

APPENDIX B8

Construction Contaminated Land Management Plan Woolgoolga to Halfway Creek Pacific Highway Upgrade

MAY 2015

Document control

File name	Appendix B8_CCLMP_W2HC 180515.docx
Report name	Construction Contaminated Land Management Plan
Revision number	5

Plan approved by:



Revision history

Revision	Date	Description	Approval
1	11/02/2015	Issued to RMS for review	
2	25/02/2015	Issued to Agencies for review	
3	18/03/2015	Reissued to agencies for closing out comments	
4	24/03/2015	Issued to RMS for final approval to Department of Planning	
5	18/05/2015	DoP comments included	

Distribution of controlled copies

Copy no.	Issued to	Version
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Glossary / Abbreviations

CEMP		Construction Environmental Management Plan				
		Contaminated Lands				
CLM Act 1997		Contaminated Land Management Act 1997				
CLMP		Contaminated Land Management Plan				
CoA		Condition of approval				
CTD		Cattle Tick Dip				
DIPMAC		Cattle Tick Dip Management Committee				
DP&I		Former NSW Department of Planning and Infrastructure (now DP&E)				
DP&E		NSW Department of Planning and Environment				
EIS		Woolgoolga to Ballina Pacific Highway Upgrade Environmental Impact Statement (December, 2012)				
EPA		NSW Environment Protection Authority				
EP&A Act		NSW Environmental Planning and Assessment Act 1979				
EPBC Act		Commonwealth Environmental Protection and Biodiversity Conservation Act 1999				
EWMS		Environmental Work Method Statements				
Minister, the		NSW Minister for Planning				
NPW Act		NSW National Parks and Wildlife Act 1974				
PoEO Act		NSW Protection of the Environment Operations Act 1997				
Project, the		Woolgoolga to Halfway Creek				
Secretary		Secretary of the Department of Planning and Environment				
SPIR		Woolgoolga to Ballina Pacific Highway Upgrade Submissions Preferred Infrastructure Report (November, 2013)				
RMS, Roads Maritime Services	and	NSW Roads and Maritime				
W2HC		Woolgoolga to Halfway Creek				

1 Introduction

1.1 Context

This Construction Contaminated Land Management Plan (CLMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the upgrade of one section of the Pacific Highway between Woolgoolga and Ballina, the Woolgoolga to Halfway Creek Project ('the Project').

This CLMP has been prepared to address the requirements of the Minister's Conditions of Approval (CoA), updated mitigation and management measures listed in the Pacific Highway Upgrade Woolgoolga to Ballina Submissions / Preferred Infrastructure Report (SPIR) (November 2013) and EIS and all applicable legislation.

There is one tie in project within the Woolgoolga to Halfway Creek project limits, namely the Sapphire to Woolgoolga, project. This tie in project have been approved separately by the Department of Planning and Environment. Relevant conditions of approval for this project has been referenced in the CEMP and plans as appropriate.

1.2 Background

The Pacific Highway Upgrade Woolgoolga to Ballina Environmental Impact Statement (EIS) (December 2012) assessed the impacts of construction and operation of the Project on contaminated lands.

As part of EIS development, a broad Phase 1 contaminated land assessment was prepared to address the Environmental Assessment Requirements issued by the Department of Planning and Environment. The results of the assessment were included in the EIS.

The EIS proposed the implementation of the mitigation and management measures, including further assessment of the identified sites.

The EIS management measures were subsequently updated within the Woolgoolga to Ballina Submissions / Preferred Infrastructure Report (November 2013), with applicable management measures incorporated into this CLMP to manage potential impacts from the disturbance of contaminated land.

1.3 Environmental Management Systems Overview

The overall Environmental Management System for the Project is described in the Construction Environmental Management Plan (CEMP).

The CLMP is part of the OHL York Joint Venture environmental management framework for the Project, as described in Section 4.1 of the CEMP.

