APPENDIX B8

Construction Contaminated Land Management Sub Plan

*The Northern Road Upgrade*

*Between Mersey Road and Eaton Road*

October, 2018
Document control

<table>
<thead>
<tr>
<th>File name</th>
<th>Construction Contaminated Land Management Sub Plan.docx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report name</td>
<td>The Northern Road Upgrade between Mersey Road and Eaton Road – Construction Contaminated Land Management Sub Plan</td>
</tr>
<tr>
<td>Revision number</td>
<td>0</td>
</tr>
</tbody>
</table>

Plan reviewed by:

- Adam Boyd
  GEJV  Project Manager
- Glen Bolton
  Georgiou Environment Manager
- Jeff Gilham
  Roads and Maritime Representative
- Cameron Weller
  Environmental Representative

Revision history

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Description</th>
<th>Reviewed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>1/11/18 Issued for Construction</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>28/10/18</td>
<td>Addressing review comments</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>17/10/18</td>
<td>Addressing review comments</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>17/08/18</td>
<td>For Roads and Maritime review</td>
<td></td>
</tr>
</tbody>
</table>

Distribution of controlled copies

<table>
<thead>
<tr>
<th>Copy no.</th>
<th>Issued to</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Roads and Maritime</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>Roads and Maritime</td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td>Roads and Maritime</td>
<td>C</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contents</td>
<td>3</td>
</tr>
<tr>
<td>1 Introduction</td>
<td>8</td>
</tr>
<tr>
<td>1.1 Context</td>
<td>8</td>
</tr>
<tr>
<td>1.2 Background</td>
<td>8</td>
</tr>
<tr>
<td>1.3 Environmental Management System Overview</td>
<td>8</td>
</tr>
<tr>
<td>1.4 Ongoing consultation during Construction</td>
<td>9</td>
</tr>
<tr>
<td>2 Purpose and Objectives</td>
<td>11</td>
</tr>
<tr>
<td>2.1 Purpose</td>
<td>11</td>
</tr>
<tr>
<td>2.2 Objectives</td>
<td>11</td>
</tr>
<tr>
<td>2.3 Targets</td>
<td>11</td>
</tr>
<tr>
<td>3 Environmental Requirements</td>
<td>13</td>
</tr>
<tr>
<td>3.1 Legislation and regulatory requirements</td>
<td>13</td>
</tr>
<tr>
<td>3.2 Guidelines and standards</td>
<td>13</td>
</tr>
<tr>
<td>4 Contamination Status</td>
<td>15</td>
</tr>
<tr>
<td>4.1 Contaminated land</td>
<td>15</td>
</tr>
<tr>
<td>4.2 Contamination Assessment</td>
<td>15</td>
</tr>
<tr>
<td>5 Environmental Aspects and Impacts</td>
<td>18</td>
</tr>
<tr>
<td>5.1 Construction activities</td>
<td>18</td>
</tr>
<tr>
<td>5.2 Impacts</td>
<td>18</td>
</tr>
<tr>
<td>6 Environmental Mitigation and Management Measures</td>
<td>19</td>
</tr>
<tr>
<td>6.1 Further investigations</td>
<td>19</td>
</tr>
<tr>
<td>6.1.1 Stage 2 site contamination assessment</td>
<td>19</td>
</tr>
<tr>
<td>6.1.2 Topsoil contamination inspections</td>
<td>20</td>
</tr>
<tr>
<td>6.1.3 Removal of topsoil</td>
<td>20</td>
</tr>
<tr>
<td>6.2 Areas of unexpected contamination</td>
<td>21</td>
</tr>
<tr>
<td>6.3 Remediation Action Plan</td>
<td>21</td>
</tr>
<tr>
<td>7 Compliance Management</td>
<td>26</td>
</tr>
<tr>
<td>7.1 Roles and Responsibilities</td>
<td>26</td>
</tr>
<tr>
<td>7.1.1 Environmental Scientist</td>
<td>26</td>
</tr>
<tr>
<td>7.1.2 Geotechnical Engineer</td>
<td>26</td>
</tr>
<tr>
<td>7.2 Communication</td>
<td>26</td>
</tr>
<tr>
<td>7.3 Complaints management</td>
<td>27</td>
</tr>
<tr>
<td>7.4 Training</td>
<td>27</td>
</tr>
<tr>
<td>7.5 Monitoring, inspection and testing</td>
<td>28</td>
</tr>
<tr>
<td>7.6 Incident Response</td>
<td>29</td>
</tr>
<tr>
<td>7.7 Auditing</td>
<td>29</td>
</tr>
</tbody>
</table>
7.8 Non-conformances........................................................................................................29
7.9 Reporting .........................................................................................................................30
8 Review and improvement ......................................................................................................31
  8.1 Continuous Improvement ...............................................................................................31
  8.2 Plan Update and Amendment .........................................................................................31
Annexure A .............................................................................................................................32
Annexure B .............................................................................................................................37

