



Transport
Roads & Maritime
Services

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Early Works – Wave 1 & 3 (part)

Woolgoolga to Ballina

Pacific Highway Upgrade

DECEMBER 2015



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<i>Appendix B10</i>	<i>Construction Contaminated Land Management Plan</i>
<i>Appendix B11</i>	<i>Construction Acid Sulfate Materials Management Plan</i>

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
DoE	Commonwealth Department of the Environment
DP&E	Department of Planning and Environment
DPI	NSW Department of Primary Industries
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).
EEC	Endangered Ecological Communities.
EIS	Environmental Impact Statement
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 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	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environment Protection Authority

EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence under the <i>Protection of the Environment Operations Act 1997</i> .
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 local councils. 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.
Golding	Golding Contractors Pty Ltd
Minister, the	Minister for Planning
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	NSW Office of Environment and Heritage
SPIR	Submissions Preferred Infrastructure Report
PoEO Act	<i>Protection of the Environment Operations Act 1997</i>
Project, the	Early Works – Wave 1 & 3 (part), Woolgoolga to Ballina, Pacific Highway Upgrade
RMS	Roads and Maritime Services
Secretary	Secretary of the Department of Planning and Environment (formerly known as the Director General)
SSI	State significant infrastructure

1 Introduction

1.1 Background

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

The Woolgoolga to Ballina Project was declared critical State significant infrastructure under section 115V of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and was assessed under Part 5.1 of the EP&A Act.

An Environmental Impact Statement (EIS) was prepared for the Woolgoolga to Ballina Project and placed on public exhibition for 60 days between December 2012 and February 2013. Approval was granted by the Minister for Planning on 26 June 2014.

The Woolgoolga to Ballina Project has also been subject to approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Woolgoolga to Ballina Project was declared by the Commonwealth Minister for Sustainability, Environment, Water, Populations and Communities to be a controlled action under this Act on 20 June 2012. Approval was granted on 26 June 2014. The Conditions of Approval directly related to the CEMP are included within Table 1-1.

The Woolgoolga to Ballina Project comprises approximately 155 kilometres of four-lane dual carriageway motorway that bypasses the towns of Grafton, South Grafton, Ulmarra, Woodburn, Broadwater and Wardell (Figure 1-1). The project does not include the Pacific Highway upgrades at Glenugie and Devils Pulpit as these are separate projects and now complete however, the tie-ins to these projects are included within the Minister's approval.

As described in the Woolgoolga to Ballina Pacific Highway Upgrade Environmental Impact Statement, Roads and Maritime is considering a range of different packaging and procurement options ranging from one single 155 kilometre project to up to 11 individual projects. Further detail of the proposed staging of the project would be provided in the Staging Report, which has been prepared in accordance with the requirements of Condition of Approval (CoA A7).

1.2 Purpose of this CEMP

This Construction Environmental Management Plan (CEMP), for the Early Works – Wave 1 and Wave 3 (part) Project, and its associated plans have been prepared to comply with the Minister for Planning's Conditions of Approval for the Woolgoolga to Ballina Project. A detailed description of the project is provided in Chapter 2.

The CEMP has been prepared in accordance with Roads and Maritime QA Specification G36 and the Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004). It is also consistent with AS/NZS ISO 14001.

The purpose of this CEMP is to provide a structured approach to the management of environmental issues during construction of the project. Implementing this CEMP effectively will ensure that the project team meets regulatory and policy requirements in a systematic manner and continually improves performance. The CEMP is to ensure that the requirements of Roads and Maritime and the Minister's conditions of approval are met (see Appendix A1 and Compliance Tracking Program).



Figure 1-1 Woolgoolga to Ballina Project

In particular, this CEMP:

- Describes the project in detail including activities to be undertaken and relative timing.
- Provides specific mitigation measures and controls that can be applied on-site to avoid or minimise negative environmental impacts.
- Provides specific mechanisms for compliance with applicable policies, approvals, licences, permits, consultation agreements and legislation.
- Describes the environmental management related roles and responsibilities of personnel.
- States objectives and targets for issues that are important to the environmental performance of the project.
- Outlines a monitoring regime to check the adequacy of controls as they are implemented during construction.

This CEMP meets the requirements of CoA D25, D26 relating to a Construction Environmental Management Plan. The requirements of these conditions and where they are met in this CEMP are shown in Table 1-1. CoA D21 and D22 relating to Ancillary Facilities Management Plan and Borrow Sites Management Plan are proposed to be included within the broader CEMP, and so are included within Table 1-1. CoA D27 relating to Compliance Monitoring and Tracking is discussed in Chapter 8-4 of this CEMP.

Table 1-1 CoA requirements for a CEMP

CoA no.	Requirement	Reference
CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN		
D25	The Applicant shall prepare and implement (following approval) a Construction Environmental Management Plan for the SSI, prior to the commencement of construction, or as otherwise agreed by the Secretary. The Plan shall be prepared in consultation with the EPA, OEH, DPI (Fisheries), NOW and DoE and outline the environmental management practices and procedures that are to be followed during construction, and shall be prepared in consultation with the relevant government agencies and in accordance with the <i>Guideline for the Preparation of Environmental Management Plans</i> (Department of Infrastructure, Planning and Natural Resources, 2004). The Plan shall include, but not necessarily be limited to:	This plan
D25 (a)	A description of activities to be undertaken during construction of the SSI (including staging and scheduling).	Chapter 2
D25 (b)	Statutory and other obligations that the Proponent is required to fulfil during construction, including approvals, consultations and agreements required from authorities and other stakeholders under key legislation and policies.	Chapter 3 and Appendix A1
D25 (c)	A description of the roles and responsibilities for relevant employees involved in the construction of the SSI, including relevant training and induction provisions for ensuring that employees, including contractors and sub-contractors are aware of their environmental and compliance obligations under the conditions of approval.	Chapter 4 and Chapter 5

CoA no.	Requirement	Reference
D25 (d)	<p>An environmental risk analysis to identify the key environmental performance issues associated with the construction phase and details of how environmental performance would be managed and monitored to meet acceptable outcomes, including what actions will be taken to address identified potential adverse environmental impacts (including any impacts arising from the staging of the construction of the SSI). In particular, the following environmental performance issues shall be addressed in the Plan:</p> <ul style="list-style-type: none"> i. measures to monitor and manage dust emissions including dust from stockpiles, blasting, traffic on unsealed public roads and materials tracking from construction sites onto public roads; ii. measures to minimise hydrology impacts, including measures to stabilise bed and bank structures as required; iii. measures for the handling, treatment and management of contaminated materials; iv. measures to monitor and manage waste generated during construction including but not necessarily limited to: general procedures for waste classification, handling, reuse, and disposal; use of secondary waste material in construction wherever feasible and reasonable; procedures or dealing with green waste including timber and mulch from clearing activities; and measures for reducing demand on water resources (including potential for reuse of treated water from sediment control basins); v. measures to monitor and manage spoil, fill and materials stockpile sites including details of how spoil, fill or material would be handled, stockpiled, reused and disposed in a Stockpile Management Protocol. The Protocol shall include details of the locational criteria that would guide the placement of temporary stockpiles, and management measures that would be implemented to avoid/minimise amenity impacts to surrounding residents and environmental risks (including surrounding water courses). Stockpile sites that affect heritage, threatened species, populations or endangered ecological communities require the approval of the Secretary, in consultation with the EPA, OEH and DPI (Fisheries); vi. measures to monitor and manage hazard and risks including emergency management and management measures to address potential risks to the Woodburn borefield drinking water catchment. These measures shall be developed in consultation with Rous Water; 	Section 3.4 and Appendix A2

CoA no.	Requirement	Reference
	<ul style="list-style-type: none"> vii. the issues identified in condition D26; viii. details of community involvement and complaints handling procedures during construction, consistent with the requirement of conditions C1 to C4; ix. details of compliance and incident management consistent with the requirements of condition D27; and x. procedures for the periodic review and update of the Construction Environmental Management Plan and Plans required under condition D26, as necessary (including where minor changes can be approved by the Environmental Representative). 	
	<p>The Plan shall be submitted for the approval of the Director General no later than one month prior to the commencement of construction, or as otherwise agreed by the Director General. The Plan may be prepared in stages, however, construction works shall not commence until written approval of the relevant stage has been received from the Director General.</p> <p>The approval of a Construction Environmental Management Plan does not relieve the Applicant of any requirement associated with this SSI approval. If there is an inconsistency with an approved Construction Environmental Management Plan and the conditions of this SSI approval, the requirements of this SSI approval prevail.</p>	Section 1.4
D26	As part of the Construction Environmental Management Plan for the SSI, the Applicant shall prepare and implement:	
D26 (a)	a Construction Noise and Vibration Management Plan	Appendix B3
D26 (b)	a Construction Traffic and Access Management Plan	Appendix B1
D26 (c)	a Construction Soil and Water Quality Management Plan	Appendix B4
D26 (d)	a Construction Heritage Management Plan	Appendix B5
D26 (e)	a Construction Flora and Fauna Management Plan	Appendix B2
	<i>Full details of CoA D25 are provided in the Appendices of this CEMP relating to each of plans listed above.</i>	
	ANCILLARY FACILITIES	
D21	The Applicant shall prepare and implement an Ancillary Facilities Management Plan to detail the management of ancillary facilities associated with the SSI. The Plan shall be developed in consultation with the EPA, OEH, DPI (Fisheries) and the relevant council, and to the satisfaction of the Environmental Representative, and shall include, but not necessarily be limited to:	Appendix B8

CoA no.	Requirement	Reference
	(a) a description of the ancillary facility (including a site layout plan), its components and details of the existing environment on and in the vicinity of the site;	
	(b) details of the activities to be carried out at the facility, including the hours of operation, staging of operation and predicted date of commissioning;	
	(c) a description of the plant, equipment and materials to be used and/or stored on the site, including dangerous and hazardous goods;	
	(d) details of the light and heavy construction vehicle movements to and from each facility, including site access and route(s) to be used during the establishment and operation of the facility, and an assessment of potential construction traffic impacts on the local road network and access tracks;	
	(e) a summary of the potential environmental impacts associated with the construction and operation of the facility;	
	(f) demonstrate compliance with the locational and environmental criteria in condition B73(a) — B73(n);	
	(g) details of the mitigation, monitoring and management procedures specific to the facility that would be implemented to minimise environmental and amenity impacts or, where this is not possible, feasible and reasonable measures to offset these impacts;	
	(h) a description of how the management and mitigation measures set out in the documents listed in condition A2 will be implemented on the site, and if not, justification for such decisions particularly on those sites assessed as having a high risk of flood impacts;	
	(i) an assessment of alternative site layouts where either noise management levels are predicted to be exceeded and acoustic treatment of residences is not proposed, or where such treatment is proposed (consequent to the operational impacts of the SSI) but will not be provided prior to establishment of an ancillary facility;	
	(j) a cumulative noise impact statement for the ancillary facility addressing the worst-case cumulative noise impacts resulting from the concurrent operation of the site (including construction traffic movements to and from the site), nearby construction works within the SSI corridor and any other nearby construction activities associated with other road upgrade projects;	

CoA no.	Requirement	Reference
	<ul style="list-style-type: none"> (k) identification of the timing for the completion of activities at the facility and how the site will be decommissioned (including any necessary rehabilitation); and (l) mechanisms for the monitoring, review and amendment of this plan. <p>The plan shall be approved by the Environmental Representative prior to the establishment of the facility. In considering the approval of the plan, the Environmental Representative shall take into account the Proponent's response to public authority and council comments on the plan.</p> <p>The Applicant may prepare a separate plan for each facility or include multiple sites within a single or multiple management plans.</p>	

BORROW SITES

D22	<p>Prior to the commencement of construction at the borrow sites, or as otherwise agreed by the Director General, the Applicant shall prepare and implement a Borrow Sites Management Plan to manage the construction, operation and rehabilitation of the borrow sites used to source construction material for the SSI. The Plan shall be prepared in consultation with the EPA, OEH and DPI (Fisheries) and to the satisfaction of the Director General, and shall include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> (a) details of construction/extraction methods and activities carried out at the borrow site; (b) management measures to be used to minimise surface and groundwater impacts, Aboriginal and non-Aboriginal heritage, air quality, noise and vibration, biodiversity and visual impacts; (c) consultation with sensitive receivers; and (d) details of the rehabilitation of the borrow site, including future landform and use of the borrow site, landscaping and revegetation, and measures that would be implemented to minimise or manage the ongoing environmental effects of the site 	Appendix B9 (if required)
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The CEMP is also to meet the requirements of the revised Environmental Impact Statement (EIS) mitigation measures for the project as presented in the Submissions / Preferred Infrastructure Report (November 2013), presented in Table 1-2.

