mg/L) | Benzene (µg/L or ppb) | Toluene (µg/L or ppb) | Ethylbenzene (µg/L or ppb) | m+p-Xylene (µg/L or ppb) | o-Xylene (µg/L or ppb) | Naphthalene (µg/L or ppb) | C6-C9 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) LESS BTEX (F1) | C10-C14 Fraction (µg/L or ppb) | C15-C28 Fraction (µg/L or ppb) | C29-C36 Fraction (µg/L or ppb) | C10-C16 Fraction (µg/L or ppb) | C16-C34 Fraction (µg/L or ppb) | C34-C40 Fraction (µg/L or ppb) |
| 2014 | May | Construction | 29/05/2014 | 9:30am | 13.64 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 10:20am | 13.41 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 11:00am | 14.8 | 0.001 | <0.001 | <0.001 | 0.001 | 0.115 | 0.022 | 0.001 | <0.001 | <0.002 | 0.005 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | August | Construction | 18/08/2014 | 9:45am | 14.75 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 12:00pm | 14.69 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 10.25am | 14.78 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 11.22am | 14.73 | Sample under lab analysis | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Data | Median | 0.001 | <0.001 | <0.001 | 0.004 | 0.111 | 0.02 | 0.001 | #NUM! | <0.002 | 0.007 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | 13 | 13 | 13 | <50 | <100 | <100 | <50 | <100 | <100 |
| | | | | Compliance to background P80 | P80 value | 0.001 | <0.001 | <0.001 | 0.003 | 0.050 | 0.02 | 0.002 | 0.001 | <0.002 | 0.018 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | | | | | Standard Deviation | 0.00 | - | 0.00 | 0.00 | 0.05 | 0.01 | 0.00 | 0.00 | - | 0.00 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | Comments | | - | - | - | Minor parameter fluctuation | Minor parameter fluctuation | - | - | - | - | - | - | - | - | - | - | - | - | low level of hydrocarbon detection March 14. Cause unknown | low level of hydrocarbon detection March 14. Cause unknown | low level of hydrocarbon detection March 14. Cause unknown | - | - | - | - | - | - |




## Bore 22600.1

| 22600.1 | | Earthworks Activity during Monitoring | Monitoring Event Date | Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SOLIDS (mg/L) | WATER HRADNESS (ALKALINITY) (mg/L $CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) | NITRATE (mg/L N) | NITRITE (mg/L N) | AMMONIA (mg/L N) | SODIUM (mg/L) | POTASSIUM (mg/L) | CALCIUM (mg/L) | MAGNESIUM (mg/L) | SODIUM ABSORPTION RATIO | CHLORIDE (mg/L) | SULFATE (mg/L $SO_4^{2-}$) | CHLORIDE/ SULFATE RATIO | SILVER (mg/L) | ALUMINIUM (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Well Depth: 10.91m | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2014 | May | Construction | 29/05/2014 | 1:43pm | 10.58 | 20.54 | 1.62 | 6.45 | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 10:25am | 10.62 | 20.05 | 1.65 | 6.24 | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 11:15am | 10.8 | 18.6 | 1.59 | 8.27 | 10.01 | 1.5 | 19796 | 353 | 0.09 | 0.005 | 0.81 | 0.205 | 0.001 | 0.355 | 249 | 7.3 | 128 | 8.1 | 5.8 | 447 | 21 | 21.7 | <0.001 | 2.373 |
| | August | Construction | 18/08/2014 | 9:50am | 10.69 | 18.9 | 1.59 | 8.16 | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 11:20am | 10.63 | 18.6 | 1.65 | 7.91 | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 10.15am | 10.71 | 19.5 | 1.67 | 7.88 | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 9.25am | 10.73 | 21.1 | 1.25 | 7.76 | Sample under lab anlalysis | | | | | | | | | | | | | | | | | | | | |
| | | | | Data | Median | 20.30 | 1.605 | 7.56 | 8.49 | 1.564 | 11912 | 282.5 | 0.07 | 0.005 | 0.68 | 0.145 | 0.001 | 0.317 | 239.5 | 9.4 | 97.75 | 9.35 | 6.35 | 421.5 | 28 | 16.6 | <0.001 | 1.197 |
| | | | | Compliance to background | P80 value | 20.35 | 0.236 | 5.69 | 5.13 | 0.233 | 138 | 22.51 | 0.015 | 0.010 | 0.097 | 0.036 | 0.002 | 0.058 | 35.76 | 0.7 | 1.63 | 4.53 | 3.30 | 58.5 | 2.778 | 32.90 | <0.001 | 0.020 |
| | | | | | Standard Deviation | 1.80 | 0.02 | 0.19 | 0.11 | 0.01 | 39.98 | 1.28 | 0.00 | 0.00 | 0.05 | 0.01 | 0.00 | 0.03 | 1.72 | 0.33 | 0.46 | 0.20 | 0.17 | 4.59 | 1.09 | 7.96 | - | 0.01 |
| | | | | Comments | | - | - | Minor parameter fluctuation. EC within acceptable range | Minor parameter fluctuation. pH within acceptable range | Minor parameter fluctuation. pH anomaly | Minor parameter fluctuation. EC within acceptable range | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | - | Minor parameter fluctuation | Minor parameter fluctuation | - | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | - | - | Minor parameter fluctuation. High level July 14 (unknow |

| 22600.1 | | Well Depth: 10.91m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Earthworks Activity during Monitoring | Monitoring Event Date | Time | Field Results: Depth to Water (m) | ARSENIC (mg/L) | CADMIUM (mg/L) | CHROMIUM (mg/L) | COPPER (mg/L) | IRON (mg/L) | MANGANESE (mg/L) | NICKEL (mg/L) | LEAD (mg/L) | SELENIUM (mg/L) | ZINC (mg/L) | MERCURY (mg/L) | Benzene (µg/L or ppb) | Toluene (µg/L or ppb) | Ethylbenzene (µg/L or ppb) | m+p-Xylene (µg/L or ppb) | o-Xylene (µg/L or ppb) | Naphthalene (µg/L or ppb) | C6-C9 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) LESS BTEX (F1) | C10-C14 Fraction (µg/L or ppb) | C15-C28 Fraction (µg/L or ppb) | C29-C36 Fraction (µg/L or ppb) | C10-C16 Fraction (µg/L or ppb) | C16-C34 Fraction (µg/L or ppb) | C34-C40 Fraction (µg/L or ppb) |
| 2014 | May | Construction | 29/05/2014 | 1:43pm | 10.58 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 10:25am | 10.62 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 11:15am | 10.8 | 0.01 | <0.001 | 0.005 | 0.002 | 0.005 | <0.001 | <0.001 | <0.001 | <0.002 | <0.001 | <0.0005 | <10 | 150 | <10 | <20 | <10 | <10 | 260 | 260 | .. | <50 | <100 | <100 | <50 | <100 | <100 |
| | August | Construction | 18/08/2014 | 9:50am | 10.69 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 11:20am | 10.63 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 10.15am | 10.71 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 9.25am | 10.73 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Data | Median | <0.001 | <0.001 | 0.003 | 0.0015 | 0.042 | 0.125 | 0.002 | <0.001 | <0.002 | 0.001 | <0.0005 | <10 | 150 | <10 | <20 | <10 | <10 | 260 | 260 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | | | | Compliance to background | P80 value | <0.001 | <0.001 | <0.001 | 0.001 | 0.021 | 0.0148 | 0.003 | <0.001 | <0.002 | 0.0217 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | | | | | Standard Deviation | - | - | - | 0.00 | 0.01 | 0.01 | 0.00 | - | - | 0.01 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | Comments | - | - | - | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | - | - | - | - | - | - | hydrocarbon detection in July 14. Cause unknown | - | - | - | - | hydrocarbon detection in July 14. Cause unknown | hydrocarbon detection in July 14. Cause unknown | - | - | - | - | - | - | - |