Tables
Table 4-1: Areas of potential contamination identified during the site inspection ............ 16
Table 6-6: Contaminated Land Measures .............................................................................. 22
Table 7-1: Contaminated land inspections ........................................................................... 28

Figures
Figure 1-1: Overview of the Project (Stage 4) ................................................................. 10
Figure 4-1: Location of potential contaminated land in the vicinity of the Project .......... 17

Annexures
Annexure A Unexpected Discovery of Contaminated Land Procedure
Annexure B Asbestos Management Plan
## Glossary / Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACM</td>
<td>Asbestos containing material</td>
</tr>
<tr>
<td>ACS</td>
<td>Asbestos containing soil</td>
</tr>
<tr>
<td>AEI</td>
<td>Area of Environmental Interest</td>
</tr>
<tr>
<td>CCLMP</td>
<td>Construction Contaminated Land Management Sub Plan</td>
</tr>
<tr>
<td>CCS</td>
<td>Community Communication Strategy</td>
</tr>
<tr>
<td>CEMP</td>
<td>Construction Environmental Management Plan</td>
</tr>
<tr>
<td>CSWMP</td>
<td>Construction Soil and Water Management Sub Plan</td>
</tr>
<tr>
<td>CWEMP</td>
<td>Construction Waste and Energy Management Sub Plan</td>
</tr>
<tr>
<td>CLM Act</td>
<td>Contaminated Land Management Act 1997</td>
</tr>
<tr>
<td>CM</td>
<td>Construction Manager</td>
</tr>
<tr>
<td>CMS</td>
<td>Complaints Management System</td>
</tr>
<tr>
<td>CoA</td>
<td>Condition of approval</td>
</tr>
<tr>
<td>Compliance audit</td>
<td>Verification of how implementation is proceeding with respect to a CEMP (which incorporates the relevant approval conditions)</td>
</tr>
<tr>
<td>CSSI</td>
<td>Critical State Significant Infrastructure</td>
</tr>
<tr>
<td>Cwth</td>
<td>Commonwealth</td>
</tr>
<tr>
<td>DA</td>
<td>Development Application</td>
</tr>
<tr>
<td>DEC</td>
<td>Department of Environment and Conservation (NSW) (former)</td>
</tr>
<tr>
<td>DECC</td>
<td>Department of Environment and Climate Change (NSW) (former)</td>
</tr>
<tr>
<td>DEHP</td>
<td>Defence Environment and Heritage Panel</td>
</tr>
<tr>
<td>DoEE</td>
<td>Commonwealth Department of the Environment and Energy</td>
</tr>
<tr>
<td>DoI</td>
<td>Department of Industry - Water</td>
</tr>
<tr>
<td>DP&amp;E</td>
<td>NSW Department of Planning and Environment</td>
</tr>
<tr>
<td>DPI</td>
<td>Department of Primary Industries</td>
</tr>
<tr>
<td>DUXOP</td>
<td>Commonwealth Department of Defence UXO Panel</td>
</tr>
<tr>
<td>EIL</td>
<td>Ecological Investigation Level (NEPM)</td>
</tr>
<tr>
<td>EIS</td>
<td>Environmental Impact Statement</td>
</tr>
<tr>
<td>EMS</td>
<td>Environmental Management System</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Environmental aspect</td>
<td>Defined by AS/NZS ISO 14001:2015 as an element of an organisation’s activities, products or services that can interact with the environment</td>
</tr>
<tr>
<td>Environmental impact</td>
<td>Defined by AS/NZS ISO 14001:2015 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation’s environmental aspects</td>
</tr>
<tr>
<td>Environmental incident</td>
<td>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</td>
</tr>
<tr>
<td>Environmental objective</td>
<td>Defined by AS/NZS ISO 14001:2015 as an overall environmental goal, consistent with the environmental policy, that an organisation sets itself to achieve</td>
</tr>
<tr>
<td>Environmental Representative (ER)</td>
<td>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</td>
</tr>
<tr>
<td>Environmental target</td>
<td>Defined by AS/NZS ISO 14001:2015 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</td>