Table 1-2 EIS requirement for a CEMP

Issue	Requirement	Reference
Construction Environmental Management Plan	<p>A construction environmental management plan is to be prepared by each contractor and will identify measures to be implemented to minimise environmental impacts. The construction environmental management plan will be required to include any conditions of approval for the project and construction measures identified in the EIS. The CEMP will be required to include:</p> <ul style="list-style-type: none"> - Roles and responsibilities for planning, approval, implementation, assessment and monitoring of environmental controls. - Required licences, approvals and permits. - Environmental legislation that will be required to be complied with. - Potential environmental impacts resulting from construction of the proposed upgrade and the control and mitigation measures to be implemented. - Objectives and targets for environmental performance. - Environmental monitoring programs and a mechanism for evaluating environmental performance. - Communication procedures. - Document control procedures. - Emergency response procedures to mitigate potential environmental damage. - Training, competence and awareness assessment procedures and programs. - An environmental auditing program and a mechanism for control and management of non-conformances. <p>The Construction Environmental Management Plan would provide specific information in particular areas of environmental management, either by way of direct reference or by environmental management sub-plans.</p>	Woolgoolga to Ballina EIS S19.1

Relevant management measures and requirements for the project are included within the attached plans to this CEMP (Appendix B):

- Appendix B1 - Construction traffic and access management plan
- Appendix B2 - Construction flora and fauna management plan
- Appendix B3 - Construction noise and vibration management plan
- Appendix B4 - Construction soil and water quality management plan
- Appendix B5 - Construction heritage management plan
- Appendix B6 - Construction air quality management plan
- Appendix B7 - Construction waste and energy management plan.
- Appendix B8 – Ancillary facilities management plan
- Appendix B9 – Borrow sites management plan (not used)

- Appendix B10 – Construction contaminated land management plan
- Appendix B11 – Construction acid sulfate materials management plan

Other relevant management measures to be addressed in construction (visual, urban design and landscape, Traffic and transport, Land use and property and Social and economic) which have not been captured by specific plans are described in Appendix A7.

This CEMP is the overarching document in the environmental management system for the Project that includes a number of management documents. These are described in Section 4.1. It is applicable to all staff and sub-contractors associated with the construction of the Project.

1.3 Consultation

Extensive consultation for the Project commenced during the route selection phase and continued during the environmental impact assessment of the concept design. The primary objective of consultation was to keep stakeholders well informed and involved during each stage of Project development.

Further consultation with relevant stakeholders and government authorities has continued through the development of this CEMP and associated plans. Those consulted include:

- NSW Environment Protection Authority
- DPI Fishing and Aquaculture
- NSW Office of Environment and Heritage
- Rous Water
- Ballina Shire Council
- Clarence Valley Council
- Coffs Harbour City Council
- Richmond Valley Council
- NSW Office of Water
- Commonwealth Department of the Environment.

Consultation will continue throughout the Project with relevant stakeholders and government authorities. The outcomes of this consultation will be documented where relevant in subsequent revisions of the CEMP and the management review.

1.4 Certification and approval

This CEMP must be approved by the Roads and Maritime Project Manager and Roads and Maritime Environmental Manager prior to submission to DP&E. Submission to DP&E is required no later than one month prior to commencement of construction or as otherwise agreed.

The CEMP must be approved by the Secretary of the Department of Planning and Environment prior to the commencement of construction.

The plans prepared under CoA D25 also require approval by the Secretary prior to commencement of construction. Further explanation and details of these documents are provided in Section 4.1.

1.5 Distribution

This CEMP is available to all personnel and sub-contractors via the Project document control management system. An electronic copy can be found on the Project website.

The document is uncontrolled when printed. One controlled hard copy of the CEMP and supporting documentation will be maintained by the Quality Manager at the Project office.

Registered copies will be distributed to:

- Project Manager
- Environmental Representative
- Construction Manager
- Environmental Site Representative
- Communications Manager
- Roads and Maritime Representative
- Roads and Maritime Environment Manager, Pacific Highway.

1.6 Revision

A document review process ensures that environmental documentation including this CEMP is updated as appropriate for the specific works that are occurring on-site. This includes the management review process described in Chapter 9.

Should the document review process identify any issues or items within the documents that are either redundant or in need of updating, it is the responsibility of the Environmental Site Representative to prepare the revised documents.

The revised document will then be issued to the Project Manager and the Environmental Representative for certification of the changes. The Environmental Representative can approve minor changes to the CEMP including subplans. Minor changes would typically include those that:

- Are editorial in nature eg staff and agency/authority name changes.
- Do not increase the magnitude of impacts on the environment when considered individually or cumulatively.
- Do not compromise the ability of the Project to meet approval or legislative requirements.

Where the Environmental Representative deems it necessary, the amended CEMP will be forwarded to the Secretary for approval.

Revised versions of the CEMP will be made available through the processes described in Section 1.5.

2 Project description

2.1 General features

The general features of the Project are:

- Around 155 kilometres of motorway standard highway, comprising a four-lane divided carriageway (two lanes in each direction) that can be upgraded to a six-lane divided carriageway in the future, if required
- Bypasses of Grafton, South Grafton, Ulmarra, Woodburn, Broadwater and Wardell
- The following interchanges to provide access to and from the upgraded highway at:
 - Corindi (Range Road)
 - Glenugie (Glenugie / Eight Mile Lane)
 - Tyndale (Sheeys Lane / Bensons Lane)
 - Maclean (Goodwood Street)
 - Harwood (Yamba Road / Watts Lane)
 - Woombah (Iluka Road)
 - Woodburn (Trustums Hill Road)
 - Broadwater (Evans Head Road)
 - Wardell (Coolgardie Road).
- Forty bridge crossings of waterways or floodplains, including major bridges over the Clarence and Richmond rivers.
- Fifty-five bridges and underpasses to maintain access along local roads crossed by the project.
- Viaducts located where the project would cross low-lying or flood-prone areas.
- Service roads and access roads to maintain connections to existing local roads and properties.
- Structures to help wildlife cross above or below the project, including three median crossings for arboreal mammals, eight dedicated culverts and four land bridges.
- Rest areas located at around 50-kilometre intervals at:
 - Arrawarra Beach Road
 - Pine Brush, Tyndale (for northbound and southbound traffic).
 - North of Mororo Road (for southbound traffic).
 - Richmond River (for northbound and southbound traffic).
- Heavy vehicle inspection stations near Halfway Creek and within the proposed Richmond River rest area.
- Connectivity structures to help wildlife cross above or below the project.

2.2 Staging

As indicated in Section 1.1, Roads and Maritime has considered a range of different packaging and procurement options ranging from one single 155 kilometre project to up to 11 individual projects.

The Woolgoolga to Ballina Pacific Highway Upgrade Environmental Impact Statement divided the alignment into 11 sections, being:

- Section 1 - Woolgoolga to Halfway Creek.
- Section 2 - Halfway Creek to Glenugie upgrade.
- Section 3 - Glenugie upgrade to Tyndale.
- Section 4 - Tyndale to Maclean.
- Section 5 - Maclean to Iluka Road, Mororo.
- Section 6 - Iluka Road to Devils Pulpit upgrade.
- Section 7 - Devils Pulpit upgrade to Trustums Hill.
- Section 8 - Trustums Hill to Broadwater National Park.
- Section 9 - Broadwater National Park to Richmond River.
- Section 10 - Richmond River to Coolgardie Road.
- Section 11 - Coolgardie Road to Ballina bypass.

This CEMP has been prepared for Wave 1 and part of Wave 3 of the project which broadly includes:

- Ground treatment and preparatory earthworks (soft soils treatments) between STN 83400 and 91200.
- Excavation of material taken from a highway cutting at Tyndale (at approximate STN 69000 to 69500) for the soft soil treatments.
- Excavation of material taken from highway cuttings North of McIntyres Lane, Gulmarrad (at approximate STN 77500 to 78400) for the soft soil treatments.
- Excavation of material south of McIntyres Lane, Gulmarrad - Greenhills cutting (at approximate STN 76000 to 77075) for the soft soil treatments (between approximate dates December 2015 and October 2016). McIntyres Lane may need to be widened in consultation with Clarence Valley Council to support truck movements from this cutting.
- Relocation of utility services at various locations throughout STN 67200 to 95100.

These works would be located within Sections 4 and 5 of the Approved Project. The key features of these two sections are described below and shown in Figure 2-1. The Sensitive Area Plans in Appendix A5 show details of the extent of works and the approved project boundary.

In accordance with the requirements of CoA A7 and D25(a), details of the Project staging, including construction activities and submission of corresponding environmental plans, strategies and protocols, would be documented in the Project Staging Report. The Staging Report would be updated, or advice provided that no changes to staging are proposed, and submitted to the Secretary prior to the commencement of each stage, identifying any changes to the proposed staging or applicable CoAs.



Figure 2-1 Woolgoolga to Ballina overview

2.2.1 Section 4: Tyndale to Maclean

The section between Tyndale and Maclean is about 13.2 kilometres long. It will be a direct upgrade to full motorway standard that involves a deviation about 800 metres to the east of the existing highway. It starts at the interchange at Tyndale and heads north to join the existing highway at the interchange at Maclean (Figure 2-2).

At the Maclean interchange, two roundabouts would be provided either side of the upgraded highway. These would provide access to Cameron Street (west) and Goodwood Street (east). Northbound access would be via the roundabout at Cameron Street and southbound access would be via the roundabout at Goodwood Street. Access from Gulmarrad to Maclean would be provided through the interchange at Maclean.

The existing highway will become a service road. Overpasses or underpasses will be constructed to maintain access along local roads crossed by the project. Access from the existing highway to Byrons Lane will be provided via an overpass at Byrons Lane. At Maclean, pedestrian and cyclist access will be provided under the upgraded highway to Jubilee Street, from the Townsend and Gulmarrad areas. An overpass will be provided for McIntyres Lane at Gulmarrad.

A bridge about 450 metres long will cross Shark Creek and its floodplain. Gallaghers Lane and Shark Creek Road will pass under the Shark Creek Bridge. A set of triple bridges will also cross Edwards Creek. Drainage structures will also be provided to maintain existing connections to cane drains.