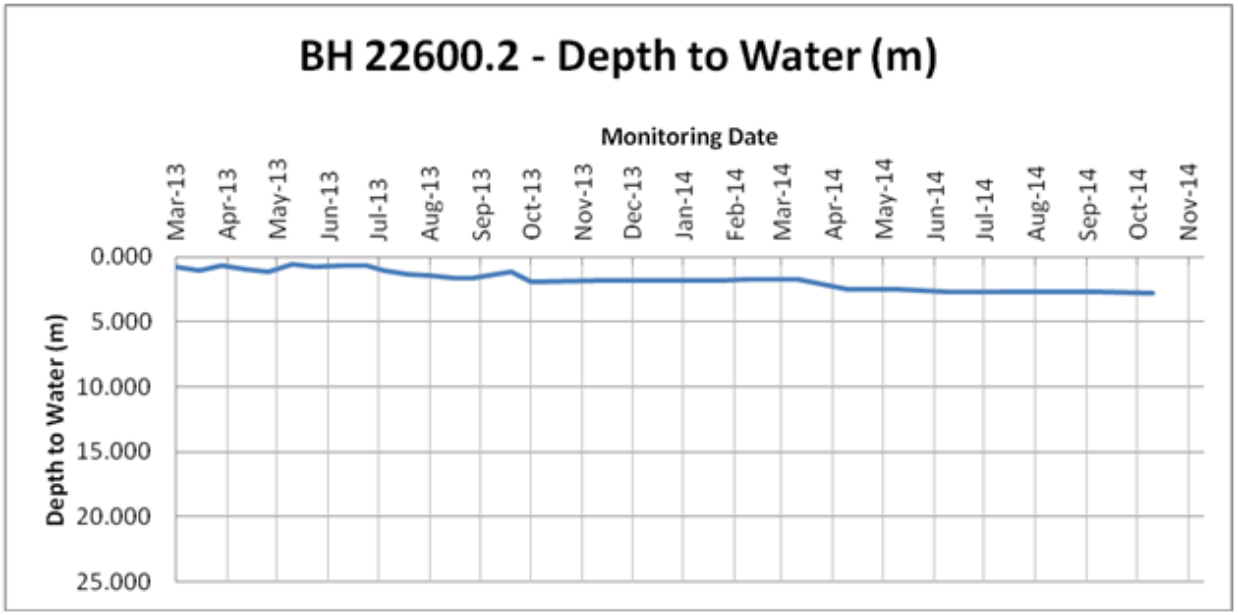
# Bore 22600.2

| 22600.2 | | Earthworks Activity during Monitoring | Monitoring Event Date | Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SOLIDS (mg/L) | WATER HARDNESS (mg/L $CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) | NITRATE (mg/L N) | NITRITE (mg/L N) | AMMONIA (mg/L N) | SODIUM (mg/L) | POTASSIUM (mg/L) | CALCIUM (mg/L) | MAGNESIUM (mg/L) | SODIUM ABSORPTION RATIO | CHLORIDE (mg/L) | SULFATE (mg/L $SO_4^{2-}$) | CHLORIDE/ SULFATE RATIO | SILVER (mg/L) | ALUMINIUM (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | May | Construction | 29/05/2014 | 9:15am | 2.450 | 22.39 | 0.267 | 7.93 | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 10:30am | 2.48 | 21 | 0.255 | 7.4 | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 11:30am | 2.68 | 17.95 | 0.35 | 6.5 | 5.85 | 0.26 | 24 | 38 | 0.02 | 0.01 | 0.08 | 0.023 | 0.002 | 0.025 | 37.5 | 0.8 | 4.2 | 6.8 | 2.6 | 68 | 5 | 12.6 | <0.001 | 0.002 |
| 2014 | August | Construction | 18/08/2014 | 9:55am | 2.71 | 18.6 | 0.35 | 6.66 | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 10:15am | 2.66 | 19.2 | 0.371 | 6.52 | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 11.05am | 2.73 | 21.2 | 0.365 | 6.36 | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 12.30pm | 2.79 | 21.4 | 0.354 | 6.55 | Sample under lab anlalysis | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Data | Median | 20.54 | 0.35 | 6.51 | 5.74 | 0.263 | 22.5 | 37 | 0.025 | 0.008 | 0.085 | 0.025 | 0.002 | 0.020 | 35.7 | 0.8 | 4.05 | 6.6 | 2.5 | 63.5 | 6.5 | 10 | <0.001 | 0.003 |
| | | Compliance to background P80 | P80 value | 21.67 | 0.29 | 6.13 | 5.82 | 0.27 | 200 | 43.61 | 0.011 | 0.007 | 0.051 | 0.007 | 0.003 | 0.011 | 37.9 | 0.91 | 5.51 | 7.48 | 2.50 | 57.50 | 2.82 | 33.21 | <0.001 | 0.013 |
| | | | Standard Deviation | 1.90 | 0.02 | 0.33 | 0.11 | 0.01 | 70.16 | 3.05 | 0.01 | 0.00 | 0.02 | 0.01 | 0.00 | 0.02 | 1.63 | 0.18 | 0.46 | 0.50 | 0.10 | 5.23 | 1.12 | 22.04 | - | 0.01 |
| | | Comments | | - | - | Minor parameter fluctuation . EC within acceptable range | Minor parameter fluctuation . pH within acceptable range | Minor parameter fluctuation . pH within acceptable range | - | - | - | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | - | Minor parameter fluctuation | - | - | - | - | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | - | - | Minor parameter fluctuation |

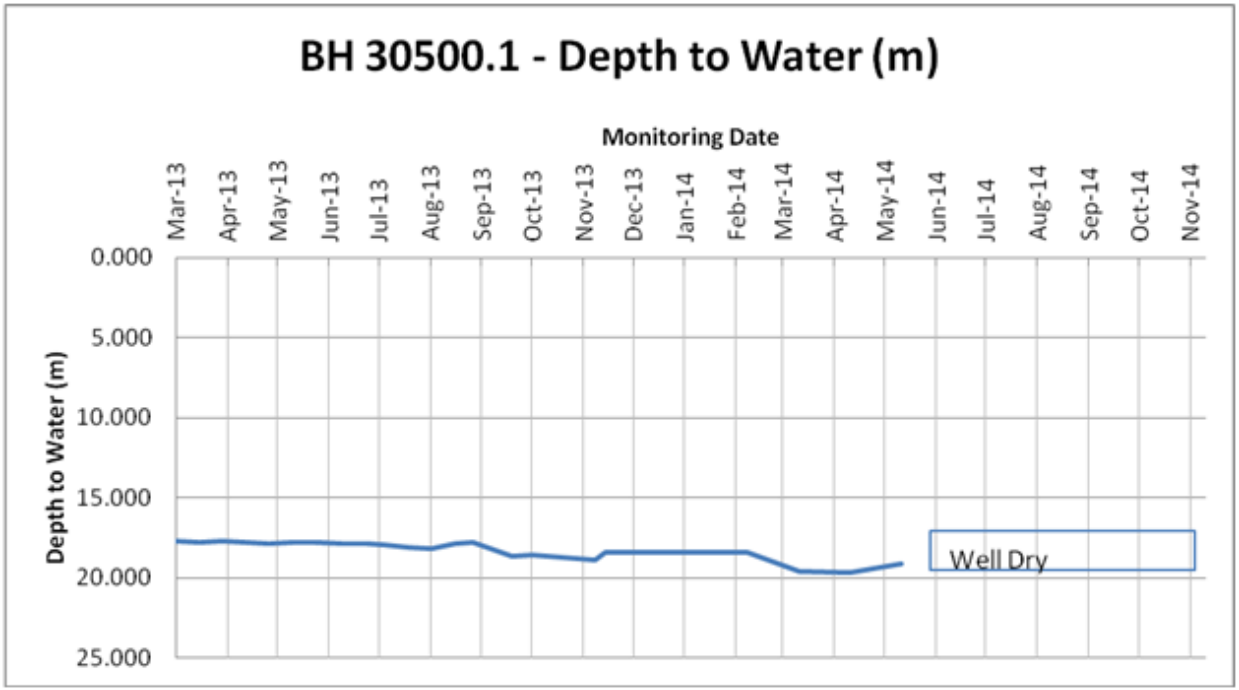
| 22600.2 | | Earthworks Activity during Monitoring | Monitoring Event Date | Time | Field Results: Depth to Water (m) | ARSENIC (mg/L) | CADMIUM (mg/L) | CHROMIUM (mg/L) | COPPER (mg/L) | IRON (mg/L) | MANGANESE (mg/L) | NICKEL (mg/L) | LEAD (mg/L) | SELENIUM (mg/L) | ZINC (mg/L) | MERCURY (mg/L) | Benzene (µg/L or ppb) | Toluene (µg/L or ppb) | Ethylbenzene (µg/L or ppb) | mep-Xylene (µg/L or ppb) | o-Xylene (µg/L or ppb) | Naphthalene (µg/L or ppb) | C6-C9 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) LESS BTEX (F1) | C10-C14 Fraction (µg/L or ppb) | C15-C28 Fraction (µg/L or ppb) | C29-C36 Fraction (µg/L or ppb) | C10-C16 Fraction (µg/L or ppb) | C16-C34 Fraction (µg/L or ppb) | C34-C40 Fraction (µg/L or ppb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | May | Construction | 29/05/2014 | 9:15am | 2.450 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 10:30am | 2.48 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 11:30am | 2.68 | <0.001 | <0.001 | <0.001 | 0.001 | 0.013 | 0.018 | 0.002 | <0.001 | <0.002 | 0.009 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| 2014 | August | Construction | 18/08/2014 | 9:55am | 2.71 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 10:15am | 2.66 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 11.05am | 2.73 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 12.30pm | 2.79 | Sample under lab anlalysis | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Data | Median | <0.001 | <0.001 | <0.001 | 0.001 | 0.009 | 0.0185 | 0.0015 | <0.001 | <0.002 | 0.014 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | | Compliance to background P80 | P80 value | 0.001 | <0.001 | 0.002 | 0.002 | 0.0454 | 0.024 | 0.001 | 0.001 | <0.002 | 0.017 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | | | Standard Deviation | 0.00 | - | - | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | - | 0.01 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | Comments | | - | - | - | - | Minor parameter fluctuation | - | - | - | - | Minor parameter fluctuation | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |




## Bore 30500.1

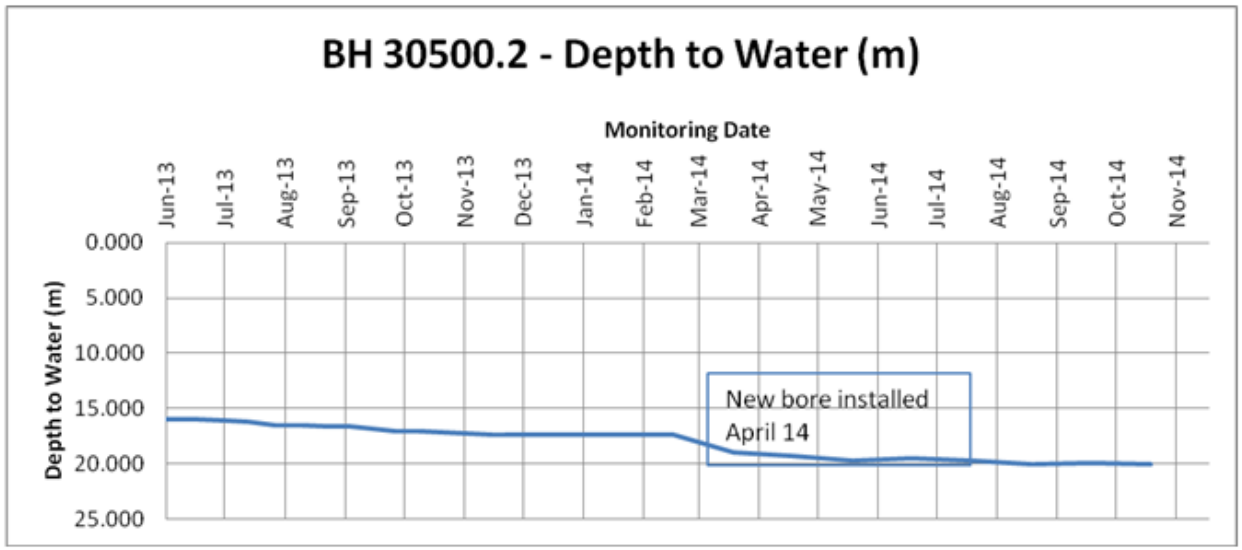
| 30500.1 | | Well Depth: 20.75m | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Earthworks Activity during Monitoring | Monitoring Event Date | Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SOLIDS (mg/L) | WATER HARDNESS (mg/L $CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) |
| 2014 | May | Construction | 29/05/2014 | 9:30am | 19.71 | 20.68 | 1.23 | 4.87 | | | | | | | |
| | June | Construction | 26/05/2014 | 10:18am | 19.11 | 19.68 | 1.33 | 5.02 | | | | | | | |
| | July | Construction | 31/07/2014 | 9:45am | DRY | DRY | DRY | DRY | Insufficent sample for lab tests | | | | | | |
| | August | Construction | 18/08/2014 | 10:28am | DRY | DRY | DRY | DRY | | | | | | | |
| | September | Construction | 24/09/2014 | 11:22am | DRY | DRY | DRY | DRY | | | | | | | |
| | October | Construction | 30/10/2014 | 9.21am | DRY | DRY | DRY | DRY | | | | | | | |
| | November | Construction | 20/11/2014 | 8.35am | DRY | DRY | DRY | DRY | Insufficent sample for lab tests | | | | | | |
| | | | | Data | Median | 20.36 | 1.08 | 5.44 | 5.1 | 1.09 | 2320 | 57 | 1.34 | 0.007 | 0.36 |
| | | | | Compliance to background | P80 value | 21.7 | 1.04 | 5.50 | 5.46 | 1.06 | 600 | 51.34092 | 0.138 | 0.031 | 0.275 |
| | | | | | Standard Deviation | 1.46 | 0.21 | 0.32 | 0.25 | 0.24 | 143.52 | | | | |
| | | | | Comments | | - | - | Minor parameter fluctuation . EC within acceptable range | Minor parameter fluctuation . | - | - | - | | | | |




## Bore 30500.2

| 30500.2 | | Well Depth: 20.82m | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Earthworks Activity during Monitoring | Monitoring Event Date | Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results: pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SOLIDS (mg/L) | WATER HARDNESS (mg/L $CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) | NITRATE (mg/L N) | NITRITE (mg/L N) | AMMONIA (mg/L N) | SODIUM (mg/L) | POTASSIUM (mg/L) | CALCIUM (mg/L) | MAGNESIUM (mg/L) | SODIUM ABSORPTION RATIO | CHLORIDE (mg/L) | SULFATE (mg/L $SO_4^{2-}$) | CHLORIDE/ SULFATE RATIO | SILVER (mg/L) | ALUMINIUM (mg/L) |
| 2014 | May | Construction | 29/05/2014 | 2:30pm | 19.24 | 22.15 | 0.598 | 8.36 | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 12:22pm | 19.65 | 20.15 | 0.51 | 8.23 | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 11:15pm | 19.47 | 21.78 | 0.652 | 7.73 | 7.15 | 0.63 | 88 | 164 | 0.06 | 0.049 | 0.72 | 0.476 | 0.006 | 0.023 | 74.4 | 6.5 | 49.8 | 9.5 | 2.5 | 102 | 32 | 3.2 | <0.001 | 0.042 |
| | August | Construction | 18/08/2014 | 12:50pm | 19.66 | 21 | 0.652 | 7.52 | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 12:35pm | 19.98 | 21.05 | 0.662 | 7.52 | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 10.32am | 19.95 | 21.3 | 0.647 | 7.01 | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 8.30am | 19.97 | 21.6 | 0.644 | 7.26 | Sample under lab anlalysis | | | | | | | | | | | | | | | | | | | | |
| | | | | Data | Median | 21.45 | 0.6495 | 7.625 | 9.165 | 0.77 | 91.5 | 206 | 0.045 | 0.033 | 0.76 | 0.476 | 0.2685 | 0.061 | 64.35 | 12.05 | 72.5 | 5.95 | 2 | 104 | 68.5 | 2.1 | <0.001 | 0.103 |
| | | | | Compliance to background P80 | P80 value | 20.458 | 0.3824 | 5.396 | 4.91 | 0.354 | 250 | 14.30 | 0.069 | 0.011 | 0.03 | 0.028 | 0.006 | 0.024 | 65.8 | 0.65 | 0.76 | 2.97 | 7.88 | 76.5 | 35.1 | 3.36 | <0.001 | 1.07 |
| | | | | | Standard Deviation | 1.36 | 0.08 | 0.62 | 0.13 | 0.04 | 355.15 | 3.82 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 9.07 | 0.06 | 0.07 | 0.92 | 1.56 | 17.66 | 11.59 | 1.10 | - | 1.15 |
| | | | | Comments | - | - | Minor parameter fluctuation. EC within acceptable range | Minor parameter fluctuation and well maintenance 31/03/2014 | Minor parameter fluctuation and well maintenance 31/03/2014 | Minor parameter fluctuation and well maintenance 31/03/2014 | - | Minor parameter fluctuation and well maintenance 31/03/2014 | - | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | - | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | - | - |

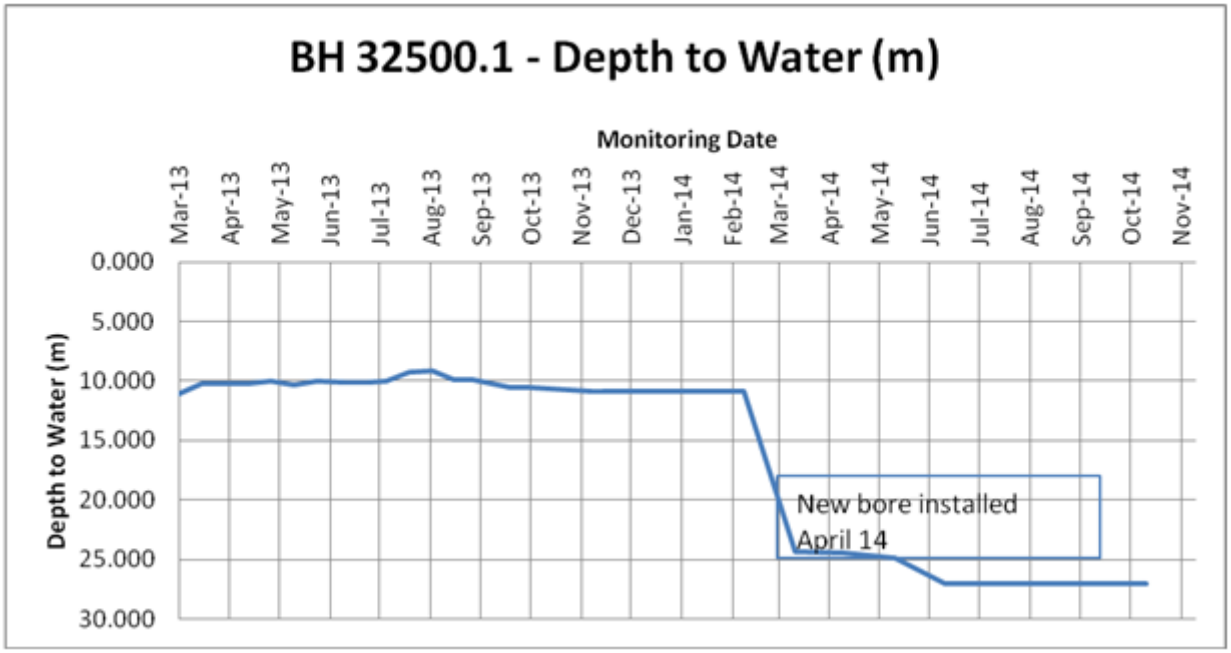
| 30500.2 | | Well Depth: 20.82m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Earthworks Activity during Monitoring | Monitoring Event Date | Time | Field Results: Depth to Water (m) | ARSENIC (mg/L) | CADMIUM (mg/L) | CHROMIUM (mg/L) | COPPER (mg/L) | IRON (mg/L) | MANGANESE (mg/L) | NICKEL (mg/L) | LEAD (mg/L) | SELENIUM (mg/L) | ZINC (mg/L) | MERCURY (mg/L) | Benzene (µg/L or ppb) | Toluene (µg/L or ppb) | Ethylbenzene (µg/L or ppb) | m+p-Xylene (µg/L or ppb) | o-Xylene (µg/L or ppb) | Naphthalene (µg/L or ppb) | C6-C9 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) | Fraction (µg/L or ppb) LESS BTEX | C10-C14 Fraction (µg/L or ppb) | C15-C28 Fraction (µg/L or ppb) | C29-C36 Fraction (µg/L or ppb) | C10-C16 Fraction (µg/L or ppb) | C16-C34 Fraction (µg/L or ppb) | C34-C40 Fraction (µg/L or ppb) |
| 2014 | May | Construction | 29/05/2014 | 2:30pm | 19.24 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 12:22pm | 19.65 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 11:15pm | 19.47 | 0.002 | <0.001 | 0.001 | 0.005 | 0.228 | 0.007 | 0.01 | <0.001 | <0.002 | 0.005 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | August | Construction | 18/08/2014 | 12:50pm | 19.66 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 12:35pm | 19.98 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 10.32am | 19.95 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 8.30am | 19.97 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Data | Median | 0.002 | <0.001 | 0.01 | 0.003 | 0.228 | 0.007 | 0.005 | <0.001 | 0.001 | 0.005 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | | | | Compliance to background P80 | P80 value | 0.003 | <0.001 | 0.003 | 0.011 | 1.615 | 0.188 | 0.007 | 0.003 | <0.002 | 0.052 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | | | | | Standard Deviation | 0.00 | - | 0.00 | 0.01 | 1.20 | 0.02 | 0.00 | 0.00 | - | 0.02 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | Comments | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



# Bore 32500.1

| 32500.1 | | Earthworks Activity during Monitoring | Monitoring Event Date | Well Depth: 41.0m<br>Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results: pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SOLIDS (mg/L) | WATER HARDNESS (mg/L $CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) | NITRATE (mg/L N) | NITRITE (mg/L N) | AMMONIA (mg/L N) | SODIUM (mg/L) | POTASSIUM (mg/L) | CALCIUM (mg/L) | MAGNESIUM (mg/L) | SODIUM ABSORPTION RATIO | CHLORIDE (mg/L) | SULFATE (mg/L $SO_4^{2-}$) | CHLORIDE / SULFATE RATIO | SILVER (mg/L) | ALUMINIUM (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | May | Construction | 29/05/2014 | 3:00pm | 24.50 | 22.6 | 3.8 | 8.9 | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 2:12pm | 24.9 | 20.36 | 3.1 | 7.99 | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 1:55pm | 27.02 | 19.25 | 4.27 | 8.34 | 11.94 | 3.63 | 12 | 517 | 0.02 | 0.006 | 2.72 | 0.006 | 0.021 | 2.404 | 246 | 102 | 207 | 0 | 4.7 | 40 | 110 | 0.4 | <0.001 | 0.445 |
| | August | Construction | 18/08/2014 | 12:22pm | 26.99 | 20.36 | 4.27 | 8.24 | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 1:28pm | 27.06 | 20.7 | 3.02 | 8.19 | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 3:00pm | 27.02 | 21.3 | 2.66 | 7.89 | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 11.36am | 27.09 | 22 | 2.36 | 7.74 | Sample under lab anlalysis | | | | | | | | | | | | | | | | | | | | |
| | | | | Data Analysis | Median | 20.955 | 3.45 | 8.215 | 12.015 | 4.62 | 55.5 | 690 | 0.035 | 0.0085 | 2.94 | 0.015 | 0.013 | 2.312 | 225 | 123 | 276 | 0.15 | 3.85 | 62 | 161 | 0.4 | <0.001 | 0.321 |
| | | | | Compliance to background P80 | P80 value | 21.06 | 1.214 | 6.872 | 6.768 | 1.198 | 740 | 389.82 | 0.079 | 0.008 | 0.332 | 0.084 | 0.024 | 0.172 | 103 | 1.81 | 129 | 16.4 | 2.27 | 187 | 15.71 | 12.43 | <0.001 | 0.033 |
| | | | | | Standard Deviation | 1.70 | 0.06 | 0.13 | 0.14 | 0.03 | 192.21 | 12.09 | 0.02 | 0.00 | 0.13 | 0.08 | 0.01 | 0.06 | 4.67 | 0.26 | 3.14 | 1.13 | 0.07 | 9.94 | 0.86 | 0.95 | - | 0.02 |
| | | | | Comments | - | - | Minor parameter fluctuation. EC within acceptable range | Minor parameter fluctuation and well maintenance 31/03/2014 | Minor parameter fluctuation and well maintenance 31/03/2014 | - | - | Minor parameter fluctuation | - | Minor parameter fluctuation | Minor parameter fluctuation and well maintenance 31/03/2014 | - | - | Minor parameter fluctuation and well maintenance 31/03/2014 | Minor parameter fluctuation | Minor parameter fluctuation and well maintenance 31/03/2014 | Minor parameter fluctuation and well maintenance 31/03/2014 | - | Minor parameter fluctuation | - | Minor parameter fluctuation | - | - | Minor parameter fluctuation |