</tr>
<tr>
<td>EPA</td>
<td>NSW Environment Protection Authority</td>
</tr>
<tr>
<td>EP&amp;A Act</td>
<td>NSW Environmental Planning and Assessment Act 1979</td>
</tr>
<tr>
<td>EPBC Act</td>
<td>Commonwealth Environmental Protection and Biodiversity Conservation Act 1999</td>
</tr>
<tr>
<td>EWMS</td>
<td>Environmental Work Method Statement</td>
</tr>
<tr>
<td>Federal-CoA</td>
<td>Condition of the Federal Department of the Environment and Energy Approval Decision</td>
</tr>
<tr>
<td>GEJV</td>
<td>Georgiou and Ertech Joint Venture</td>
</tr>
<tr>
<td>HIL</td>
<td>Health Investigation Levels (NEPM)</td>
</tr>
<tr>
<td>Hold Point</td>
<td>A point beyond which a work process must not proceed without express written authorisation from Roads and Maritime</td>
</tr>
<tr>
<td>ISEPP</td>
<td>State Environment Planning Policy (Infrastructure) 2007 (NSW)</td>
</tr>
<tr>
<td>MSDS</td>
<td>Material Safety Data Sheet</td>
</tr>
<tr>
<td>NEPM</td>
<td>National Environment Protection (Assessment of Site Contamination) Measure 1999</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Non-compliance</td>
<td>Failure to comply with the requirements of the Project approval or any applicable licence, permit or legal requirements</td>
</tr>
<tr>
<td>Non-conformance</td>
<td>Failure to conform to the requirements of Project system documentation including this CEMP or supporting documentation</td>
</tr>
<tr>
<td>NPW Act</td>
<td><em>National Parks and Wildlife Act 1974 (NSW)</em></td>
</tr>
<tr>
<td>NSW-CoA</td>
<td>Condition of the NSW DP&amp;E Infrastructure Approval</td>
</tr>
<tr>
<td>NSW Infrastructure Approval</td>
<td>The infrastructure approval for the Northern Road Upgrade issued by the New South Wales Government on 30th May 2018</td>
</tr>
<tr>
<td>OACEMP</td>
<td>Overarching Construction Environmental Management Plan</td>
</tr>
<tr>
<td>OEH</td>
<td>NSW Office of Environment and Heritage</td>
</tr>
<tr>
<td>OHS</td>
<td>Occupational health and safety</td>
</tr>
<tr>
<td>PIRMP</td>
<td>Pollution Incident Response Management Plan</td>
</tr>
<tr>
<td>POEO Act</td>
<td><em>NSW Protection of the Environment Operations Act 1997</em></td>
</tr>
<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
</tr>
<tr>
<td>Principal, the</td>
<td>NSW Roads and Maritime Services</td>
</tr>
<tr>
<td>Project, the</td>
<td>The Northern Road Upgrade Between Mersey Road and Eaton Road</td>
</tr>
<tr>
<td>QA/QC</td>
<td>Quality assurance / Quality control</td>
</tr>
<tr>
<td>RAP</td>
<td>Remediation Action Plan</td>
</tr>
<tr>
<td>REMM</td>
<td>Revised Environmental Management Measure as provided in the Final EIS / SPIR</td>
</tr>
<tr>
<td>RMS</td>
<td>NSW Roads and Maritime Services</td>
</tr>
<tr>
<td>SEARs</td>
<td>Secretary’s Environmental Assessment Requirements</td>
</tr>
<tr>
<td>Secretary</td>
<td>Secretary of the NSW Department of Planning and Environment, or delegate</td>
</tr>
<tr>
<td>SEPP</td>
<td>State Environmental Planning Policy (NSW)</td>
</tr>
<tr>
<td>SPIR</td>
<td>Submissions and Preferred Infrastructure Report</td>
</tr>
<tr>
<td>SWMS</td>
<td>Safe Work Method Statement</td>
</tr>
<tr>
<td>TNR</td>
<td>The Northern Road</td>
</tr>
<tr>
<td>UXO</td>
<td>Unexploded ordnance</td>
</tr>
<tr>
<td>WHS Act</td>
<td><em>Work Health and Safety Act (2011)</em></td>
</tr>
</tbody>
</table>
1 Introduction

1.1 Context

This Construction Contaminated Land Management sub plan (CCLMP) forms part of the Construction Environmental Management Plan (CEMP) for The Northern Road Upgrade between Mersey Road and Eaton Road (the Project). The Project is being delivered by Georgiou Ertech Joint Venture (GEJV). An overview of the Project is shown on Figure 1-1.