Located within Section 4 are three highway cuttings located at Tyndale (at approximate STN 69000 to 69500), Gulmarrad (north of McIntyres Lane at approximate STN 77500 to 78400) and Gulmarrad (south of McIntyres Lane at approximate STN 76000 to 77075) which allows embankment material required for the soft soil sites, utility protection and relocation works at a number of locations and associated temporary works to allow access to work areas.

2.2.2 Section 5: Maclean to Iluka Road, Mororo

The section between Maclean to Iluka Road is about 14.4 kilometres long, extending from Maclean to Iluka Road at Woombah. It will be upgraded to motorway standard, following an initial upgrade to arterial standard between Watts Lane and Iluka Road. All current intersections onto the existing highway will be closed. The entire length will be a duplication of the existing alignment. The existing highway, including the existing crossing of the Clarence River at Harwood Bridge, will form the local service road network (Figure 2-2).

Access to the highway between Maclean and Iluka Road will be via three interchanges; south of Yamba Road, at Watts Lane in Harwood, and at Iluka Road in Woombah. Overpasses will be provided at Ryans Lane, Chatsworth Road, Serpentine Channel Road North and Carrols Lane and Fischers Road and Garrets Lane will be realigned. A new cycleway connection would be constructed at the Yamba Road intersection at James Creek.

Twin highway bridges would overpass Koala Drive, approximately 1.5 kilometres north of Townsend. This bridge crossing and underpass would provide a 30-metre combined access and fauna crossing, enabling vehicle access and fauna connectivity to adjoining areas of Yaegl Nature Reserve.

Koala Drive would be realigned along a 100-metre length to the east of the project at station 83.1. To the west of the highway, a 250 metre realignment would tie Koala Drive into Farlows Lane.

The Serpentine Channel will be crossed with a twin bridge. An overpass at Carrols Lane will be provided to maintain local road access between the northern and southern sides of the North Arm and between Fischers Lane and Chatsworth Road.

The project will cross the Clarence River via a new high-level, four-lane bridge to the east of the existing Harwood Bridge. The bridge will be about 1.3 kilometres long (including approaches), 22 metres wide and have a vertical clearance above the Clarence River of at least 30 metres. The bridge will be fixed with no lift-span elements.

In addition, twin bridges about 215 metres long will be constructed where the project crosses the North Arm of the Clarence River. The bridges are located on the eastern side of the existing Mororo Bridge. Several waterway openings (culvert banks) will also be provided across Harwood and Chatsworth Islands to convey floodwater.

Located within Section 5, the Wave 1 Early Works comprise of:

- Soft Soil Site 05, located approximately 1,900m North of Farlows Lane to Yamba Road, which includes two fill sites (Fill 3 and 4); and
- Soft Soil Site 06, located between Harwood and Chatsworth Road, which includes five fill sites (Fill 2, 3, 7, 8 and 9).

The Wave 3 Early Works are located within the same Soft Soil Sites and comprise of:

- Soft Soil Site 05 which includes an additional two fill sites (Fill 1 and 2); and
- Soft Soil Site 06 which includes an additional four fill sites (Fill 4, 5, 6 and 10).

Also located within Section 5 are the utility protection and relocation works at a number of locations and associated temporary works to allow access to the work areas.

Further descriptions of these construction activities are provided in Section 4.

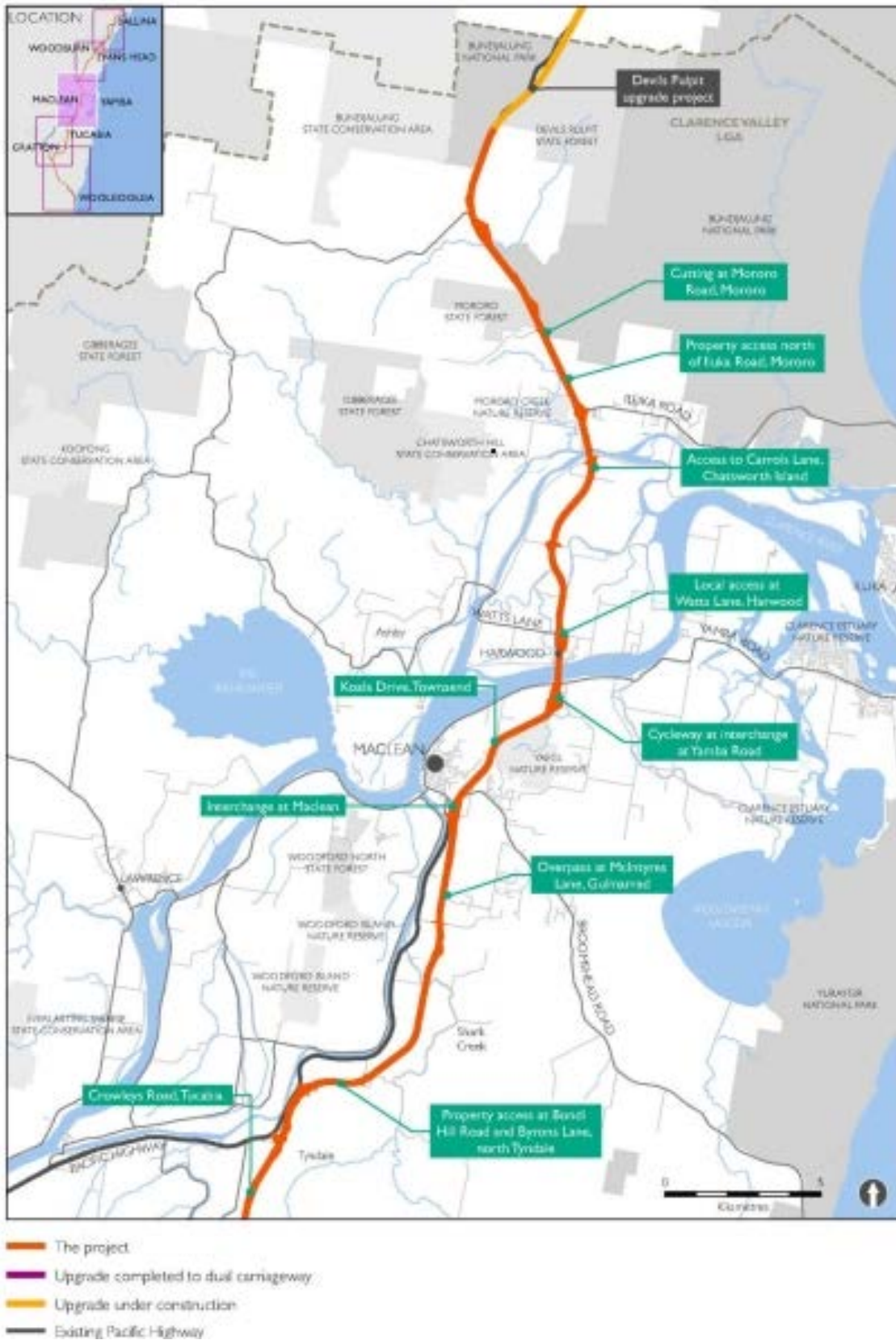


Figure 2-2 Sections 4-6: Tyndale to Maclean; Maclean to Iluka Road; Iluka Road to Devils Pulpit

2.3 Construction activities and sequence

Typically the following sequences of construction activities are anticipated:

- **Site establishment** – installing boundary fencing, construction facilities, environmental controls and carrying out pre-clearing vegetation fauna surveys.
- **Relocation or protection of services** – relocating and protecting electricity, gas, water and telecommunications infrastructure affected by the Project.
- **Site preparation** – removal of harvestable timber, clearing and grubbing, topsoil stripping and storage.
- **Earthworks** – undertaking cut and fills works along the alignment to achieve desired levels, removal of unsuitable material, batter and embankment shaping.
- **Landscaping and restoration** – reuse of topsoil, planting of native plants and seeding disturbed areas with native and cover crops species (note this will take place throughout construction as elements of the Project are complete where ongoing disturbance is not anticipated).
- **Open to traffic** – decommission construction.

2.4 Compound and ancillary facilities

A number of temporary compound and ancillary facilities will be required to support construction of the Project. Primary site compounds will be established for each stage of the Project. These sites will accommodate the majority of management, engineering, specialist and administrative personnel. Typically these facilities include:

- Office accommodation.
- Staff amenities.
- Light vehicle parking.
- A plant and equipment maintenance workshop.
- Material and chemical storage.

Due to the geographical scale of the Project, a number of ancillary facilities will also be required. These are generally located closer to active work zones and support site based construction personnel. Typically these facilities will include:

- Crib sheds and minimal office accommodation.
- Equipment storage.
- Material storage.

A summary of the assessment criteria for ancillary facilities is provided in Section 3.7.2. The ancillary facilities assessment as part of the Ancillary facilities management plan (Appendix B8) details the location, composition and purpose of compound and ancillary facilities required for the Project. An assessment of the ancillary facility assessment criteria required by CoA B73 is also provided. This assessment shall be approved by the Environmental Representative and included within the Ancillary Facilities Management Plan required under condition D21 Through the approval of this CEMP by the Minister it is deemed that these ancillary facilities are also approved and comply with the requirements set out in the CoA.

3 Planning

3.1 Project environmental obligations

Construction personnel working on the Project have the following general obligations:

- Minimise pollution of land, air and water.
- Use pollution control equipment and keep it in proper working order.
- Preserve the natural and cultural heritage environment.
- Give notice to the Roads and Maritime and relevant authorities of a non-Aboriginal or Aboriginal heritage discovery.
- Minimise the occurrence of offensive noise.
- Be a good neighbour to surrounding land users.
- Keep the community informed of Project milestones, upcoming activities and duration of relevant aspects of the works.
- Use equipment with noise control features where available and ensure that it is properly maintained.
- Take all feasible and reasonable steps to ensure compliance with the requirements of this CEMP.

3.2 Legal and other requirements

A register of legal and other requirements for the Project is contained in Appendix A1. This register is maintained as a checklist. This register will be reviewed at regular intervals eg during management reviews, and updated with any applicable changes. Any changes made to the legal requirements register will be communicated to the wider team where necessary through toolbox talks, specific training and other methods detailed in Chapter 5.

3.3 Approvals, permits and licences

A number of approvals, permits and licences have and/or will be obtained for the Project. Appendix A1 contains a register of all relevant environmental approvals, permits and licences. The register will be maintained by the Environmental Site Representative and will be reviewed prior to the commencement of construction and/or stages of construction, and at regular intervals during construction and at least annually as part of the management review.

The EIS recognised that the following approvals and licences identified in the planning approval process would be obtained or are required for the Project:

- Project Approval under the EP&A Act.
- Environment protection licence (EPL) under the *Protection of the Environment Operations Act 1997* (PoEO Act) for road construction and/or extractive activities and/or crushing, grinding or separating.
- Approvals under the *Water Act 1912* for access to ground or surface water during construction.
- Approval by the Department of Environment.

In accordance with CoA A6, all necessary licences, permits and approvals required for the development of the Project will be obtained and maintained as required throughout the life of the Project. No condition of the Project Approval removes the obligation for Roads and Maritime or their road construction contractor for the project, Golding to obtain, renew or comply with such necessary licences, permits or approvals except as provided under Section 115ZG of the EP&A Act.

The Project Approval is contained in the Compliance Tracking Program, which provides a reference to where each requirement is addressed by this CEMP or other Project documentation. A checklist of compliance with Roads and Maritime specification G36 is included as Appendix A1.