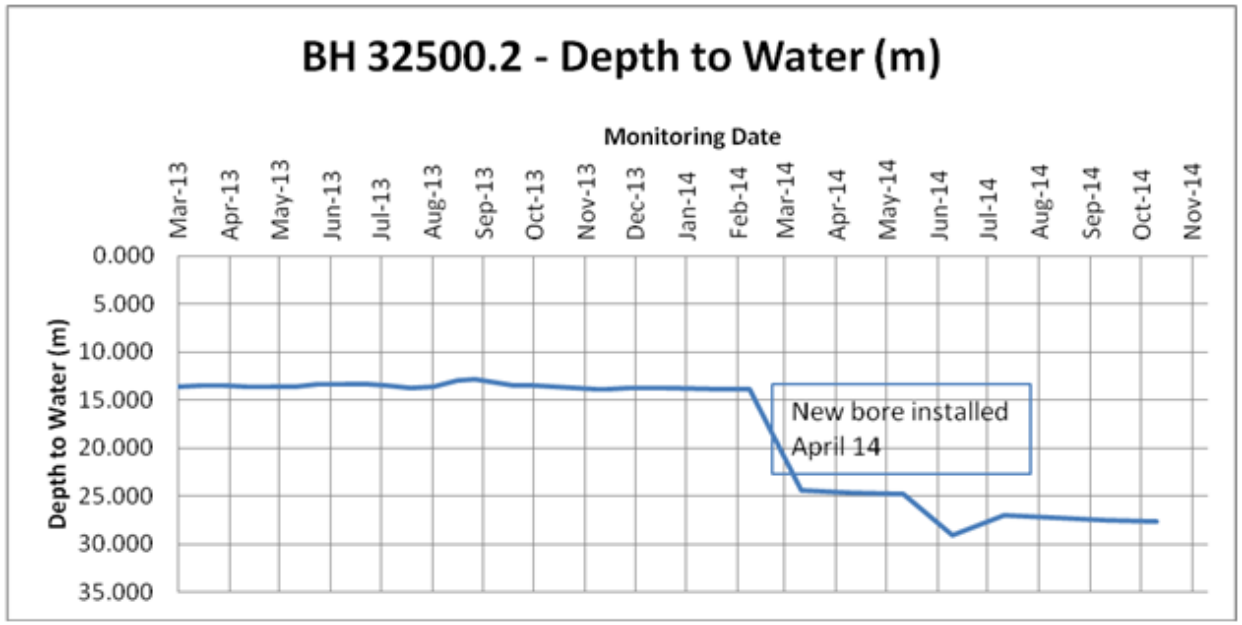
| 32500.1 | | Earthworks Activity during Monitoring | Monitoring Event Date | Well Depth: 41.0m<br>Time | Field Results: Depth to Water (m) | ARSENIC (mg/L) | CADMIUM (mg/L) | CHROMIUM (mg/L) | COPPER (mg/L) | IRON (mg/L) | MANGANESE (mg/L) | NICKEL (mg/L) | LEAD (mg/L) | SELENIUM (mg/L) | ZINC (mg/L) | MERCURY (mg/L) | Benzene (µg/L or ppb) | Toluene (µg/L or ppb) | Ethylbenzene (µg/L or ppb) | m+p-Xylene (µg/L or ppb) | o-Xylene (µg/L or ppb) | Naphthalene (µg/L or ppb) | C6-C9 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) LESS BTEX (F1) | C10-C14 Fraction (µg/L or ppb) | C15-C28 Fraction (µg/L or ppb) | C29-C36 Fraction (µg/L or ppb) | C10-C16 Fraction (µg/L or ppb) | C16-C34 Fraction (µg/L or ppb) | C34-C40 Fraction (µg/L or ppb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | May | Construction | 29/05/2014 | 3:00pm | 24.50 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 2:12pm | 24.9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 1:55pm | 27.02 | 0.002 | <0.001 | 0.001 | 0.005 | 0.032 | <0.001 | 0.008 | 0.001 | 0.001 | 0.007 | <0.0005 | <1 | <1 | <1 | <2 | <1 | 1 | <10 | 17 | 17 | 76 | <100 | <100 | 85 | <100 | <100 |
| | August | Construction | 18/08/2014 | 12:22pm | 26.99 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 1:28pm | 27.06 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 3:00pm | 27.02 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 11.36am | 27.09 | Sample under lab anlalysis | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Data Analysis | Median | 0.002 | <0.001 | 0.007 | 0.009 | 0.05 | 0.001 | 0.008 | 0.001 | 0.002 | 0.012 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | 11 | 17 | 16.5 | 98 | <100 | <100 | 112.5 | <100 | <100 |
| | | | | Compliance to background P80 | P80 value | 0.009 | <0.001 | 0.001 | 0.002 | 5.12 | 1.90 | 0.002 | 0.001 | 0.002 | 0.071 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | 140 | <100 | 120 | <100 | <100 |
| | | | | | Standard Deviation | 0.00 | - | 0.00 | 0.00 | 2.95 | 0.09 | 0.00 | 0.00 | - | 0.03 | - | - | - | - | - | - | - | - | - | - | - | - | 0.00 | - | 0.00 | - | - |
| | | | | Comments | - | - | - | - | Minor parameter fluctuation | - | - | Minor parameter fluctuation | - | - | - | - | - | - | - | - | - | - | low level of hydrocarbon detection in March 14. Cause unknown | low level of hydrocarbon detection in March 14 & July 14. Cause unknown | low level of hydrocarbon detection in March 14 & July 14. Cause unknown | low level of hydrocarbon detection in March 14 & July 14. Cause unknown | | | low level of hydrocarbon detection in March 14 & July 14. Cause unknown | | |




## Bore 32500.2

| 32500.2 | | Earthworks Activity during Monitoring | Monitoring Event Date | Well Depth: 16.63m<br>Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results: pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SOLIDS (mg/L) | WATER HARDNESS (mg/L $CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) | NITRATE (mg/L N) | NITRITE (mg/L N) | AMMONIA (mg/L N) | SODIUM (mg/L) | POTASSIUM (mg/L) | CALCIUM (mg/L) | MAGNESIUM (mg/L) | SODIUM ABSORPTION RATIO | CHLORIDE (mg/L) | SULFATE (mg/L $SO_4^{2-}$) | CHLORIDE / SULFATE RATIO | SILVER (mg/L) | ALUMINIUM (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | May | Construction | 29/05/2014 | 12:15pm | 24.6 | 23 | 2.61 | 8.8 | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 1:10pm | 24.8 | 20.15 | 2.11 | 7.36 | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 11:18am | 29.07 | 19.67 | 1.54 | 8.47 | 7.53 | 1.57 | 133 | 250 | 0.07 | 0.019 | 1.84 | 0.02 | 0.011 | 1.565 | 212 | 44.8 | 95.2 | 3 | 5.8 | 310 | 195 | 1.6 | <0.001 | 0.008 |
| | August | Construction | 18/08/2014 | 1:33pm | 27.03 | 21.3 | 1.54 | 8.1 | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 2:02pm | 27.31 | 21.4 | 1.43 | 8.01 | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 11.45am | 27.49 | 21.56 | 1.32 | 7.87 | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 8.00am | 27.65 | 21.03 | 1.39 | 7.88 | Sample under lab analysis | | | | | | | | | | | | | | | | | | | | |
| | | | | Data Analysis | Median | 21.17 | 1.49 | 8.06 | 9.50 | 1.48 | 133.50 | 222.50 | 0.08 | 0.02 | 1.29 | 0.01 | 0.01 | 1.00 | 150.40 | 50.70 | 85.40 | 2.20 | 4.30 | 219.50 | 142.00 | 1.55 | <0.001 | 0.233 |
| | | | | Compliance to background P80 | P80 value | 22.02 | 1.42 | 6.25 | 6.09 | 1.40 | 854.00 | 168.23 | 0.279 | 0.192 | 0.243 | 0.035 | 0.008 | 0.041 | 244.000 | 2.430 | 20.700 | 28.300 | 8.056 | 261.000 | 199.500 | 1.363 | <0.001 | 0.526 |
| | | | | | Standard Deviation | 1.62 | 0.42 | 0.13 | 0.18 | 0.42 | 260.57 | 49.86 | 0.095 | 0.149 | 0.106 | 0.015 | 0.003 | 0.019 | 72.790 | 0.520 | 5.606 | 9.166 | 1.688 | 84.782 | 68.297 | 0.290 | - | 0.896 |
| | | | | Comments | - | - | Minor parameter fluctuation. EC within acceptable range | Minor parameter fluctuation and well maintenance 31/03/2014. pH within acceptable range | Minor parameter fluctuation and well maintenance 31/03/2014. pH within acceptable range | Minor parameter fluctuation. EC within acceptable range | - | Minor parameter fluctuation | - | - | Minor parameter fluctuation | - | Minor parameter fluctuation | Minor parameter fluctuation | - | Minor parameter fluctuation | - | Minor parameter fluctuation | - | - | Minor parameter fluctuation | - | Minor parameter fluctuation | - | - |