This CLMP provides practical measures and actions that will be put in place to minimise impacts from known and discovered contaminated land during pre-construction and construction of the Project. This plan provides overall guidance and direction for the management of contaminated land associated with the construction works. Mitigation and management measures identified in this Plan will be incorporated into site or activity specific Environmental Work Method Statements (EWMS).

EWMS will be developed as per G36 requirements and signed off by OHLY representatives prior to associated works commencing will be required to undertake works in accordance with the identified mitigation and management measures.

Used together, the CEMP, strategies, procedures and EWMS form management guides that clearly identify required environmental management actions for reference by OHLY and contractors.

The review and document control processes for this Plan are described in Chapter 10 of the CEMP.

2 **Purpose and Objectives**

2.1 Purpose

The purpose of this CLMP is to establish a set of best practice procedures for the identification and management of contaminated land (CL) if encountered during works undertaken for the Project.

This plan has been prepared to address the applicable statutory requirements and aims to ensure that the commitments with regard to CL are met.

2.2 Objectives

The key objective of the CLMP is to ensure that impacts from the disturbance of contaminated land are minimised and managed. Specifically:

- Avoid and minimise the environmental and human health risks arising from the disturbance of CL encountered during construction of the Project
- Follow the guidelines set out in the statutory requirements for managing CL and the transport of contaminated goods
- No degradation to the receiving environment as a result of disturbance of CL
- No contamination of soil, air or water as a result of spillages or other impacts arising from construction activities

3 Environmental Requirements

3.1 Relevant Legislation and Guidelines

3.2 Legislation

Legislation relevant to contaminated land management includes:

- Environmental Planning and Assessment Act 1979 (EP&A Act).
- Contaminated Land Management (CLM) Act 1997
- Protection of the Environment Operations Act 1997
- Environmentally Hazardous Chemicals Act 1985
- Environmentally Hazardous Chemicals Regulation 2008
- Pesticides Act 1999
- Pesticides Regulation 2009

Relevant provisions of the above legislation are outlined in the register of legal and other requirements included in Appendix A1 of the CEMP.

3.3 Additional Approvals, Licences, Permits and Requirements

Refer to Appendix A1 of the CEMP for requirements of RMS QA Specification G36 Environmental Protection, Woolgoolga to Halfway Creek version 3 and the Conditions of Approvals (Table 3).

3.4 Guidelines

The main guidelines, specifications and policy documents relevant to this Plan include:

- NEPM Guidelines for the Assessment of Site Contamination
- Waste Classification Guidelines Part 1: Classification of waste (NSW EPA 2014)
- RMS QA Specification G36 Environmental Protection (Management System), adjusted for this project (version 3 for both Sections).
- RMS Guideline for the Management of Contamination, September 2013
- RMS Contamination Management Factsheets
 - o FS1 Statutory Framework
 - o FS2 Planning Context
 - FS3 Identification
 - FS4 Assessment
 - o FS5 Health and Safety
 - o FS6 Land-based Contamination
 - o FS7 Estuarine and Marine Land
 - o FS8 Duty to Report
 - o FS9 Site Auditors
 - o FS10 Records Management
 - FS11 Communication
 - FS12 Managing Contamination
 - FS13 Operational Management
 - FS14 Acquisition of Land Strips

3.5 Minister's Conditions of Approval

The CoA relevant to this Plan are listed Table 3-1.