An Overarching Construction Environmental Management Plan (OACEMP) has been prepared by Roads and Maritime to address the State and Federal conditions of approval (CoA) and environmental management measures listed in The Northern Road Upgrade – Mersey Road, Bringelly to Glenmore Parkway, Glenmore Park NSW Environmental Impact Statement / Commonwealth Draft Environmental Impact Statement (EIS) as amended by The Northern Road Upgrade – Mersey Road, Bringelly to Glenmore Parkway, Glenmore Park Submissions and Preferred Infrastructure Report (SPIR), Roads and Maritime specifications and all applicable legislation.

This CCLMP has been prepared by GEJV to address the requirements of the mitigation and management measures outlined in the OACEMP, conditions of approval, and all relevant Roads and Maritime QA specifications and statutory legislation.

1.2 Background

An Environmental Impact Statement (EIS) was prepared for the Project to satisfy the environmental assessment requirements of both Part 5.1 of the EP&A Act and Part 8 of the EPBC Act. The EIS assessed the potential for contaminated soil sites that may be encountered during the Construction of the Project.

With the exception of the southern and northern tie-ins to the existing road, the Project is a green fields area previously used for agriculture. Agriculture presents a potential source of contamination, which may be encountered during Construction activities. The contamination from agricultural activities is generally either point source (e.g. Chemicals used in yards for animal health, localised chemical storage and use, waste disposal) or diffuse (broad acre pesticide or herbicide application). The biggest risk of exposure to agricultural contamination would be associated with point sources of contamination.

1.3 Environmental Management System Overview

The overall Environmental Management System for the Project is described in the Construction Environmental Management Plan (CEMP Section 3.1).

The CCLMP forms part of GEJV’s environmental management framework for the Project, as described in Section 1.3 of the CEMP. Relevant management measures identified in this Plan will be incorporated into site or activity specific Environmental Work Method Statements (EWMS).

EWMS will be developed and signed off by environment and management representatives prior to associated works and Construction personnel will be required to undertake works in accordance with the identified mitigation and management measures. Used together, the
CEMP strategies, procedures and relevant EWMS form management guides that identify required contaminated land management actions for reference by GEJV personnel and subcontractors. The review and document control processes for this CCLMP are described in Section 6.7 and 6.8 of the CEMP.

1.4 Ongoing consultation during Construction

Consultation between GEJV and stakeholders, the community and relevant agencies regarding the management of contaminated land will be undertaken during the Construction of the Project as required. The process for the consultation is documented in the Community Communication Strategy (CCS).
Figure 1-1: Overview of the Project
2 Purpose and Objectives

2.1 Purpose
The purpose of this Plan is to describe how contaminated materials will be managed during the Construction of the Project including unexpected finds and measures for the handling, treatment and management of contaminated materials.

2.2 Objectives
The key objective of this Plan is to ensure that the potential impacts from disturbance of contaminated land are minimised. To achieve this objective, the following measures will be undertaken:

- Detail relevant procedures for handling, treatment and management of contaminated materials.
- Detail relevant procedures for the unexpected finds of contaminated materials onsite.
- Prevent any cross contamination of contaminated materials with clean material.
- Reduce the total volume of waste generated by the Project.
- Outline management measures to help protect human health and the surrounding environment during the extraction of potentially contaminated materials.
- Ensure appropriate measures are implemented to address safeguards consistent with those detailed in the Submissions and Preferred infrastructure report (SPIR), Project CoAs and all relevant Roads and Maritime Specifications.
- Investigate areas identified as moderate risk contaminated sites within the EIS prior to the commencement of Construction, with Remediation Action Plans (RAPs) developed and implemented where required.
- Implement appropriate measures to comply with all relevant legislation and other requirements as described in Section 6 of this CCLMP.
- Identify, signpost and segregate all known and unexpected contaminated soils and/or groundwater by the erection of physical barriers until it is managed and/or removed from site.
- Follow the guidelines set out in the statutory requirements for managing contaminated land and the transport of contaminated goods.

2.3 Targets
The following targets have been established for the management of contaminated soil impacts during the Construction of the Project:

- Ensure full compliance with the relevant legislative requirements and conditions of approval.
- No degradation to the receiving environment as a result of disturbance of contaminated land.
- No contamination of soil, air or water as a result of spillages or other impacts arising from Construction activities.
• Follow correct procedure and ensure notification of any soil contamination discovered during Construction.

• Ensure training is provided in the form of inductions to all Project personnel on potential contamination, protection measures and unexpected contamination procedures before they begin work on site.