3.4 Environmental aspects and impacts

A risk management approach will be used to determine the severity and likelihood of an activity's impact on the environment and to prioritise its significance. This process considers potential regulatory and legal risks as well as taking into consideration the concerns of community and other key stakeholders.

The objectives of risk assessment are to:

- Identify activities, events or outcomes that have the potential to adversely affect the local environment and/or human health/property.
- Qualitatively evaluate and categorise each risk item.
- Assess whether risk issues can be managed by environmental protection measures.
- Qualitatively evaluate residual risk with implementation of measures.

Risk assessments for the Project are based on the Australian standard for risk management that describes the use of risk assessments in managing risk.

Appendix A2 includes a list of activities associated with the Project, related aspects and corresponding risks. Measures to minimise the identified environmental risks are also provided.

3.5 Environmental policy

The environmental policy describes Golding's commitment to continual improvement in environmental performance and compliance with applicable legal requirements (refer Appendix A3).

The environmental policy will be displayed on the Project website and at the site office, and communicated to staff and other interested parties via inductions and ongoing awareness programs.

3.6 Objectives and targets

As a means of assessing environmental performance during construction of the Project, environmental objectives and targets have been established. These objectives and targets have been developed with consideration of key issues identified through the environmental assessment and risk assessment process. The objectives and targets are consistent with the Project environmental policy and will assist in monitoring whether the commitments of the policy are being met.

The targets are incorporated into relevant environmental management plans.

The performance of the Project against the objectives and targets will be documented in the Project construction compliance reports and at least on an annual basis as part of the management review.

Environmental objectives and targets for the Project are provided in Table 3-1.

Table 3-1 Environmental objectives and targets

Objective	Target	Measurement tool
Construct the Project in accordance with environmental approvals.	<ul style="list-style-type: none"> • Full compliance with statutory approvals. 	Audits, construction compliance reporting, management view.
Compliance with legal requirements.	<ul style="list-style-type: none"> • No regulatory infringements (PNs or prosecutions). • No formal regulatory warning. 	Audits, construction compliance reporting, management view.
Implement a rigorous and comprehensive EMS that meets the requirements of AS/NZS ISO 14001.	<ul style="list-style-type: none"> • Address non-conformances and corrective actions within specific timeframes. 	Audits, management reviews.
Engage with the effected and broader community, minimise complaints and respond to complaints within a suitable timeframe.	<ul style="list-style-type: none"> • Disseminate regular Project updates and other information through the Project website and other tools identified in the Community Communication Strategy. • Record and response to complaints within the timeframe specified in the Community Communication Strategy. 	Review complaints register, construction compliance report, audits.
Continuously improve environmental performance.	<ul style="list-style-type: none"> • Develop and maintain a program of ongoing environmental training. • Capture lessons learnt from environmental incidents to minimise repeat issues. • Encourage and reward innovation and effort throughout the work force. 	Construction compliance report, management review.

3.7 Project refinements

3.7.1 General changes

Refinements to the Project may result from detailed design refinement or changed circumstances throughout construction. Roads and Maritime is responsible for formally seeking approval from the Minister for any Project modifications and for documenting refinements that are consistent with the approved Project.

The Roads and Maritime Environment Manager, Pacific Highway is responsible for the assessment of Project refinements and management of the consistency assessment process. The Environmental Site Representative is responsible for incorporating any new environmental impacts and/or new statutory approval requirements into the appropriate environmental management documentation. Consistency assessments will be undertaken in accordance with RMS Minor and Major Consistency Design Refinement with modifications remaining in accordance with the requirements of the EPBC Act approval conditions.

Any design changes or changes in scope of works should be communicated to the Environmental Representative. The Environmental Representative will then undertake an additional environmental assessment and consistency review in consultation with the Roads and Maritime Environment Manager, Pacific Highway to determine if a Project modification may be required.

Should the consistency review determine that a Project modification maybe required ie the impacts are of a nature and scale that it is not considered consistent with the Project approval, the Environmental Representative will be informed and a modification application under Section 115ZI of the EP&A Act 1979 prepared and submitted to the Secretary of the Department of Planning and Environment for determination.

The Roads and Maritime General Manager, Pacific Highway will approve all refinements that are deemed consistent with the Project approval.

3.7.2 Ancillary facilities assessment criteria

Ancillary facilities are defined as a “temporary facility for construction, including for example an office and amenities compound, construction compound, batch plant (concrete or bitumen), materials storage compound, maintenance workshop, testing laboratory or material stockpile area”.

The location of the main site compound and ancillary facilities are nominated, assessed and detailed in as part of Appendix B8 Ancillary facilities management plan. Circumstance may arise during construction where additional, or changes to the location of, ancillary facilities are required.

Where this situation arises, an assessment against the criteria detailed in CoA B73 will be undertaken. This criteria requires that ancillary facilities:

- (a) be located more than 50 metres from a waterway (100 metres for a *State Environmental Planning Policy No. 14* wetland or known Oxleyan Pygmy Perch habitat waterway);
- (b) not impact on connectivity structures or vegetation leading to a connectivity structure;
- (c) be located within or adjacent to the SSI boundary;
- (d) have ready access to the road network;
- (e) be located in areas of low ecological significance and require no clearing of native vegetation;
- (f) be located more than 50 metres from threatened species and endangered ecological communities and their habitats;
- (g) be located on relatively level land;
- (h) be separated from the nearest residences by at least 200 metres (or at least 300 metres for a temporary batching plant) and comply with construction noise management levels at sensitive receivers;
- (i) be above the 20 year ARI flood level unless a contingency plan to manage flooding is prepared and implemented;
- (j) have minor impacts on flood storage and not result in obstruction of floodplain flow or blockage of culverts and drains;
- (k) not unreasonably affect the land use of adjacent properties;
- (l) operate in accordance with the construction hours set out in conditions B15 and B16;
- (m) provide sufficient area for the storage of material to minimise, to the greatest extent practical, the number of deliveries required outside standard construction hours; and
- (n) be located in areas of low heritage conservation significance (including areas identified as being of Aboriginal cultural value) and not impact on heritage sites beyond those already impacted by the SSI.

The Applicant shall undertake an assessment of the facility against the above criteria in consultation with the relevant public authority(s) and the relevant council. The assessment shall be approved by the Environmental Representative and included in the Ancillary Facilities Management Plan required under CoA D21 (refer Appendix B8).

Note that any proposed additional ancillary facilities and changes to ancillary facilities will be required to meet all relevant CoA where applicable as described in Appendix A1.

4 Implementation and operation

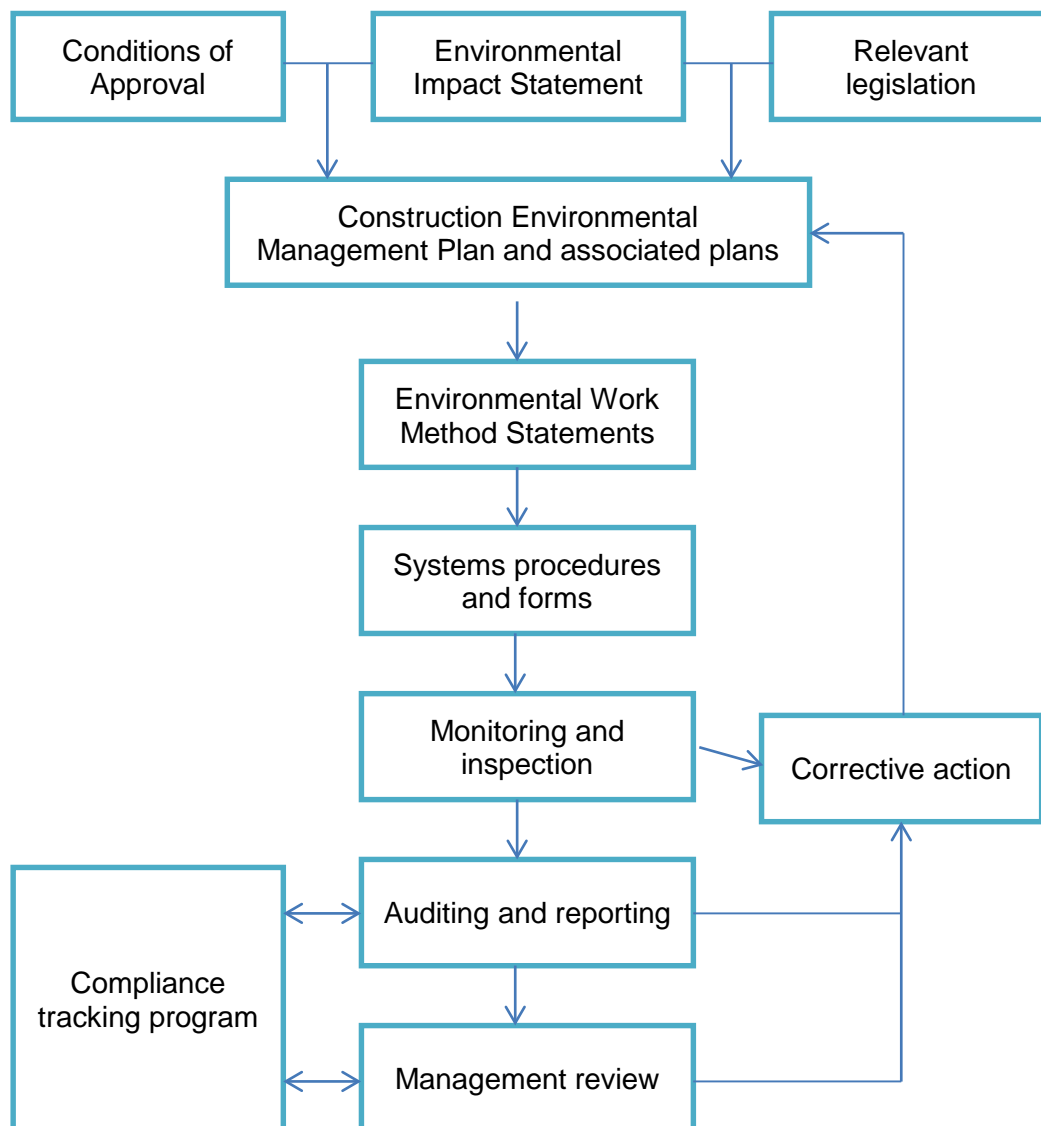
This CEMP is the overarching management plan for a suite of environmental management documents. It provides a structured and systematic approach environmental management.

The primary purpose of the system of documentation is to:

- Ensure compliance with applicable environmental laws, obligations and approvals.
- To minimise environmental impacts.

The structure of the environmental management system for the Project is shown in Figure 4-1.

Figure 4-1 Environmental management system structure



4.1 Environmental management system documentation

4.1.1 Construction environmental management plan

This CEMP provides the system to manage and control the environmental aspects of the Project during pre-construction and construction. It identifies all requirements applicable to activities described in Chapter 2. 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 this CEMP have been developed with consideration of the Project approval requirement, safeguards and mitigation measures presented in the environmental assessment and approval documents. This CEMP establishes the system for implementation, monitoring and continuous improvement to minimise impacts from the Project on the environment.

This CEMP is consistent with:

- Guideline for the preparation of Environmental Management Plans (DIPNR, 2004).
- AS/NZS ISO14001: 2004, 'Environmental Management Systems - requirements with guidance for use'.
- Roads and Maritime QA Specification G1, G36, G38 and G40.

The CEMP and associated plans required under CoA D25 and D26 will be provided to the Secretary of the Department of Planning and Environment for approval.