Table 3-1 Conditions of Approval relevant to the CLMP

CoA No.	Document Reference	
	CONTAMINATED LAND	
B37	Prior to the commencement of site preparation and excavation activities, or as otherwise agreed by the Secretary, in areas having a moderate to high risk of contamination, a site audit shall be carried out by a suitably accredited contaminated site auditor. A Site Audit Report is to be prepared by the Site auditor detailing the outcomes of Phase 2 contamination investigations within these areas. The Site Audit Report shall detail, where relevant, whether the land is suitable (for the intended) land use) or can be made suitable through remediation.	This Plan Site Audit Report
	Where the investigations identify that the site is suitable for the intended operations and that there is no need for a specific remediation strategy, measures to identify, handle and manage potential contaminated soils, materials and groundwater shall be identified in the Site Audit Report and incorporated in the Construction Environmental Management Plan. Where the investigations identify that the site is suitable for the intended operations and that a remediation strategy is required, the Site Audit Report shall include a remediation strategy for addressing the site contamination and how the environmental and human health risks will be managed during the disturbance, remediation and/or removal of contaminated soil or groundwater and be incorporated in to the Construction Environmental Management Plan.	
	Where remediation is required, a Site Audit Statement (s) shall be prepared verifying that the site has been remediated to a standard consistent with the intended land use.	
D24 (d)(vii)	D24 (d)(vii) Measures for the handling, treatment and management or contaminated materials	
(viii)	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);	Appendix A of CLMP & Waste & Energy Management Plan

3.6 Existing environment

The following section summarises existing potential contaminated land within and adjacent to the project area. The key reference document is Chapter 9 of the EIS. The project boundary and potential sites is shown on the sensitive area maps included in Appendix A5 of the CEMP.

There are five potentially contaminated sites within the immediate vicinity or inside the project corridor, consisting of banana plantations, blueberry exchange, cattle dip site, former orchards and water storage tanks. These sites may consist of heavy metals, pesticides, hydrocarbons, arsenic, PCBs and asbestos

Table 3-2EIS Areas of potential environmental concern within or near the projectboundary

Project impact	Contamination source	Locality
Indirect, outside project corridor	Former sawmill	Chainage 2200
Direct impact, inside project corridor	Former banana plantation	Chainage 2400
Indirect, outside project corridor	Coffs wastewater treatment tank	Chainage 2550
Indirect, outside project corridor	Orchids, residential	Chainage 13600
Indirect, outside project corridor	Cattle Dip site, residential	Chainage 13250

These locations are illustrated in Appendix C.

4 Issues and Strategies

The Table below describes management strategies that will be proposed to mitigate any possible issues facing the Project. The risk matrix, refer Appendix B, will be adopted for assessing the risk profile of the identified contaminated site prior to entering as part of the planning works.

Contaminated site	Issue	Treatment	Volume
Potential CTD (Cattle Tick Dip)	Soil and groundwater contaminated	 Typical mitigation options include: do nothing (contaminated site left as is if results of site investigation and assessment of risk determines no action necessary) on-site treatment/remediation to reduce contamination capping of contaminated sites excavation and off-site disposal to landfill/monocell disposal facility Excavation and on-site disposal to a suitable location within the Project area, with appropriate engineered controls (e.g. liner, cap). 	DIPMAC guidelines indicating typical contamination distributions will be used to establish a sampling pattern prior to disturbance.
Hazardous materials	Contaminated soil	An assessment would be required on the concentrations of the hazardous materials. This may demonstrate that no action is warranted, especially given the likely small volumes. If there are small volumes of soil that are contaminated, landfill disposal is the preferred option.	To be determined prior to entering these known areas
Demolition of houses	Contaminated soil	All houses & immediate surrounds would be tested for hazardous materials prior to demolition ie asbestos. Any hazardous materials identified from these areas would need to be removed from the site and disposed of at the EPA licensed facility.	To be determined prior to entering these known areas

Persons whose activities have contaminated land and owners of land who become aware, or ought reasonably to be aware, that the land has been contaminated must notify the EPA as soon as practicable after becoming aware of the contamination, if the contamination meets certain criteria. The duty to notify is a requirement under section 60 of the *CLM Act 1997*. A person has a duty to notify if that person ought reasonably to have been aware of the contamination. The EPA can be notified using the Site Contamination Notification form.

The Guidelines on The Duty to Report Contamination under the *CLM Act 1997* provide information on two key aspects of the duty to report contamination. The guidelines set out the duty of landowners and persons whose activities have contaminated land to report to the EPA. This includes a range of considerations for those who encounter land contamination (including particular trigger levels for various contaminants) and information on how to proceed where there is uncertainty. The guidelines also outline how the EPA assesses and determines whether or not contamination is significant enough to warrant regulation.