• Minimise impacts on, and complaints from, the community and stakeholders.
3 Environmental Requirements

3.1 Legislation and regulatory requirements

Legislation and regulations relevant to this CCLMP includes:

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

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

3.2 Guidelines and standards

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

- Roads and Maritime QA Specification G1 – Job Specific Requirements for The Northern Road Upgrade
- Roads and Maritime QA Specification G36 – Environmental Protection (Management System)
- Roads and Maritime QA Specification R44 – Earthworks
- Guideline for the Management of Contamination (Roads and Maritime, 2013)
- Environmental Procedure Management of Wastes on Roads and Maritime Services Land (Roads and Maritime, 2014)
- Environmental Incident Classification and Reporting Procedure (Roads and Maritime, 2017)
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM), Schedule B5a, Guideline on Ecological Risk Assessment
- How to Safely Remove Asbestos Code of Practice (Safe Work Australia, 2011)
- Waste Classification Guidelines – Part 1: Classification of waste (NSW Environment Protection Authority (EPA), 2014)

Roads and Maritime specifications are a key source of environmental protection management processes relevant to this CCLMP. The specifications set out environmental protection requirements, including Hold Points that must be complied with by GEJV during Construction. A Hold Point is a point beyond which GEJV will not proceed without express written authorisation from Roads and Maritime.
4 Contamination Status

4.1 Contaminated land

The potential for widespread contamination within the Project area as result of past and present land use activities is generally considered to be low. There is potential for legacy residual contamination to affect surface and shallow soils, however the location of these sites relative to Construction activities results in reduced risk of contamination.

Incidents such as vehicle accidents have the potential to cause spillage of contaminants or hazardous materials on to the roadway. If not contained, these contaminants may be mobilised and affect surface and shallow soils. There is also potential for chemical and fuel spills to occur during Construction which may result in localised contamination of soils.

A Pollution Incident Response Management Plans (PIRMP) has been developed (refer Appendix B11 of the CEMP), including spill management measures, in accordance with the Code of Practice for Water Management (RTA, 1999) and relevant EPA guidelines. The PIRMP contains measures that will be implemented in the event of a spill including initial response and containment, notification of emergency services and relevant authorities (including Roads and Maritime and EPA). GEJV will also implement the Roads and Maritime Environmental Incident Classification and Reporting Procedure during Construction (refer Appendix A7 of the CEMP).

Hazardous materials, including asbestos, may be encountered during the demolition or removal of built structures or property adjustments. Inspection and removal of potential asbestos or asbestos-containing materials will be undertaken by a suitably qualified specialist under the Work Health and Safety Regulation 2017 and in accordance with the Asbestos Management Plan (refer to Annexure B). In addition, GEJV will implement Environmental Work Method Statements (EWMS) and Safe Work Method Statements for the management of materials containing asbestos.

4.2 Contamination Assessment

A Stage 1 Contamination Assessment for the Project was undertaken during preparation of the EIS. The assessment was included at Appendix L of The Northern Road Upgrade – Mersey Road, Bringelly to Glenmore Parkway, Glenmore Park NSW Environmental Impact Statement / Commonwealth Draft Environmental Impact Statement (EIS) (Jacobs, 2017).

A search of the NSW EPA Contaminated Sites Register and Record of Notices (under Section 58 of the Contaminated Land Management Act 1997) was undertaken as part of the assessment to ascertain the presence of registered sites that were either regulated or had been notified within the suburbs within the Project area. The only notified/regulated sites within one kilometre of the Project area was the Caltex Service Station on The Northern Road at Luddenham. However, based on the location of the notified site relative to the Project area, the Luddenham service station is unlikely to be a source of contamination.

A site inspection was undertaken on November 2015, as described in Section 4.6 of the EIS. Details of the Areas of Environmental Interest (AEIs) that were identified during that inspection are presented in
The contaminants typically associated with the land uses identified at the AEIs included heavy metals, hydrocarbons, pesticides, asbestos and excess nutrients.

Any existing contamination underlying the Project and ancillary facilities areas has the potential to be exposed or disturbed by Construction activities. Activities with the highest level of risk include excavation, earthworks and demolition.

The majority of the potential AEIs identified during the site inspection were assessed as being at a low risk of exposure during Construction of the Project, as Construction activities are unlikely to be undertaken at these sites.

There is a moderate risk of exposure of potentially contaminated material from the removal of stockpiles or disturbance of agricultural land within or adjacent to the Project. Further investigation and assessment of AEIs assessed as moderate risk will be undertaken prior to Construction (by Roads and Maritime Service) to ensure appropriate risk management measures are implemented.