4.1.2 Other environmental management plans and strategies

A number of environmental management plans support the CEMP. These documents are prepared to identify requirements and processes applicable to specific impacts or aspects of the activities described in Chapter 2. They address requirements of the CoA and mitigation measures identified in the environment impact assessment documentation.

Environmental strategies may also be developed as required throughout the Project. These will also guide environmental management of potential impacts on-site.

A list of construction plans and strategies for the Project, and their approval requirements, are provided in Table 4-1. The Project Staging Report documents the required Project-wide environmental documentation to be prepared for the Project and the timing required for submission where required.

Table 4-1 Environmental management plans and strategies

Document name	Document number	Approval pathway
Construction traffic and access management plan (Appendix B1)	<i>RMS00031-2429-10xx Appendix B1 CTAMP</i>	Secretary's approval
Construction flora and fauna management plan, including threatened species management plans and weed management plan (Appendix B2)	<i>RMS00031-2429-1012 Appendix B2 CFFMP</i>	Secretary's approval
Construction noise and vibration management plan including a blast management plan (Appendix B3)	<i>RMS00031-2429-10xx Appendix B3 CNVMP</i>	Secretary's approval
Construction soil and water quality management plan (Appendix B4)	<i>RMS00031-2429-1017 Appendix B4 CSWMP</i>	Secretary's approval

Document name	Document number	Approval pathway
Construction heritage management plan (Appendix B5)	<i>RMS00031-2429-1011 Appendix B5 CHMP</i>	Secretary's approval
Construction air quality management plan including dust management plan (Appendix B6)	<i>RMS00031-2429-1013 Appendix B6 CAQMP</i>	Roads and Maritime approval
Construction waste and energy management plan (Appendix B7)	<i>RMS00031-2429-1014 Appendix B7 CWEMP</i>	Roads and Maritime approval
Ancillary facilities management plan (Appendix B8)	<i>RMS00031-2429-10xx Appendix B8 AFMP</i>	Environmental Representative approval
Borrow sites management plan (Appendix B9)	<i>not used</i>	Secretary's approval
Construction contaminated land management plan (Appendix B10)	<i>RMS00031-2429-1015 Appendix B10 CCLMP</i>	Roads and Maritime approval
Construction acid sulfate materials management plan (Appendix B11)	<i>RMS00031-2429-1016 Appendix B11_CAS MMP</i>	Roads and Maritime approval

4.1.3 Environmental work method statements

Environmental Work Method Statements (EWMS) are prepared to manage and control activities that have the potential to negatively impact on the environment. EWMS will be prepared prior to the commencement of relevant construction activities on site and will incorporate relevant mitigation measures and controls from management plans. They also identify key procedures to be used concurrently with the EWMS. EWMS are specifically designed to communicate requirements, actions, processes and controls to construction personnel using plans, diagrams and simply written instructions.

EWMS will be prepared progressively in the lead up to and throughout construction in consultation with relevant members from the Project team, and approved by the Environmental Site Representative. EWMS will be developed in accordance with the requirements of G36 cl 3.2.4.

EWMS for activities identified as having high environmental risk will undergo a period of consultation with stakeholders and authorities prior to approval. A list of upcoming/future EWMS will be provided to ERG participants during regular meetings. The ERG will determine which EWMS are high risk and require consultation and those that do not.

EWMS for activities likely to be considered high risk include:

- Working platforms in or adjacent to waterways.
- Temporary waterway crossings.
- Site compound establishment.
- Stockpile management
- Public road accesses and managing mud tracking.
- Clearing and grubbing.
- Sediment basin, construction and management.

- Dewatering activities.
- Soft soil treatment.

All construction personnel and sub-contractors undertaking a task governed by an EWMS must participate in training on the EWMS, and acknowledge that they have read and understood their obligations prior to commencing work.

Regular monitoring, inspections and auditing against compliance with the EWMS will be undertaken by Project management, quality, and environmental personnel to ensure that all controls are being followed and that any non-conformances are recorded and corrective actions implemented.

A register of EWMS will be maintained in Appendix A4.

4.1.4 Erosion and sediment control plans

Erosion and Sediment Control Plans (ESCPs) are planning documents that clearly show the site layout and the approximate location of erosion and sediment control structures onsite. They cover all construction stages from initial vegetation clearing through to rehabilitation when erosion and sediment control are no longer required and are removed. ESCP will be developed and implemented across the Project where there is a risk of erosion and sediment loss.

ESCPs may be produced in conjunction with EWMS to provide more detailed site-specific environmental mitigation measures.

ESCP will be developed by environment staff in consultation with the Soil Conservationist, the superintendent, site engineers, foreman and other relevant site personnel, as required. They will be modified to reflect site condition at the time of construction. The Environmental Site Representative will approve ESCPs and be consulted for minor changes thereafter.

ESCPs will be developed for all work areas prior to commencing activities.

4.1.5 Sensitive area plans

The Project traverses a diversity of environmental and socially sensitive areas/sites. To assist pre-construction planning and on-site construction management, these site constraints are consolidated on a series of map-based sheets that extend the length of the Project. Sensitive area maps include information pertaining, but not limited to:

- Noise sensitive receivers eg residential dwellings, educational institutions.
- Flora features, including threatened species and endangered ecological communities.
- Aboriginal and non-Aboriginal heritage sites including assessment boundaries, items, places, objects and sites.
- Local waterways.
- Recorded threatened fauna sightings.
- State Forest / National Parks / Nature Reserves / Flora Reserves
- Areas of vegetation to be retained
- Potential or actual acid sulfate soil areas
- Contaminated sites
- Acid sulfate soil
- Monitoring locations for groundwater, surface water and dust
- Clearing limit boundary.

The sensitive area plans are presented in Appendix A5. They are a working element of the CEMP and will be revised throughout construction to reflect true ground conditions and the most up-to-date information available on sensitive sites. Sensitive area plans will be used in

conjunction with EWMS to help identify key risk areas and to promote ongoing communication to construction personnel during the Project.

4.1.6 System procedures, forms and other documents

The Project environmental management system procedures, forms and other documents provide instructions and records related to both environmental and non-environmental activities throughout the Project.

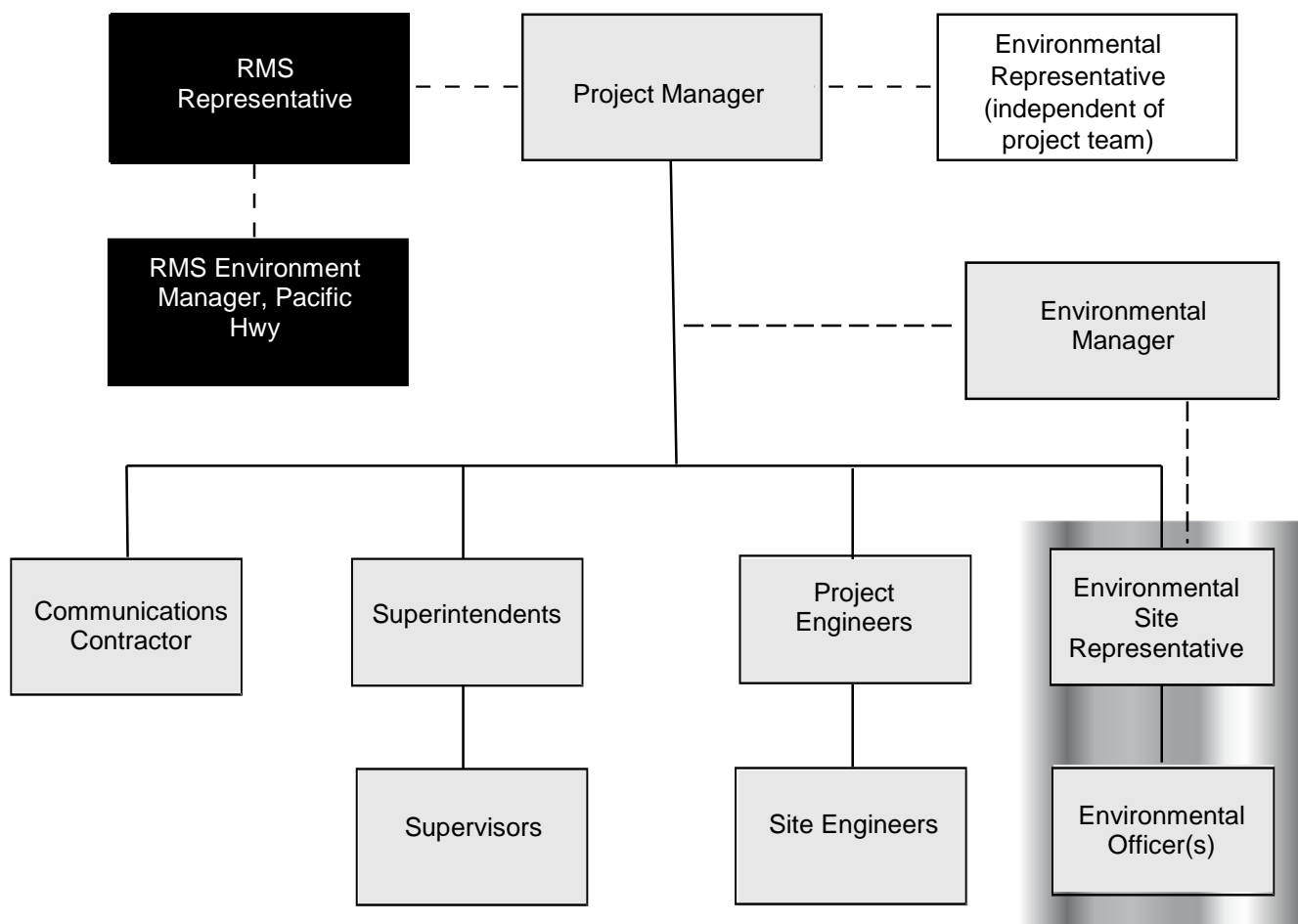
Project specific procedures will be developed in accordance with the requirements for the Project. Where applicable, existing Golding procedures and work instructions will be applied or amended for use on the Project.

A register of relevant environmental procedures and forms are maintained in Appendix A4.

4.2 Resources, roles, responsibilities and authority

The key environmental management roles and responsibilities for the construction phase of the Project are described below. The structure of these roles is shown in Figure 4-2. Contact details are provided on the Contacts page at the front of this document.

Figure 4-2 Management structure



- RMS personnel
- Golding personnel
- Environment team

4.2.1 Environmental Representative

The environmental responsibilities of the Environmental Representative are detailed in CoA D23 and include:

- a) Be the principal point of advice in relation to the environmental performance of the Project.
- b) Monitor the implementation of environmental management plans and monitoring programs required under the Project Approval and advise the Proponent upon the achievement of these plans / programs.
- c) Consider and advise the Proponent on matters specified in the CoA, and other licences and approvals related to the environmental performance and impacts of the Project.
- d) Ensure that environmental auditing is undertaken in accordance with the Environmental Management System.
- e) Approve / reject minor amendments to the CEMP.
- f) Approve / reject Out of Hours Works activities. These works shall be conducted in accordance with the Out of Hours Works Protocol (OOHW Protocol)
- g) Approve / reject ancillary facilities in accordance with CoA B73 and B74.
- h) 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.
- i) Be consulted in responding to the community concerning the environmental performance of the Project where the resolution of points of conflict between the Proponent and the community is required.

Also in accordance with CoA D24:

The Environmental Representative shall prepare and submit to the Secretary a monthly report on the Environmental Representative's actions and decision on matters specified in condition D23 for the preceding month. The reports shall be submitted for the duration of construction of the SSI, unless otherwise agreed by the Secretary.