The RMS Representative, the Environmental Representative and relevant Authorities will be promptly notified of any suspected or potential contamination exposed during construction activities as required by the RMS Incident classification and reporting procedure.

5 Environmental Mitigation and Management Measures

A range of environmental requirements and control measures are identified in the various environmental documents, including additional mitigation measures included in the Submission / Preferred Infrastructure Report (November 2013), the Conditions of Approval and relevant RMS documents. Specific measures and requirements to address impacts from contaminated land are in Table 5-1.

Table 5-1 Contaminated Land Management and Mitigation Measures

	Aspect	Mitigation measures	Planning	Site Establishment	Construction	Relevant Location	Accountability	Source
1	CTDs	If CTDs are disturbed by construction, further investigation, remediation or disposal to an appropriately licensed landfill of potentially contaminated materials may be required.		•	•	CTDs	Environmental manager	EA 20.1
2	Identification of unexpected and potentially contaminated soil at any site on the alignment	 All works shall cease immediately and the affected area isolated from workers and other persons with a physical barrier. The Environmental Manager shall be notified and suitably qualified Environmental Contamination Specialist (ECS) contacted to inspect the site. RMS will be immediately notified as per the incident reporting procedure. Soil can only be excavated following approval from the ECS. It may be that the ECS requires the material to remain in-situ until an assessment has been carried out. For any work in identified areas the ECS shall advise as to levels of Personal Protective Equipment (PPE) required. A specific health and safety plan may be required depending on the extent and magnitude of the contamination. 		•	•	Entire Project	Environmental Manager	

3	Storage of potentially contaminated soil	All potentially affected spoil will be stockpiled on a bunded, impermeable surface, covered to prevent wind blow and potential erosion.		•	•	Stockpile areas	Environmental Manager Superintendent	
4	Validation sampling	All sampling will be undertaken at an appropriate frequency as approved by the ECS.		•	•	Potentially contaminat ed areas	Environmental Manager	
5	IND (induction)	Appropriate induction and management procedures would be implemented as part of the construction environmental management plan, to minimise the risk from disturbance of a site during construction.	•	•	•	Entire Project	Environmental Manager	
6	Soil disposal	If soils are disposed off-site, then routine testing would be undertaken to assess the appropriate waste classification of the soils according to the EPA guidelines.		•	•	Entire Project	Environmental Manager	G36
7	Off-site soil disposal of highly contaminated soil	If soil results greater than the adopted health level criteria, the EPA will be notified. An EPA disposal permit will be required for offsite disposal. Leachate testing will be required before disposal at a licensed receivable facility (of the appropriate level). Personnel will wear appropriate PPE and an ECS will supervise the work.		•	•	Entire Project	Environmental Manager Superintendent	
8	Surface runoff	Immediately implement any control measures needed to divert surface runoff away from CL and to capture and manage any surface runoff contaminated by exposure to CL.		•	•	Entire Project	Environmental Manager Superintendent	G36

9	Groundwater	If groundwater quality results identify a change in parameters (ie metals, etc), a review of works and mitigation measures will be			Entire project	Environmental Manager	G36
		undertaken by OHLY and RMS.	•	•		Superintendent	
						RMS	

6 **Compliance management**

6.1 Roles and responsibilities

The Project Team's organisational structure and overall roles and responsibilities are outlined in Section 4.2 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Chapter 6 of this Plan.

6.2 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to actions to be taken in the event that contaminated land is discovered or suspected.

Toolbox training regarding identification of contaminated land will be regularly provided to maintain awareness of onsite environmental issues. Targeted training will also be provided on practices, controls to avoid pollution incidents from Contaminated Land and on the rapid response to and reporting of all environmental incidents.

Further details regarding staff induction and training are outlined in Chapter 5 of the CEMP.

6.3 Monitoring and inspections

Inspections of areas with the potential to be contaminated will occur for the duration of the project.