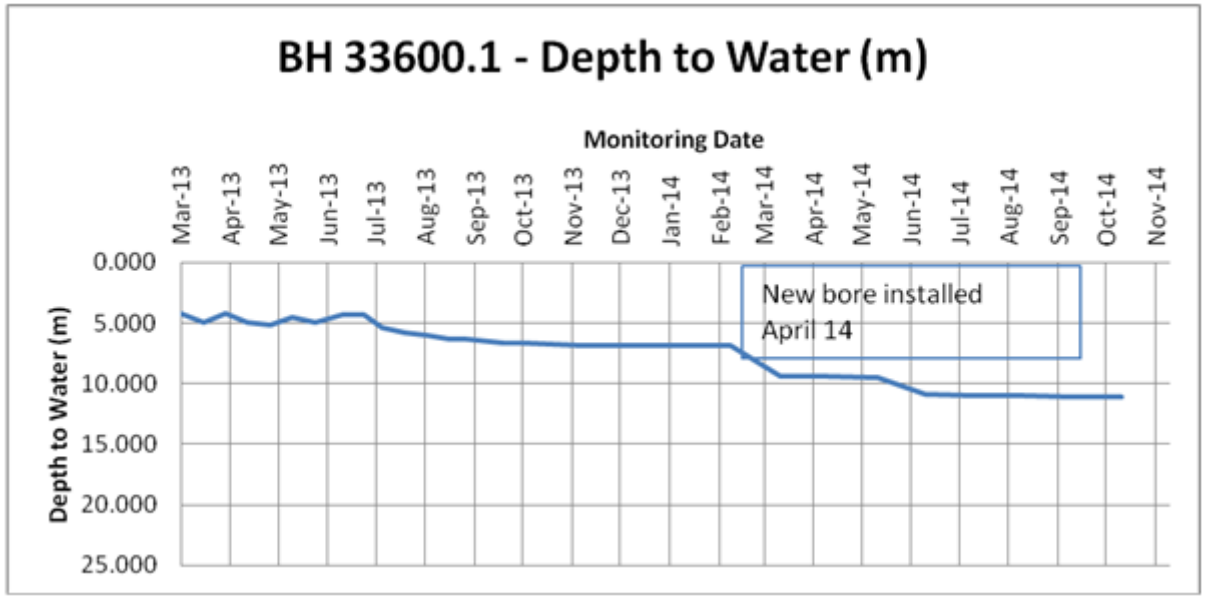
| 32500.2 | | Well Depth: 16.63m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Earthworks Activity during Monitoring | Monitoring Event Date | Time | Field Results: Depth to Water (m) | ARSENIC (mg/L) | CADMIUM (mg/L) | CHROMIUM (mg/L) | COPPER (mg/L) | IRON (mg/L) | MANGANESE (mg/L) | NICKEL (mg/L) | LEAD (mg/L) | SELENIUM (mg/L) | ZINC (mg/L) | MERCURY (mg/L) | Benzene (µg/L or ppb) | Toluene (µg/L or ppb) | Ethylbenzene (µg/L or ppb) | m+p-Xylene (µg/L or ppb) | o-Xylene (µg/L or ppb) | Naphthalene (µg/L or ppb) | C6-C9 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) LESS BTEX (F1) | C10-C14 Fraction (µg/L or ppb) | C15-C28 Fraction (µg/L or ppb) | C29-C36 Fraction (µg/L or ppb) | C10-C16 Fraction (µg/L or ppb) | C16-C34 Fraction (µg/L or ppb) | C34-C40 Fraction (µg/L or ppb) |
| 2014 | May | Construction | 29/05/2014 | 12:15pm | 24.6 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 1:10pm | 24.8 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 11:18am | 29.07 | 0.001 | <0.001 | <0.001 | 0.001 | 0.004 | 0.018 | 0.002 | <0.001 | <0.002 | 0.007 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | 230 | <100 | 68 | 210 | <100 |
| | August | Construction | 18/08/2014 | 1:33pm | 27.03 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 2:02pm | 27.31 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 11.45am | 27.49 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 8.00am | 27.65 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Data Analysis | Median | 0.001 | <0.001 | 0.001 | 0.003 | 0.006 | 0.010 | 0.002 | <0.001 | 0.002 | 0.005 | <0.0005 | <1 | <1 | <1 | <2 | <1 | 3 | <10 | <10 | <10 | <50 | 230 | <100 | 60 | 210 | <100 |
| | | | | Compliance to background P80 | P80 value | 0.015 | <0.001 | 0.002 | 0.013 | 1.799 | 0.347 | 0.010 | 0.00 | 0.001 | 0.034 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | 140 | <100 | 120 | 120 | <100 | <100 |
| | | | | | Standard Deviation | 0.006 | - | 0.002 | 0.007 | 1.193 | 0.106 | 0.002 | 0.00 | 0.001 | 0.011 | - | - | - | - | - | - | - | - | - | - | 0.00 | - | 0.00 | 0.00 | - | - |
| | | | | Comments | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | low level of hydrocarbon detection in July 14. Cause unknown | - | low level of hydrocarbon detection in March 14 & July 14. Cause unknown | low level of hydrocarbon detection in July 14. Cause unknown | - |



# Bore 33600.1

| 33600.1 | | Earthworks Activity during Monitoring | Monitoring Event Date | Well Depth: 14.0m<br>Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results: pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SOLIDS (mg/L) | WATER HARDNESS ($mg/L\ CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) | NITRATE (mg/L N) | NITRITE (mg/L N) | AMMONIA (mg/L N) | SODIUM (mg/L) | POTASSIUM (mg/L) | CALCIUM (mg/L) | MAGNESIUM (mg/L) | SODIUM ABSORPTION RATIO | CHLORIDE (mg/L) | SULFATE ($mg/L\ SO_4^{2-}$) | CHLORIDE/SULFATE RATIO | SILVER (mg/L) | ALUMINIUM (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | May | Construction | 29/05/2014 | 3:40pm | 9.390 | 22.41 | 1.34 | 8.78 | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 2:55pm | 9.46 | 20.32 | 1.25 | 8.01 | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 3:14pm | 10.9 | 19.95 | 1.1 | 8.53 | 11.09 | 1.06 | 96 | 101 | 0.04 | 0.028 | 0.82 | 0.009 | 0.002 | 0.558 | 105 | 52.7 | 38.7 | 1 | 4.5 | 110 | 49 | 2.3 | <0.001 | 0.064 |
| | August | Construction | 18/08/2014 | 1:35pm | 10.99 | 20.05 | 1.1 | 7.9 | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 1:12pm | 11.01 | 20.3 | 1.32 | 7.8 | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 12.15pm | 11.06 | 21.3 | 1.22 | 7.65 | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 2.36pm | 11.07 | 20.9 | 1.15 | 7.78 | Sample under lab analysis | | | | | | | | | | | | | | | | | | | | |
| | | | | Data Analysis | Median | 20.31 | 1.19 | 7.90 | 11.25 | 1.20 | 112.50 | 146.50 | 0.060 | 0.028 | 0.790 | 0.008 | 0.002 | 0.489 | 95.200 | 52.800 | 56.800 | 1.100 | 3.600 | 116.000 | 65.500 | 1.900 | <0.001 | 0.298 |
| | | | | Compliance to background P80 | P80 value | 21.71 | 1.10 | 5.28 | 5.22 | 1.10 | 650.00 | 64.16 | 0.040 | 0.014 | 0.339 | 0.037 | 0.003 | 0.199 | 180.200 | 1.782 | 1.540 | 14.880 | 9.733 | 287.200 | 19.470 | 14.608 | <0.001 | 0.569 |
| | | | | | Standard Deviation | 1.51 | 0.22 | 0.46 | 0.27 | 0.31 | 232.39 | 21.87 | 0.02 | 0.00 | 0.20 | 0.04 | 0.00 | 0.08 | 50.34 | 0.47 | 0.58 | 5.06 | 1.34 | 82.49 | 4.37 | 3.47 | - | 1.17 |
| | | | | Comments | - | - | Minor parameter fluctuation. EC within acceptable range | Minor parameter fluctuation and well maintenance 31/03/2014. pH within acceptable range | Minor parameter fluctuation and well maintenance 31/03/2014 | Minor parameter fluctuation. EC within acceptable range | - | Minor parameter fluctuation | Minor parameter fluctuation | - | Minor parameter fluctuation | - | - | Minor parameter fluctuation | - | Minor parameter fluctuation | Minor parameter fluctuation | - | - | - | Minor parameter fluctuation | - | - | - |