No high risk AEIs were identified during the site inspection.

Table 4-1: Areas of potential contamination identified during the site inspection

<table>
<thead>
<tr>
<th>AEI</th>
<th>Location</th>
<th>Contaminants of potential concern</th>
<th>Exposure likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filling</td>
<td>Private property, western side of Willowdene Road, Luddenham</td>
<td>Heavy metals, hydrocarbons, pesticides, polychlorinated biphenyls, asbestos</td>
<td>Low</td>
</tr>
<tr>
<td>Stockpile</td>
<td>Western side of Willowdene Road, Luddenham</td>
<td>Heavy metals, hydrocarbons, pesticides, polychlorinated biphenyls, asbestos</td>
<td>Low</td>
</tr>
<tr>
<td>Septic Systems</td>
<td>Numerous tanks and pump out points observed within the Project area</td>
<td>Heavy metals, nutrients, biological</td>
<td>Low</td>
</tr>
<tr>
<td>Agricultural Land Use</td>
<td>Numerous locations within and adjacent to the Project area</td>
<td>Heavy metals, hydrocarbons, pesticides, asbestos</td>
<td>Moderate</td>
</tr>
<tr>
<td>Vehicle Accidents</td>
<td>Numerous locations within and adjacent to the Project area</td>
<td>Hydrocarbons, aqueous firefighting foam (AFFF)</td>
<td>Low to moderate</td>
</tr>
</tbody>
</table>
Figure 4-1: Location of potential contaminated land in the vicinity of the Project
Source: EIS (Roads and Maritime, 2017)
5 Environmental Aspects and Impacts

5.1 Construction activities

Key aspects of the Project that could affect contaminated land include:

- Pre-Construction activities including utility adjustments, site access provisions, property adjustments
- Planned salvage of Aboriginal or non-Aboriginal heritage items
- Clearing of vegetation
- Initial removal of topsoil
- General earthworks, particularly during site establishment
- Building demolition
- Construction of site compounds and spoil / mulch and / or equipment stockpile areas
- Temporary access roads during Construction
- Bulk earthworks
- Drilling and blasting.

Refer also to the Aspects and Impacts Register included in Appendix A2 of the CEMP.

5.2 Impacts

Exposure to unsuspected and/or known contaminated land is a risk to human health and the environment. This CCLMP has been developed to inform all Construction personnel of the management measures to be implemented when working in areas of known contaminated land, and the procedure to follow when unexpected contamination is encountered on site. Potential impacts from the disturbance of contaminated land due to Construction include:

- Inappropriate handling or disposal of contaminated or hazardous excavated materials
- Exposure of contaminated soils and/or groundwater to humans (Construction personnel, Project team, or nearby communities)
- Mobilisation of surface and subsurface contaminants
- Migration of contaminants into the surrounding area via leaching, overland flow and/or subsurface flow
- Mobilisation of groundwater and/or surface water contamination
- Exposure of contaminants to flora and fauna
- Exposure of UXO
- Release of asbestos
- Release of odours from contaminated materials.
6 Environmental Mitigation and Management Measures

A range of environmental requirements and control measures are identified in the various environmental documents, Roads and Maritime specifications, OACEMP, EIS and SPIR. Project specific measures and requirements to address contaminated sites are outlined in Table 6-1.

6.1 Further investigations

6.1.1 Stage 2 site contamination assessment

Prior to the commencement of Construction, further contamination investigations will be carried out (by Roads and Maritime) at the AEIs identified in Table 4-1 as having a moderate risk of exposure of contaminated material. These investigations will include the sampling of soil to the depth of proposed excavations. If the investigations conclude that the specified land is contaminated such that it is and will remain unsuitable for the Project, even after completion of all physical works required to construct the Project, then:

- a Remediation Action Plan (RAP) will be prepared for the specified land by a suitably qualified and experienced person and in accordance with all guidelines under the CLM Act
- the RAP will be approved in writing by a NSW EPA Accredited Site Auditor and the approval will state that the land can be made suitable for the Project if the works described in the RAP are carried out
- the specified land will be remediated in accordance with the approved RAP.

The land to which any RAP applies will not be used for the Project until a Site Audit Statement has been obtained that states that the land is suitable for that purpose. All conditions of the Site Audit Statement will be complied with. A copy of the Site Audit Statement and the associated Site Audit Report will be submitted to the Secretary and the relevant Council for information no later than one month before the commencement of Operation.