Monitoring						
ltem	Frequency	Applicable standards	Responsibility	Reporting		
Monitoring of	If required. See section 14.2 of the	Set Out in SWMP.	Environmental Manager	Monthly Report		
groundwater.	SWMP.					
If required,	If required, once prior	EPA NSW 2014	Environmental	Monthly Report		
sampling of	to removal of soil	Waste	Manager			
excess soil	material.	Classification				
material.		Guidelines.				

Table 6-1 Contaminated Land Monitoring

General requirements and responsibilities in relation to monitoring and inspections are documented in Section 8.2 of the CEMP.

Specific requirements are as identified in Table 7-1.

6.4 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this plan, CoA and other relevant approvals, licenses and guidelines.

Audit requirements are detailed in Section 8.3 of the CEMP.

6.5 Reporting

Reporting requirements and responsibilities are documented in Section 8.4 of the CEMP and Table 7-1. These include specific reporting requirements associated with inspections.

7 Review and Improvement

7.1 Continuous Improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any nonconformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

7.2 CLMP Update and Amendment

The processes described in Chapter 8 and Chapter 9 of the CEMP may result in the need to update or revise this Plan. This will occur as needed.

Any revisions to the CLMP will be in accordance with the process outlined in Section 1.6 of the CEMP.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 10.2 of the CEMP.

Appendix A

Unexpected Discovery of Contaminated Lands Procedure

Unexpected Discovery of Contaminated Land Procedure

1 Distribution

There are no restrictions on the distribution/circulation of this Procedure within the OHL York Joint Venture.

2 Purpose

This Procedure details the actions to be taken when potential contaminated soil/material is encountered during excavation/construction activities.

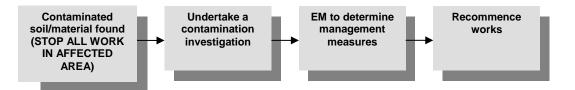
3 Induction/Training

All JV personnel are to be inducted on the identification of potential contaminated soil/material along with this Procedure during the inductions and Toolbox Talks.

4 Scope

This Procedure is applicable to all activities conducted by JV personnel that have the potential to uncover/encounter contaminated soil/material.

Figure 1: Unexpected Discovery of Contaminated Land Procedure Flow Chart details the steps taken in the event of the unexpected discovery of contaminated land.



5 Procedure

1. Potential Contaminated Soil/Material Encountered during Construction Activities

If potential contaminated soil/material is encountered during excavation/construction activities:

- STOP ALL WORK in the immediate/affected area
- Immediately notify the Environmental Manager (EM)
- Recommence works in an alternate area where practicable

2. Personal Protective Equipment (PPE)

Prior to any contamination investigation/management, appropriate personal protective equipment (PPE) is to be worn as per the relevant Safety Data Sheet(s) (SDS).

This may include, but not be limited to:

- Eye goggles
- Face mask
- Rubber boots
- Rubber gloves
- Work clothes.

3. Undertake a Site/Area Contamination Investigation

The G36 Hold Point for Contaminated Land must be implemented, including the relevant requirements in MCoA B37 and the *Contaminated Land Management Act 1997*.

The EM or Environment Officer (EO) is to assess the situation and if considered necessary, commission a suitably qualified contamination specialist to undertake a contamination investigation in the area of the find.

The material is to be classified in accordance with the Waste Classification Guidelines – Part 1: Classification of Waste, NSW EPA 2014.

If necessary, the EM will liaise with the relevant authorities to determine the appropriate management options.

The EM (in consultation with specialists) will determine the appropriate management measures to be implemented. This may include treatment or offsite disposal. If the material is to be disposed of offsite, ensure the waste facility is appropriately licensed.

If the material is determined to be acid sulphate soil or potential acid sulphate soil, the management procedures outlined in the Construction Soil and Water Management Plan (CSMP) are to be followed.