| 33600.1 | | Earthworks Activity during Monitoring | Monitoring Event Date | Well Depth: 14.0m<br>Time | Field Results: Depth to Water (m) | ARSENIC (mg/L) | CADMIUM (mg/L) | CHROMIUM (mg/L) | COPPER (mg/L) | IRON (mg/L) | MANGANESE (mg/L) | NICKEL (mg/L) | LEAD (mg/L) | SELENIUM (mg/L) | ZINC (mg/L) | MERCURY (mg/L) | BTEX | Benzene (µg/L or ppb) | Toluene (µg/L or ppb) | Ethylbenzene (µg/L or ppb) | m+p-Xylene (µg/L or ppb) | o-Xylene (µg/L or ppb) | Naphthalene (µg/L or ppb) | Total Recoverable Hydrocarbons: | C6-C9 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) | C6-C10 Fraction minus (µg/L or ppb) LESS BTEX (F1) | C10-C14 Fraction (µg/L or ppb) | C15-C28 Fraction (µg/L or ppb) | C29-C36 Fraction (µg/L or ppb) | C10-C16 Fraction (µg/L or ppb) | C16-C34 Fraction (µg/L or ppb) | C34-C40 Fraction (µg/L or ppb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | May | Construction | 29/05/2014 | 3:40pm | 9.390 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 2:55pm | 9.46 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 3:14pm | 10.9 | 0.001 | <0.001 | 0.001 | 0.002 | 0.004 | <0.001 | 0.001 | <0.001 | <0.002 | 0.002 | <0.0005 | | <1 | <1 | <1 | <2 | <1 | 2 | | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | August | Construction | 18/08/2014 | 1:35pm | 10.99 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 1:12pm | 11.01 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 12.15pm | 11.06 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 2.36pm | 11.07 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Data Analysis | Median | 0.001 | <0.001 | 0.001 | 0.003 | 0.006 | 0.001 | 0.001 | <0.001 | 0.002 | 0.003 | <0.0005 | | <1 | <1 | <1 | <2 | <1 | 3 | | 17 | 19 | 19 | 53 | <100 | <100 | 53 | <100 | <100 |
| | | | | Compliance to background P80 | P80 value | 0.002 | <0.001 | 0.001 | 0.028 | 1.188 | 0.125 | 0.013 | 0.005 | <0.002 | 0.231 | <0.0005 | | <1 | <1 | <1 | <2 | <1 | <1 | | <10 | <10 | <10 | 57 | 160 | <100 | 151 | <100 | <100 |
| | | | | | Standard Deviation | 0.00 | - | 0.00 | 0.01 | 0.77 | 0.04 | 0.00 | 0.00 | - | 0.08 | - | | - | - | - | - | - | - | | - | - | - | - | - | - | - | - | - |
| | | | | Comments | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | low level of hydrocarbon detection in March 14 & July 14. Cause unknown | | - | - | - | - | - | - | - | - | - |

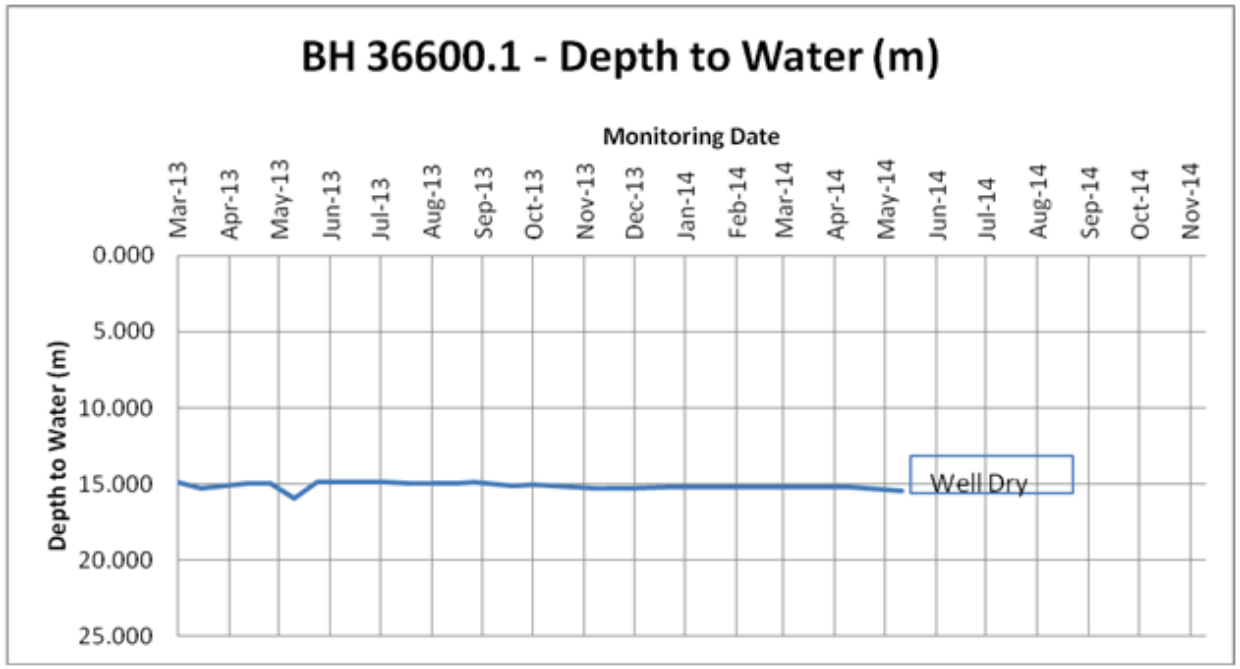



## Bore 33600.2 (New bore installed April 14)

| 33600.2 | | Earthworks Activity during Monitoring | Monitoring Event Date | Well Depth: 12.5m<br>Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results: pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SOLIDS (mg/L) | WATER HARDNESS (mg/L $CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) | NITRATE (mg/L N) | NITRITE (mg/L N) | AMMONIA (mg/L N) | SODIUM (mg/L) | POTASSIUM (mg/L) | CALCIUM (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | April (new bore installed) | Construction | 07/04/2014 | 12:00pm | DRY | Insufficient sample available to undertake lab testing | | | | | | | | | | | | | | | |
| | May | Construction | 29/05/2014 | 3:40pm | DRY | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 2:55pm | DRY | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 3:14pm | DRY | Insufficient sample available to undertake lab testing | | | | | | | | | | | | | | | |
| | August | Construction | 18/08/2014 | 1:35pm | DRY | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 1:12pm | DRY | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 12.15pm | DRY | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 2.36pm | DRY | Insufficient sample available to undertake lab testing | | | | | | | | | | | | | | | |
| | | | | Data Analysis | Median | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | Compliance to background P80 | P80 value | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Standard Deviation | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | Comments | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Bore 36600.1