The Unexpected Discovery of Contaminated Land Procedure (Annexure A) will be implemented for contamination discovered in areas not identified as a moderate risk of exposure of contaminated material in Table 4-1 or as an unnatural landform.

The preferred approach for management of contamination for the Project is to leave contamination that is not migrating off site in situ, to minimise the potential for an increase in exposure pathways. Where disturbance to material cannot be avoided and it complies with the requirements of the Excavated Public Road Material Exemption, the material will be used in the road works, in accordance with an approved RAP.

GEJV will maintain a register of contaminated sites for the Project and will update the register in response to the findings of any site contamination assessments. The register will also be used to track the ongoing management of the sites.
6.1.2 Topsoil contamination inspections

As a precaution and in accordance with Roads and Maritime QA Specification R44 – Earthworks cl 2.3.3, GEJV has engaged an Environmental Scientist to inspect and document the presence or absence of visible contamination at the ground surface (including asbestos and asbestos containing material) prior to disturbance or removal of the topsoil in any area.

The Environmental Scientist will also document the likelihood of contamination being present in the topsoil below the ground surface and the inspection or other data used to make that assessment. If asbestos or other contamination is visible or considered likely to be present, GEJV will prepare proposed management or remediation measures in accordance with clause 2.3.2 of Roads and Maritime Specification R44 and will be issued to Roads and Maritime as a Hold Point. Roads and Maritime will consider the documents and instruct GEJV regarding the methodology for topsoil removal.

6.1.3 Removal of topsoil

Following advance contamination investigation works, GEJV’s Environmental Scientist / Engineer will attend and inspect all topsoil removal works and provide ongoing advice regarding the appropriate management of topsoil that is considered likely to be contaminated, including by asbestos.

For areas with visible surface contamination or where subsurface contamination has been suspected, the Environmental Scientist / Engineer will monitor the methodology employed for topsoil removal and the management or remediation measures instructed by Roads and Maritime for their effectiveness. The Environmental Scientist / Engineer may recommend changes to the methodology and/or management or remediation measures, in which case GEJV must seek further instruction from Roads and Maritime.

For areas without visible surface contamination or suspected subsurface contamination, the Environmental Scientist / Engineer will monitor the topsoil removal activities and if any topsoil contamination becomes evident during the removal process, GEJV will cease work in that area, follow the Unexpected Discovery of Contaminated Land Procedure (Annexure A) and seek further instruction from Roads and Maritime.

GEJV will till each topsoil lot with an excavator (in 100 mm depth increments) to allow the Environmental Scientist / Engineer to assess the topsoil composition prior to commencing topsoil removal or management or remedial measures. Deeper tynes will be used if necessary to enable the Environmental Scientist / Engineer to determine the presence or extent of any contamination.

The Environmental Scientist / Engineer will provide a contaminant clearance report for each topsoil lot not containing any contaminated material and a contamination report for each contaminated topsoil lot noting the nature of the contaminant and the method of treatment or disposal approved by Roads and Maritime.

Removal of topsoil or other material contaminated with asbestos / asbestos containing material (ACM) will be in accordance with the procedure outlined in the Asbestos Management Plan (Annexure B).

If on Site encapsulation of Asbestos Contaminated Material (ACM) is proposed it will be subject to the approval of Roads and Maritime. A Long Term Environmental Management
Plan (LTEMP) must be prepared for this purpose and consultation and concurrence must occur with relevant statutory authorities and agencies.

### 6.2 Areas of unexpected contamination

Where earthworks are required, there is potential to expose unexpected forms of contamination within the surface and subsurface. In such instances, action is required to mitigate potential contaminated soil/material encountered during excavation or Construction activities. If potentially contaminated material is encountered, the Unexpected Discovery of Contaminated Land Procedure (Annexure A) will be followed. Unexpected finds of material suspected or confirmed to be contaminated by asbestos / ACM will be managed in accordance with the Asbestos Management Plan (Annexure B). Works in the vicinity will be stopped or modified and will not recommence until the material has been analysed and management measures developed.

Where contamination of the Project site is encountered or is required to be managed, the GEJV, in consultation with contamination specialists, will develop site methodologies and risk controls in accordance with the relevant legislative requirements and guidelines. This will include, but not be limited, to:

- Work Health and Safety (WHS) requirements
- Community, agency and stakeholder notification, where required
- Identification of contamination extent
- Appropriate controls for on-site material management and/or off-site disposal
- Site validation.