4. Remedial Action

As required under G36 4.2.4 a Remedial Action Plan will be prepared in accordance with the EPA guidelines on contaminated land management . In conduction, any Environmental Work Method Statements or SHWMS will be reviewed and updated when required.

5. Recommence Works

Recommence works once remedial works have been implemented. RMS will be required to release the Hold Point prior to recommencing works.

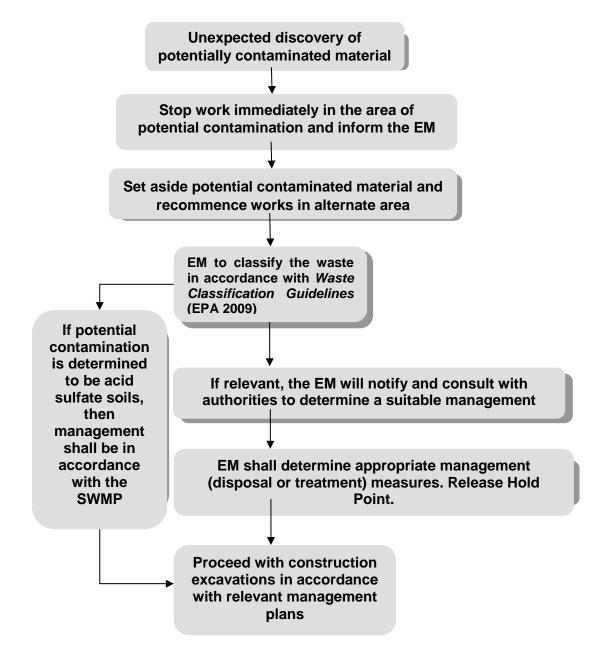


Figure 2: Unexpected Discovery of Contaminated Land Procedure Flow Chart

Appendix B Risk Matrix

Risk Assessment Matrix

	Consequences				
Potential	1 (Negligible)	2 (Minor)	3 (Moderate)	4 (Major)	5 (Severe)
A - Almost certain	M (9)	S (15)	S (19)	H (24)	H (25)
B - Likely	L (7)	M (11)	S (18)	S (21)	H (23)
C - Possible	L (5)	L (6)	M (13)	S (17)	H (22)
D - Unlikely	L (3)	L (4)	M (10)	M (14)	S (20)
E - Rare	VL (1)	L (2)	M (8)	M (12)	S (16)

High	Activity to be re-planned and / or re-designed. If this is not possible, an independent Hazard assessment of the activity is to be completed by the Project Manager prior to completing the JSEA.		
Significant	Activity must be reviewed by a Senior Site Management Representative, & have identified risk controls built into JSEA / work procedure.		
Medium	Site Supervisor must review method of task.		
Low	Some action may be required, Supervisor to determine and monitor.		
Very Low	Minimal risk, but commonsense dictates action.		

	Safety	Environment	
Severe	Potential to be fatal. Permanent disability. Destruction of property or plant.	Environmental disaster.	Serious environmental harm: high impact (or on a wide scale) actual or potential harm to the health or
Major	Serious Injury, Long term disability, Major damage to plant, property or environment.	Serious environmental harm or harm that results in adverse publicity in the state or national media.	 safety of people, or actual or potential environmental harm, or actual or potential loss or property damage of more than \$50,000.
Moderate	Potential for injury resulting in medical attention, Damage to plant, property or environment.	Material environmental harm or harm that results in adverse publicity in the local media or repeated complaints.	Material environmental harm: high impact (or on a wide-scale) nuisance, or catual or potential harm to the health or safety of people, or to the
Minor	Injury requiring First Aid treatment and / or Short term discomfort.	Environmental impact that is temporary and affects a small area. Complaint that is resolved within a short timeframe.	environment, or
Negligible	Cause a near miss, needs to be reported.	Very little adverse impact upon the environment.	Loss includes the costs and expenses required to prevent or mitigate the environmental harm and to make good the resulting environmental damage.

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Appendix C Contaminated Land Sites

Please see the Sensitive Area Maps available in the CEMP