4.2.2 Roads and Maritime Environment Manager

The environmental responsibilities of the Roads and Maritime Environment Manager include (but are not limited to):

- Review any environmental management plans and related documents prepared for the Project.
- Review minor Project refinements that are consistent with the Project environmental assessment and approval documentation and recommend they be approved to the General Manager, Pacific Highway.
- Monitor the environmental performance of the Project in relation to Roads and Maritime requirements.

4.2.3 Roads and Maritime Representative

The environmental responsibilities of the Roads and Maritime Representative include (but are not limited to):

- Evaluate and advise on compliance with Roads and Maritime environmental requirements.
- Review and approve any environmental management plans for the Project or related activities that are not required to be approved by the Secretary of the Department of Planning and Environment.

4.2.4 Project Manager

The environmental responsibilities of the Project Manager include (but are not limited to):

- Ensure works comply with relevant regulatory and Project requirements.
- Ensure the requirements of the CEMP are fully implemented, and in particular, that environmental requirements are not secondary to other construction requirements.
- Endorse and support the Project environmental policy attached at Appendix A3.
- Liaise with Roads and Maritime, Environmental Representative and other government authorities as required (including 24 hour basis).
- Participate and provide guidance in the regular review of this CEMP and supporting documentation.
- Provide adequate resources (personnel, financial and technological) to ensure effective development, implementation and maintenance of the CEMP.
- Ensure that personnel receive appropriate induction training, including details of the environmental and community requirements.
- Ensure that complaints are investigated to ensure effective resolution.
- Stop work immediately if an unacceptable impact on the environment is likely to occur.

4.2.5 Project Engineer

The environmental responsibilities of the Project Engineer include (but are not limited to):

- Plan construction works in a manner that avoids or minimises impact to environment.
- Ensure the requirements of the CEMP are fully implemented.
- Ensure construction personnel manage construction works in accordance with statutory and approval requirements.
- Ensure environmental management procedures and protection measures are implemented.
- Ensure Project personnel attend an induction prior to commencing works.
- Liaise with Roads and Maritime, the Environmental Representative and other government authorities as required.
- Stop work immediately if an unacceptable impact on the environment is likely to occur.

4.2.6 Superintendent

The environmental responsibilities of the superintendent include (but are not limited to):

- Communicate with personnel and sub-contractors regarding compliance with the CEMP and site-specific environmental issues.
- Ensure site workers attend an environmental induction prior to the commencement of works.
- Coordinate the implementation of the CEMP.
- Coordinate the implementation and maintenance of pollution control measures.
- Identify resources required for implementation of the CEMP.
- Liaise with Roads and Maritime, the Environmental Representative and other government authorities as required (including 24 hour basis).
- Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Environmental Site Representative.
- Coordinate action in emergency situations and allocate required resources.

- Stop activities where there is an actual or immediate risk of harm to the environment and advise the Construction Manager and Environmental Site Representative.

4.2.7 Environmental Site Representative (ESR)

The Environmental Site Representative (ESR) is supported in environmental matters by the Golding Environmental Manager. The Environmental Manager is independent of the project and is the company's management representative for Environment.

The environmental responsibilities of the ESR include (but are not limited to):

- Overall responsibility for the implementation of environmental matters on the Project.
- Development, implementation, monitoring and updating of the CEMP and associated environmental plans in accordance with MCoA, RMS Specifications and ISO14001.
- Report to Project Manager and other senior managers on the performance and implementation of the CEMP.
- Ensure management reviews of the CEMP are undertaken annually, documented and actions implemented.
- Ensure environmental risks of the Project are identified and appropriate mitigation measures implemented.
- Identify where environmental measures are not meeting the targets set and where improvement can be achieved.
- Ensure environmental protocols are in place and managed.
- Ensure environmental compliance.
- Obtain and update environmental licences, approvals and permits as required.
- Lead liaison with Environmental Representative and approval authorities.
- Manage environmental document control, reporting, inductions and training.
- Manage environmental reporting within the Project team and to the Roads and Maritime and regulatory authorities including noncompliance with the requirements of the EPL.
- Preparing reports on a monthly basis outlining the Project Works undertaken and the achievements that have been met, as well as identifying those areas where improvements were made.
- Oversee site monitoring, inspections and audits.
- Manage subcontractors and consultants with regards to environmental matters, including assessing their environmental capabilities and overseeing the submission of their environmental documents.
- Prepare and/or distribute environment awareness notes.
- Review and approve ESCP and EWMS.
- Develop and facilitate induction, toolbox talks and other training programs regarding environmental requirements for site personnel.
- Notify Roads and Maritime, the Environmental Representative and relevant authorities in the event of an environmental incident and manage close-out of these.
- Stop activities where there is an actual or immediate risk of harm to the environment, or to prevent environmental non-conformities, and advise the Project Manager, Construction Manager and Superintendent.
- Assist the Communications Manager to resolve environment-related complaints.

4.2.8 Environmental Officer

The environmental responsibilities of the Environmental Officer include (but are not limited to):

- Assist in preparing the CEMP (including any future revisions) in accordance with relevant requirements.
- Develop ESCP in consultation with the superintendent, site engineers, foreman and other relevant site personnel, as required.
- Undertake site inspections, carry out monitoring activities and complete site checklists.
- Ensure monitoring records are appropriately maintained, reviewed and any non-compliance issues addressed.
- Manage the day-to-day environmental elements of construction.
- Record and provide written reports to the Environmental Site Representative of non-conformances or corrective actions with the CEMP. This may include the need to implement additional, or revise existing, mitigation measures.
- Assist in identifying environmental risks.
- Advise the Environmental Site Representative and Construction Manager of the need to stop work immediately if an unacceptable impact on the environment is likely to occur or to require other reasonable steps to be taken by the Construction Manager or site construction staff to avoid or minimise impacts.
- Provide reports to the Environmental Site Representative on any major issues resulting from the Project.
- Assist site staff with issues concerning Project environmental matters.
- Assist in developing training programs regarding environmental requirements and deliver where required, including delivery of the environmental component of toolbox talks.
- Stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Manager, Construction Manager, Superintendent and Environmental Site Representative.

4.2.9 Environmental Manager

The environmental responsibilities of the Golding Environmental Manager include (but are not limited to):

- Review any environmental management plans and related documents prepared for the Project.
- Review minor Project refinements are consistent with the Project environmental assessment and approval documentation.
- Monitor the environmental performance of the Project in relation to the project management plans.

4.2.10 Communications Manager

The environmental responsibilities of the Communications Manager include (but are not limited to):

- Ensure that community consultation activities are carried out in accordance with approved plans and strategies.
- Report any environmental issues to the Environmental Site Representative raised by stakeholders or members of the community.
- Communicate general Project progress, performance and issues to stakeholders including the community.
- Maintain the 24 hour complaints hotline.
- Be involved in the Pollution Incident Response Management Plan and Emergency Response Plan.

4.2.11 Site Engineers

The environmental responsibilities of the Site engineers include (but are not limited to):

- Provide input into the preparation of environmental planning documents as required.
- Ensure that instructions are issued and adequate information provided to employees that relate to environmental risks on-site.
- Ensure that the works are carried out in accordance with the requirements of the CEMP and supporting documentation, including the implementation of environmental controls.
- Identify any environmental risks.
- Identify resource needs for implementation of CEMP requirements and related documents.
- Ensure that complaints are investigated to ensure effective resolution.
- Take action in the event of an emergency and allocate the required resources to minimise the environmental impact.
- Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Superintendent and Environmental Site Representative.

4.2.12 Supervisors

The environmental responsibilities of the Supervisor include (but are not limited to):

- Undertake any environmental duties as defined by the superintendent or Project/site engineer.
- Control field works and implement/maintain effective environmental controls.
- Where required, undertake environmental risk assessment of works prior to commencement.
- Ensure site activities comply with EWMS and relevant records are kept.
- Ensure site workers are site inducted prior to commencement of works.
- Attend to any spills or environmental incidents that may occur on-site.
- Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Superintendent.
- Stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Manager, Construction Manager, Superintendent or Environmental Site Representative.

4.2.13 Soil Conservationist

The soil conservationist shall be selected from the RMS' Registered Category of 'Soil Conservation Consultancy Services' for the duration of the contract. Qualifications shall be appropriate for registration in this category.

The environmental responsibilities of the Soil Conservationist include (but are not limited to):

- Revision of Erosion and Sediment Control Plans, controls and measures prior to installation.
- Assist in project training in regards to project erosion and sediment control issues.
- Liaison on a regular basis with any soil conservationist appointed for the project by the Principal.

Responsibilities of the soil conservationist are included in the management and mitigation tables of the environmental sub plans.

4.2.14 Wider Project Team (including sub-contractors)

The environmental responsibilities of the wider Project Team (including sub-contractors) include (but are not limited to):

- Comply with the relevant requirements of the CEMP, or other environmental management guidance as instructed by a member of the Project's management.
- Participate in the mandatory Project/site induction program.
- Report any environmental incidents to the foreman immediately or as soon as practicable if reasonable steps can be adopted to control the incident.
- Undertake remedial action as required to ensure environmental controls are maintained in good working order.
- Stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Manager, Construction Manager, Superintendent or Environmental Site Representative.

4.3 Sub-contractor management

Environmental requirements and responsibilities are to be specified to sub-contractors in the contract documentation. As part of the selection process, consideration will also be given to their past environmental performance. The Environmental Site Representative, or delegate, will participate in the tender assessment and selection process where it is deemed necessary due to associated environmental risks. Sub-contractors will be required to complete a sub-contractor questionnaire or similar.

Sub-contractors are required to work in accordance with the approved CEMP.

Sub-contractors are required to attend Project and/or site inductions where the requirements and obligations of the CEMP are communicated. A record of sub-contractors inducted will be maintained as part of the Project induction and training register.

A standard monitoring form will be developed that will be used to assess:

- The sub-contractor's general work practices.
- The effectiveness of the sub-contractor's environmental protection measures.
- The sub-contractor's compliance with the requirements of this CEMP.
- The maintenance of environmental measures.

4.4 CEMP availability

This CEMP will be made available for public inspection on request. Confidential information, which may include the location of threatened species, Aboriginal objects or places and personnel contact details, will be removed from documents provided or made available to the public.

An electronic copy of the CEMP is provided on the Project website.

5 Competence, training and awareness

To ensure that this CEMP is effectively implemented, each level of management is responsible for ensuring that personnel reporting to them are aware of the requirements of this CEMP. The Environmental Site Representative will coordinate the environmental training in conjunction with other training and development activities (eg safety).

Refresher environmental awareness training will be undertaken as required, but not less than 6 monthly intervals, based on environmental risk assessment. A site-specific environmental induction and training plan shall be provided to the Principal at least two weeks before use for review and approval.

5.1 Environmental induction

Personnel (including sub-contractors) are required to attend a compulsory site induction that includes an environmental component prior to commencement on-site. This is done to ensure personnel involved in the Project are aware of the requirements of the CEMP and to ensure the implementation of environmental management measures.

Short-term visitors to site for purposes such as deliveries will be required to be accompanied by inducted personnel at all times.

The Environmental Site Representative (or delegate) will conduct the environmental component of the site inductions.

The environmental component will include, but not limited to, an overview of:

- Relevant details of the CEMP including purpose and objectives.
- Key environmental issues.
- Conditions of environmental licences, permits and approvals.
- Specific environmental management requirements and responsibilities.
- Mitigation measures for the control of environmental issues.
- Incident response and reporting requirements.
- Information relating to the location of environmental constraints.