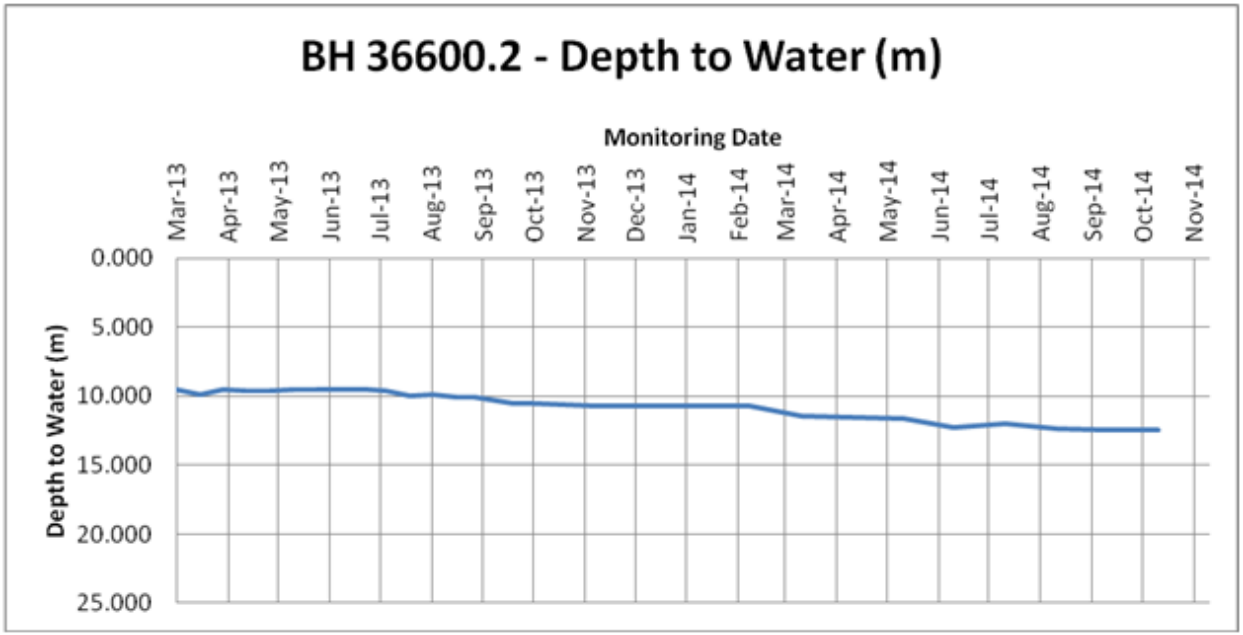
| 33660.1 | | Earthworks Activity during Monitoring | Monitoring Event Date | Well Depth: Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results: pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SOLIDS (mg/L) | WATER HARDNESS (mg/L $CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2104 | May | Construction | 29/05/2014 | 4:00pm | 15.210 | 20.21 | 0.62 | 6.76 | | | | | | | |
| | June | Construction | 25/06/2014 | 3:30pm | 15.45 | 19.12 | 0.7 | 6.32 | | | | | | | |
| | July | Construction | 31/07/2014 | 2:25pm | DRY | DRY | DRY | DRY | Insufficent sample for lab test | | | | | | |
| | August | Construction | 18/08/2014 | 4:10pm | DRY | DRY | DRY | DRY | | | | | | | |
| | September | Construction | 24/09/2014 | 3:55pm | DRY | DRY | DRY | DRY | | | | | | | |
| | October | Construction | 30/10/2014 | 2.10pm | DRY | DRY | DRY | DRY | | | | | | | |
| | November | Construction | 20/11/2014 | 1.00pm | DRY | DRY | DRY | DRY | Insufficent sample for lab test | | | | | | |
| | | | | Data | Median | 20.35 | 0.7 | 6.32 | 5.72 | 0.162 | 1700 | 17 | 0.28 | 0.011 | 1.9 |
| | | | | Compliance to background | P80 value | 20.98 | 3.122 | 6.03 | 5.87 | 3.08 | 1775 | 171.56301 | 1.695 | 1.6238 | 0.283 |
| | | | | | Standard Deviation | 1.59 | 0.33 | 0.15 | 0.49 | 0.85 | 655.86 | 45.53 | 0.50 | 0.37 | 0.11 |
| | | | | Comments | | - | - | - | Minor parameter fluctuation . pH within acceptable range | - | - | - | - | - | - | - |



# Bore 36600.2

| 33660.2 | | Earthworks Activity during Monitoring | Monitoring Event Date | Well Depth: 22.47m<br>Time | Field Results: Depth to Water (m) | Temp (Celcius) | EC (us/cm) | pH | Lab Results: pH | CONDUCTIVITY (EC) (dS/m) | TOTAL DISSOLVED SOLIDS (mg/L) | WATER HARDNESS (mg/L $CaCO_3$ equivalent) | TOTAL PHOSPHORUS (mg/L P) | PHOSPHATE (mg/L P) | TOTAL NITROGEN (mg/L N) | NITRATE (mg/L N) | NITRITE (mg/L N) | AMMONIA (mg/L N) | SODIUM (mg/L) | POTASSIUM (mg/L) | CALCIUM (mg/L) | MAGNESIUM (mg/L) | SODIUM ABSORPTION RATIO | CHLORIDE (mg/L) | SULFATE (mg/L $SO_4^{2-}$) | CHLORIDE / SULFATE RATIO | SILVER (mg/L) | ALUMINIUM (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | May | Construction | 29/05/2014 | 4:45pm | 11.500 | 22.26 | 1.24 | 6.41 | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 4:30am | 11.6 | 20.05 | 1.1 | 6.62 | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 3:55pm | 12.28 | 16.28 | 1.31 | 7.25 | 6.02 | 1.31 | 45 | 74 | 2.62 | 0.65 | 0.07 | 0.01 | <0.001 | 0.02 | 234 | 1 | 9.4 | 12.4 | 11.8 | 290 | 91 | 3.2 | <0.001 | 0.014 |
| 2014 | August | Construction | 18/08/2014 | 4:22pm | 12.01 | 16.22 | 1.31 | 7.36 | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 3:14pm | 12.36 | 18.2 | 1.37 | 7.1 | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 4.30pm | 12.41 | 20.1 | 1.29 | 7.32 | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 2.35pm | 12.43 | 21 | 1.21 | 7.56 | Sample under lab analysis | | | | | | | | | | | | | | | | | | | |
| | | | | Data Analysis | Median | 20.6 | 1.24 | 6.86 | 6 | 1.28 | 35 | 77 | 1.925 | 0.618 | 0.075 | 0.010 | 0.002 | 0.014 | 231.5 | 0.950 | 9.150 | 13.25 | 11.45 | 295.50 | 108.00 | 2.80 | <0.001 | 0.019 |
| | | | | Compliance to background | P80 value | 21.9 | 1.33 | 6.28 | 6.1 | 1.22 | 700 | 69.76 | 0.943 | 0.871 | 0.211 | 0.081 | 0.006 | 0.053 | 239.0 | 1.930 | 4.920 | 13.80 | 12.44 | 261.00 | 111.90 | 2.44 | <0.001 | 0.055 |
| | | | | | Standard Deviation | 1.44 | 0.09 | 0.24 | 0.14 | 0.69 | 499.28 | 38.82 | 0.23 | 0.23 | 0.09 | 0.04 | 0.02 | 0.23 | 146.28 | 0.82 | 0.78 | 9.74 | 3.31 | 175.21 | 150.93 | 0.48 | - | 0.03 |
| | | | | Comments | - | - | Minor parameter fluctuation . EC within acceptable range | - | Minor parameter fluctuation | - | - | - | Minor parameter fluctuation | - | - | - | - | - | - | - | Minor parameter fluctuation | Minor parameter fluctuation | - | Minor parameter fluctuation | Minor parameter fluctuation | Minor parameter fluctuation | - | - |

| 33660.2 | | Earthworks Activity during Monitoring | Monitoring Event Date | Well Depth: 22.47m<br>Time | Field Results: Depth to Water (m) | ARSENIC (mg/L) | CADMIUM (mg/L) | CHROMIUM (mg/L) | COPPER (mg/L) | IRON (mg/L) | MANGANESE (mg/L) | NICKEL (mg/L) | LEAD (mg/L) | SELENIUM (mg/L) | ZINC (mg/L) | MERCURY (mg/L) | Benzene (µg/L or ppb) | Toluene (µg/L or ppb) | Ethylbenzene (µg/L or ppb) | m+p-Xylene (µg/L or ppb) | o-Xylene (µg/L or ppb) | Naphthalene (µg/L or ppb) | C6-C9 Fraction (µg/L or ppb) | C6-C10 Fraction (µg/L or ppb) | C10 Fraction (µg/L or ppb) LESS BTEX (F1) | C10-C14 Fraction (µg/L or ppb) | C15-C28 Fraction (µg/L or ppb) | C29-C36 Fraction (µg/L or ppb) | C10-C16 Fraction (µg/L or ppb) | C16-C34 Fraction (µg/L or ppb) | C34-C40 Fraction (µg/L or ppb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | May | Construction | 29/05/2014 | 4:45pm | 11.500 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | June | Construction | 25/06/2014 | 4:30am | 11.6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | July | Construction | 31/07/2014 | 3:55pm | 12.28 | 0.003 | <0.001 | <0.001 | 0.001 | 0.222 | 0.489 | 0.014 | <0.001 | <0.002 | 0.016 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| 2014 | August | Construction | 18/08/2014 | 4:22pm | 12.01 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | September | Construction | 24/09/2014 | 3:14pm | 12.36 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | October | Construction | 30/10/2014 | 4.30pm | 12.41 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | November | Construction | 20/11/2014 | 2.35pm | 12.43 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Data Analysis | Median | 0.004 | <0.001 | <0.001 | 0.001 | 0.119 | 0.478 | 0.016 | <0.001 | <0.002 | 0.018 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | | | | Compliance to background | P80 value | 0.005 | <0.001 | 0.003 | 0.003 | 0.397 | 1.573 | 0.085 | 0.001 | 0.003 | 0.053 | <0.0005 | <1 | <1 | <1 | <2 | <1 | <1 | <10 | <10 | <10 | <50 | <100 | <100 | <50 | <100 | <100 |
| | | | | | Standard Deviation | 0.00 | - | 0.00 | 0.00 | 0.28 | 0.68 | 0.04 | 0.00 | 0.00 | 0.02 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | Comments | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |


BH 36600.2 - Depth to Water (m)
Monitoring Date
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
Jun-14
Jul-14
Aug-14
Sep-14
Oct-14
Nov-14
Depth to Water (m)
0.000
5.000
10.000
15.000
20.000
25.000