A record of environment inductions will be maintained and kept on-site. The Environmental Site Representative may authorise amendments to the induction at any time. Possible reasons for changes to the induction may be Project modifications, legislative changes or amendments to this CEMP or related documentation.

The Environmental Representative will review and approve the induction program and monitor implementation.

5.2 Toolbox talks, training and awareness

Toolbox talks will be one method of raising awareness and educating personnel on issues related to all aspects of construction including environmental issues. The toolbox talks are used to ensure environmental awareness continues throughout construction.

Toolbox talks will include details of EWMS for relevant personnel. Toolbox talks will also be tailored to specific environmental issues relevant to upcoming works.

Relevant environmental issues may include (but are not limited to):

- Erosion and sedimentation control.
- Hours of work.
- Emergency and spill response.
- Aboriginal and non-Aboriginal heritage.

- Threatened species, endangered ecological communities, clearing controls and vegetation protection.
- Weed management.
- Dust control.
- Acid sulfate soils.
- Noise management.

Toolbox attendance is mandatory and attendees of toolbox talks are required to sign an attendance form and the records maintained.

Targeted environmental awareness training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact. Topics covered may include those detailed above, or others deemed necessary in the lead up to or during construction.

Another way to inform construction personnel will be through the development and distribution of awareness notes. These will typically take the form of a poster, booklet, or similar and will be distributed to engineers, leading hands, foreman and others with a responsibility for managing specific work locations or activities. This documentation will be used to inform the broader workforce through either daily pre-starts meeting (see section 5.3) or provision in worker crib sheds / break facilities.

The Environmental Site Representative will review and approve the training program and monitor implementation. Drafts of all environmental induction and environmental training materials must be provided to the Principal at least two weeks before use for review and approval.

5.3 Daily Pre-Start Meetings

The pre-start meeting is a tool for informing the workforce of the day's activities, safe work practices, environmental protection practices, work area restrictions, activities that may affect the works, coordination issues with other trades, hazards and other information that may be relevant to the day's work.

The Foreman will conduct a daily pre-start meeting with the site workforce before the commencement of work each day (or shift) or where changes occur during a shift. Daily pre-start meetings are generally succinct in nature and take approximately 10-15 minutes.

The environmental component of pre-starts will be determined by relevant foreman and environmental personnel and will include any environmental issues that could potentially be impacted by, or impact on, the day's activities. Attendees will be required to sign on to the pre-start and acknowledge their understanding of the issues explained.

Pre-start topics, dates delivered and a register of attendees will be recorded.

6 Communication

6.1 Internal communication

Clear lines of communication throughout all levels and functions (eg management, staff and sub-contracted service providers) are key to minimising environmental impacts and achieving continual improvements in environmental performance.

The environmental team will meet regularly to discuss any issues with environmental management on-site, any amendments to plans that might be required or any new / changes to construction activities.

Regular meetings may also be scheduled with the Environmental Representative and relevant Roads and Maritime environmental staff. The purpose of these meetings would be to communicate ongoing environmental performance and to identify any issues to be addressed.

In addition, environment team members will participate in toolbox talks on at least a weekly basis. This forum will provide an opportunity for the environment team members to communicate on environmental performance, to advise on any upcoming sensitive environmental matters for future work areas and to receive feedback from on-site personnel.

Further internal communications regarding environmental issues and aspects will be through awareness training as described in Section 5.2.

6.2 External and government authority consultation

The Environmental Site Representative will be the main point of contact regarding specific environmental issues. The Environmental Site Representative has the responsibility to report on the ongoing environmental performance of the Project to Roads and Maritime, Environmental Representative and EPA. The Environmental Site Representative will report regularly to Roads and Maritime on progress and any key environmental matters and to the EPA through monthly EPL reports.

Out of hours (24 hour) contact numbers and personnel are included in the Contacts table at the front of this CEMP.

6.3 Stakeholder and community communication

6.3.1 Community communication strategy

A Community Communication Strategy has been developed to provide an approach to stakeholder and community communications in accordance with the requirements of CoA C1. The strategy identifies opportunities for providing information and consulting with the community and stakeholders during the construction phase of the Project. The strategy defines:

- The engagement groups.
- The key messages of the Project.
- The range of tools that will be used to interact with community and stakeholders.

Communication tools defined in the strategy include:

- Targeted community open days.
- Advertisements.
- Displays.
- Door-knock.
- Letterbox drops.

- Signage.
- Website.
- Focus meetings.
- 1800 number and email address.

A Community Action Plan will be submitted to RMS for approval prior to the commencement of construction.

6.3.2 Complaints and enquires procedure

A Complaints and Enquiries Procedure, consistent with *AS 4269: Complaints Handling*, will be developed for the Project, in accordance with the requirements of CoA C2 and C3.

Community inquiries and complaints related to the construction activities will be referred to the 24-hour community information line (1800 778 900). A postal address (PO Box 546 Grafton NSW 2460) and email address (W2B@RMS.NSW.GOV.AU) has been provided for receipt of complaints and enquiries. The telephone number, the postal address and the email address were published in newspapers circulating in the local area prior to the commencement of construction and is provided on the Project website.

Information on complaints received, including the means by which they were addressed and whether resolution was reached and whether mediation was required or used, will be included in a complaints register. The information contained within the register will be made available to the Secretary on request.

Attempts will be made to resolve complaints in accordance with the community communications strategy. An initial response to complaints will be provided within 24 hours of a complaint being received. A further detailed response, including steps taken to resolve the issue(s) that lead to the complaint, will be provided within 10 days. All complaints should be closed off in the stakeholder database. At all times the stakeholder will be kept informed of when they will receive a response.

The Environmental Site Representative will apply an adaptive approach to ensure that corrective actions are applied in consultation with the appropriate construction staff to allow modifications and improvements in the management of environmental issues resulting in community complaints.

7 Incidents and emergencies

In the event of an pollution incident that causes or threatens material harm to the environment, *Pollution Incident Response Management Plan* will be implemented. This plan is provided in Appendix A6.

The procedure provides references to:

- Types of incidents.
- Criteria for classifying of environmental incidents.
- Processes for systematically responding to and managing emergency situations.
- Processes, and legal requirements (eg Acts, Regulations, EPL), for reporting and notification of an environmental incident.

The procedure covers the management of events such as, but not limited to:

- Spills of fuels, oils, chemicals and other hazardous materials.
- Unauthorised discharge from sediment basins or other containment devices.
- Unauthorised clearing or clearing beyond the extent of the Project boundary or premises.
- Inadequate installation and subsequent failure of temporary erosion and sediment controls.
- Unauthorised damage or interference to threatened species, endangered ecological communities or critical habitat.
- Unauthorised harm or desecration to Aboriginal objects and Aboriginal places.
- Unauthorised damage or destruction to any State or locally significant relic or Heritage item.
- Unauthorised damage to marine vegetation and mangroves.
- Unauthorised dredging or reclamation works within a watercourse.
- Potential contamination of waterways or land.
- Accidental starting of a fire or a fire breaking out of containment.
- Any potential breach of legislation, including a potential breach of a condition of: an environment protection licence; CoA approval; or any agency permit condition.
- Works undertaken without appropriate approval or assessment under the EP&A Act.
- Works undertaken that are not in accordance with a Project assessment.
- Unauthorised dumping of waste.

In accordance with the requirements of CoA D27, the Compliance Tracking Program will document:

- Mechanisms for reporting and recording incidents and actions taken in response to those incidents.
- Provisions for reporting environmental incidents to the Director General during construction and operation.
- Procedures for rectifying any non-compliance identified during review of incident management.

Typically, environmental incidents will be notified verbally immediately and in writing within one hour of any incident occurring to the Roads and Maritime Representative and the Environmental Representative. Incident reports will be provided to the 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

closed 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 PoEO Act. The circumstances where this will take place include:

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

Where an incident involves an Aboriginal site, relevant Registered Aboriginal Parties will be notified and their input sought in closing out the incident.

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

8 Inspections, monitoring and auditing

8.1 Environmental inspections

8.1.1 Weekly and post rainfall site inspections

The Environmental Site Representative and/or Environmental Officers will undertake weekly and post rainfall inspections of the work sites to evaluate the effectiveness of environmental controls. The Environmental Officers will record inspection findings on an inspection checklist form.

If any maintenance and/or deficiencies in environmental controls or in the standard of environmental performance are observed, they will be recorded on the checklist form. Records will also include details of any maintenance required, the nature of the deficiency, any actions required and an implementation priority.

8.1.2 Environmental Representative, Roads and Maritime and ERG inspections

The Environmental Representative, Roads and Maritime staff and members of the ERG will undertake regular inspections of works sites, and in particular critical activities throughout construction of the Project. Inspections by the Environmental Representative and Roads and Maritime Project staff would typically occur on a weekly or fortnightly basis depending on the complexity and anticipated risks associated with the stage of construction. ERG inspections will typically be less frequent, more likely on a monthly or three-monthly basis depending on the construction staging of Project.

A member of the Project environment team will participate in all Environmental Representative, client and ERG inspections, and records maintained. Deficiencies and required actions will be analysed and prioritised at the completion of the inspection and timeframes for implementation of corrective actions agreed.

8.1.3 Pre-work inspections

Prior to the commencement of works on each shift, an inspection will be carried out and will include a check of relevant environmental controls and resources required to ensure effective operation and maintenance. Works are not to commence unless inspections are found to be satisfactory.

The foreman will undertake the inspections.

8.2 Monitoring

Monitoring will be undertaken to validate the impacts predicted for the Project, to measure the effectiveness of management plans, environmental controls and implementation of this CEMP, and to address approval requirements. The monitoring requirements for required aspects are included in the relevant management plans and summarised in Table 8-1.

Table 8-1 Summary of environmental monitoring required by Project approval

CoA	Description	Relevant Sub-Plan	Reporting Requirements
B24 (c)	Monitoring procedures to be implemented in regards to blast management and mitigation measures	Construction noise and vibration management plan (Appendix B3)	Refer to plan

CoA	Description	Relevant Sub-Plan	Reporting Requirements
D8 (d)(l)	Ecological monitoring as part of Threatened Species Management Plans	Construction flora and fauna management plan (Appendix B2).	Annual reporting of results to the Secretary and the OEHL, DPI (Fisheries) and DoE, or as otherwise agreed by those agencies.
D12 (e)(f)	Water Quality Monitoring Program to monitor impacts on surface and groundwater quality and resources and wetlands.	Construction soil and water quality management plan (Appendix B4).	Reporting of results to DP&E, EPA, DPI and NOW.
D20 (j)	Monitoring procedures for the built elements and landscaping (including weed control).	Construction flora and fauna management plan (Appendix B2).	Refer to Appendix P Weed Management Plan
D21 (l)	Monitoring of the construction compound and ancillary facilities management.	Ancillary Facilities Management Plan	Refer Section 2.4 and Appendix B8
D23 (b)	Monitoring the implementation and outcomes of EMPs and monitoring programs by the Environmental Representative.	N/A	Report to Roads and Maritime
D25 (d)(v)	measures to monitor and manage dust emissions	Construction Air Quality Management Plan (Appendix B6)	Refer to plan
D26 (a)(v)	Monitoring of noise and vibration proposed, how results of monitoring recorded and reported, how to rectify any non-compliance	Construction noise and vibration management plan (Appendix B3)	Refer to plan
D26(a)(vii)	Program for construction noise and vibration monitoring and procedures in case of exceedance.	Construction noise and vibration management plan (Appendix B3)	Refer to plan
D26 (b)(vii)	Monitoring of construction traffic and access management plan.	Construction traffic and access management plan (Appendix B1)	Refer to plan
D26 (c)(ix)	Monitoring of effectiveness of soil and water quality management measures and the soil and water quality management plan.	Construction soil and water quality management sub plan (Appendix B4).	Refer to plan
D26 (d)(iii)	Protection / monitoring of Aboriginal cultural heritage sites and historic heritage items and the heritage management plan.	Construction heritage management plan (Appendix B5)	Refer to plan
D26 (e)	Monitoring of the flora and fauna management plan.	Construction flora and fauna management plan (Appendix B2).	Refer to plan

A monitoring procedure will address how these activities will be undertaken.

The monitoring procedure will include:

- Purpose and scope.
- Minimum acceptable frequency and standards listed in applicable approvals, licences and regulations.
- Relevant EPA approved methods, Australian Standards or, in the absence of an Australian Standard, industry acceptable procedures.
- Targets and parameters.
- Processes for response to any exceedances of targets/standards.
- Processes for recording and reporting results.

The Environmental Representative and Roads and Maritime Representative will be advised of any non-conformances from monitoring and details reported in the monthly report.

Where a non-conformance is detected or monitoring results are outside of the expected range and are directly attributable to the Project (ie are influenced by factors under the direct control of the Project eg noise from construction equipment), the process described in Section 8.6 will be implemented. Steps in the process will typically include:

- An analysis of the results by the Environmental Site Representative in more detail with a view of determining possible causes for the non-conformance.
- A site inspection by the Environmental Site Representative or delegate.
- Advising relevant personnel of the problem.
- Identifying and agreeing on actions to resolve or mitigate the non-conformance.
- Implementing actions to rectify or mitigate the non-conformance.

A non-conformance Environmental Incident Report and/or Environmental Improvement Notice may be issued by the Environmental Site Representative in response to the non-conformance problem if it is found to be construction related.

The timing for any improvement will be agreed between the relevant Engineer/Superintendent and Environmental Site Representative based on the level of risk (eg a significant risk will require immediate action).

All environmental monitoring equipment shall be maintained and calibrated according to manufacturer's specifications and appropriate records kept.

Auditing and reporting

Table 8-2 presents auditing requirements that are applicable to the Project.

8.2.1 Contractor audits

Internal auditing will be undertaken generally on a six monthly basis throughout the Project. The purpose of auditing is to verify compliance with:

- This CEMP and associated plans.
- Approval requirements (CoAs).
- Any relevant legal and other requirements (eg licences, permits, regulations, Roads and Maritime contract documentation).

An audit checklist will be developed and amended as necessary to reflect changes to this CEMP, subsequent approvals and changes to Acts, regulations or guidelines.

8.2.2 Independent external audits

External auditing will be led by an independent environment auditor in accordance with ISO 19011:2003 - *Guidelines for Quality and/ or Environmental Management Systems Auditing*.

Table 8-2 Audit requirements

No.	Audit	Requirement	Timing	Responsibility	Recipient
1	Internal audit	Verify compliance with approval and legal requirements, Roads and Maritime specifications and construction documentation	The first audit within three months of the commencement of construction and then at six monthly intervals thereafter. The final submitted within five working days of contract completion date.	Environmental Site Representative	Project Manager, Roads and Maritime
2	External independent audit	Verify compliance with approval and legal requirements, Roads and Maritime specifications, construction documentation and any other commitments.	Six monthly	Environmental Site Representative	Project Manager, Roads and Maritime

8.3 Compliance tracking program

A Compliance Tracking Program has been developed for the Project. The requirements of the Compliance Tracking Program, as prescribed in CoA D27 are:

CoA D27: The Applicant 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 operate for a minimum of one year following commencement of operation, or as otherwise agreed by the Director General. The Program shall include, but not necessarily be limited to:

- a) Provisions for the notification of the Secretary 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).
- b) Provisions for periodic review of the compliance status of the Project against the requirements of the Project approval.
- c) Provisions for periodic reporting of compliance status to the Secretary, including a Pre-Construction Compliance Report, during construction reporting and a Pre-Operation Compliance Report.
- d) A program for independent environmental auditing in accordance with *ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing*.

- e) Mechanisms for recording environmental incidents during construction and actions taken in response to those incidents.
- f) Provisions for reporting environmental incidents to the Secretary and relevant public authorities during construction.
- g) procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management; and
- h) provisions for ensuring all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.

The Compliance Tracking Program describes how the requirements of CoA D27 will be met and sets out a program and frequency for compliance reporting and independent auditing. The compliance reporting required under the Compliance Tracking Program will record how the CoA has been addressed. A summary of the required compliance reporting, as required by CoA D27, is provided in Table 8-3.

Table 8-3 Compliance reporting

No.	Report	Requirement	Timing	Responsibility	Recipient
1	Compliance tracking program CoA D27	Describes how the requirements of CoA D27 will be met and sets out a program and frequency for compliance reporting and independent auditing.	Prior to construction	Golding to prepare Roads and Maritime to Revise and submit	DP&E
2	Pre-Construction Compliance Report CoA D27	Review of compliance status of the Project against the requirements of the Project approval prior to construction	Prior to construction commencing	Golding to prepare Roads and Maritime to Revise and submit	DP&E
3	Construction reporting CoA D27	Periodic review of compliance status of the Project against the requirements of the Project approval during construction	Six months following the commencement of construction and then at six month intervals thereafter	Golding to prepare Roads and Maritime to Revise and submit	DP&E

8.4 Other reporting

Prior to, during and following construction, various reports will be prepared to fulfil internal Roads and Maritime and Golding reporting needs, and requirements under the Project approval. Table 8-4 sets out the reporting requirement applicable to the Project, timing of the reporting, who is responsible for managing preparation of the reports and the intended recipient(s).

Additional reporting may be necessary as the works progress. In such a circumstance, Table 8-4 will be amended to reflect these changes.

Table 8-4 Reporting requirements

No.	Report	Requirement	Timing	Responsibility	Recipient
1	Monthly environmental report	For incorporation in Project Monthly Reports including environmental statistics (ie incidents, regulatory action, complaints on environmental issues), regulatory and authority considerations, monitoring program performance and key environmental issues.	Monthly	Environmental Site Representative	Roads and Maritime
2	EPL monthly report	Details of all non-compliances with conditions of EPL, measures taken to prevent recurrence, and details of discharges from sediment basins where water quality results exceed EPL conditions, or reporting on other licence requirements.	Within 10 working days of the end of each calendar month.	Environmental Site Representative	EPA
3	EPL annual returns	Report on compliance with EPL.	Within 60 days of the anniversary of the EPL.	Environmental Site Representative	EPA
4	ER inspection report	Report of site environmental performance following routine inspections.	Monthly	Environmental Representative	Roads and Maritime /DP&E
5	Environmental risk assessment	Conducted for each construction stage, Project changes and significant issues.	Prior to construction during development of CEMP and as required thereafter.	Environmental Site Representative , Construction Manager	Roads and Maritime

No.	Report	Requirement	Timing	Responsibility	Recipient
6	Monitoring results	Report on monitoring data recorded and potential exceedances against criteria.	Monthly	Environmental Site Representative , Environmental Officer (s)	Roads and Maritime
7	RMS and/or EPA environmental inspection reports	Response to matter raised in RMS and/or EPA site inspections.	As required. (Typically every two weeks for RMS inspection reports and monthly for EPA inspection reports).	Environmental Site Representative , Environmental Officer (s)	Roads and Maritime /EPA

8.5 Non-conformity, corrective and preventative actions

Any member of the Project team may raise a non-conformance or improvement opportunity. The Quality Plan describes the process for managing non-conforming work practises and initiating corrective/preventative actions or system improvements.

The Environmental Representative, Roads and Maritime Representative or public authority may also raise a non-conformance or improvement opportunity using the same process.

A non-conformance is the failure or refusal to comply with the requirements of this CEMP and supporting documentation.

For each non-conformance identified a corrective/preventative action (or actions) must be implemented. In addition any environmental management improvement opportunities can be initiated as a result of incidents or emergencies, monitoring and measurement, audit findings or other reviews. Improvement opportunities may also result in the implementation of corrective/preventative actions.

Corrective/preventative actions and improvement opportunities will be entered into the Golding 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.

Non-conforming activities may be stopped, if necessary, by the Environmental Site Representative or Project / Site Engineer following consultation with the Construction Manager or delegate. The works will not commence until a corrective / preventative action has been closed out. The Environmental Representative may also stop works in these circumstances. In such circumstances a non-conformance report must be prepared in accordance with the Quality Plan.

Procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management are also documented in the Compliance Tracking Program.

9 Review and improvement

Management reviews are undertaken as part of the continual improvement process. The management review can consist of group reviews, or executive reviews.

A group review is initiated by the Environmental Site Representative and includes relevant Project team members and stakeholders. The environment team also meet as least quarterly, or at other pre-determined periods, to review environmental management issues for the Project. The environment team meeting can be run in conjunction with a wider group meeting if the Environmental Site Representative deems it appropriate.

The environment group meetings include:

- A review of the aspects and impacts register, legal register and environmental induction.
- Consideration of monitoring, inspection and audit results.
- Consideration of incidents and any lessons learnt.
- Consideration of any new regulatory issues.
- A review of the effectiveness of erosion and sediment controls.
- Consideration of issues raised by ERG.
- Consideration of changes in operational needs such as resourcing.
- Feedback from management reviews.

An executive review will involve the management team. This review will be held every 12 months and will include a review of:

- Effectiveness of environmental management documentation implementation.
- Management effectiveness.
- Potential improvements to the environmental management documentation.
- Adequacy of resources.
- Findings of audits.
- Environmental objectives and targets.
- Environmental performance.
- Compliance with legal and other requirements.
- Critical non-conformance or repeated non-conformances.
- Organisation changes.
- Effectiveness of training and inductions.

The outcomes of the group and executive reviews could include amendments to this CEMP and related documentation, revision to the Project's environmental management system, risk assessment review, re-evaluation of the Project objectives and targets as well as feeding into other Project documents.

10 Documentation

10.1 Environmental records

The Environmental Site Representative is responsible for maintaining environmental management documents as current at the point of use. Types of records include:

- Monitoring, inspection and compliance reports/records.
- Correspondence with public authorities.
- Induction and training records.
- Reports on environmental incidents, other environmental non-conformances, complaints and follow-up action.
- Community engagement information.
- Minutes of CEMP and construction environmental management system review meetings and evidence of any action taken.
- Records required under the EPL.

All environmental management documents are subject to ongoing review and continual improvement. This includes times of change to scheduled activities or to legislative or licensing requirements.

Only the Environmental Site Representative, or delegate, has the authority to change any of the environmental management documentation.

10.2 Document control

Golding, or Roads and Maritime where relevant, will coordinate the preparation, review and distribution, as appropriate, of the environmental documents listed above. During the Project, the environmental documents will be stored at the main site compound.

Golding will implement a document control procedure to control the flow of documents within and between Roads and Maritime, stakeholders and subcontractors.

The procedure will also ensure that documentation is:

- Developed, reviewed and approved prior to issue.
- Issued for use.
- Controlled and stored for the legally required timeframe.
- Removed from use when superseded or obsolete.
- Archived.

A register and distribution list will identify the current revision of particular documents or data.

Appendices