### 6.3 Remediation Action Plan

A Remediation Action Plan will be developed in consultation with a contaminated land consultant and will be submitted to Roads and Maritime at least 5 working days prior to commencement of site remediation. The Remediation Action Plan will be prepared in accordance with EPA guidelines on contaminated land management, and will include the following:

- Testing requirements for any contaminated material prior to its disposal off site.
- Validation plan, which must include the area in the immediate vicinity of (both below and adjacent to) the known contamination.
- Implications of the validation results on the waste classification for material that may be excavated in the vicinity of the known contamination.

Note that an Asbestos Management Plan has been included at Annexure B as required by Roads and Maritime G36 cl 4.2.6.
### Table 6-1 Contaminated Land Measures

<table>
<thead>
<tr>
<th>ID</th>
<th>Mitigation Measure / Requirement</th>
<th>Implementation Stage</th>
<th>Responsibility</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL-4</td>
<td>Identify locations of known or potential contamination and prepare a map showing these locations.</td>
<td>Construction</td>
<td>GEJV ESR, Contaminated Site Assessment Specialist</td>
<td>OACEMP App. B8 Table 6-1 (SWC-10), G36 Cl 4.2.2</td>
</tr>
<tr>
<td>CL-5</td>
<td>Identify the rehabilitation, classification, transport and disposal requirements of any contaminated land within the Construction footprint.</td>
<td>Construction</td>
<td>Contaminated Site Assessment Specialist</td>
<td>OACEMP App. B8 Table 6-1 (SWC-10), G36 Cl 4.2.2</td>
</tr>
<tr>
<td>CL-6</td>
<td>Manage stockpiled potentially contaminated soil in accordance with the requirements of NSW EPA Waste Guidelines.</td>
<td>Construction</td>
<td>GEJV ESR, Supervisor, Engineers</td>
<td>OACEMP App. B8 Table 6-1 (SWC-10), G36 Cl 4.2.2</td>
</tr>
<tr>
<td>CL-7</td>
<td>Excavated material that is not suitable for on-site reuse or recycling would be transported to a site that may legally accept that material for reuse or disposal.</td>
<td>Construction</td>
<td>GEJV ESR, Supervisor, Engineers</td>
<td>OACEMP App. B8 Table 6-1 (SWC-10)</td>
</tr>
<tr>
<td>CL-8</td>
<td>Investigate moderate risk areas, including service stations (operational and non-operational), stockpiles and market gardens.</td>
<td>Pre - Construction</td>
<td>GEJV ESR, Contaminated Site Assessment Specialist</td>
<td>G36 Cl 4.2.2</td>
</tr>
<tr>
<td>CL-9</td>
<td>Develop contamination management measures including waste classification and reuse procedures and unexpected finds procedures for unanticipated discovery of contaminated material during Construction.</td>
<td>Pre - Construction</td>
<td>GEJV ESR, Contaminated Site Assessment Specialist</td>
<td>OACEMP App. B8 Table 6-1 (SWC-10), G36 Cl 4.2.2</td>
</tr>
<tr>
<td>CL-10</td>
<td>Notify Roads and Maritime of any suspected or potential contamination exposed during Construction activities, and cease all work activities within the vicinity of actual or suspected contaminated land. Roads and Maritime may at its discretion choose to take over the investigation and management of an unexpected contamination find, and directly appoint an EPA accredited contaminated site auditor.</td>
<td>Construction</td>
<td>GEJV ESR, Supervisor, Engineers</td>
<td>G36 Cl 4.2.3</td>
</tr>
<tr>
<td>ID</td>
<td>Mitigation Measure / Requirement</td>
<td>Implementation Stage</td>
<td>Responsibility</td>
<td>Reference</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-----------</td>
</tr>
</tbody>
</table>
| CL-11 | Where the contamination is known or an unexpected contamination find has been identified, a Remediation Action Plan may be provided by Roads and Maritime. If a Remedial Action Plan is not provided by Roads and Maritime, prepare a Remediation Action Plan for remediating the known areas of contamination or an unexpected contamination find, and areas of potential contamination in their immediate vicinity. The Remediation Action Plan must be prepared in accordance with EPA guidelines on contaminated land management, and must include the following:  
  a) testing requirements for any contaminated material prior to its disposal off site;  
  b) validation plan, which must include the area in the immediate vicinity of (both below and adjacent to) the known contamination;  
  c) implications of the validation results on the waste classification for material that may be excavated in the vicinity of the known contamination. | Construction          | GEJV ESR, Contaminated Site Assessment Specialist | G36 Cl 4.2.4 |
| CL-12 | Carry out a Stage 2 Site Contamination Assessment in accordance with the findings and recommendations of the Stage 1 contamination assessment carried out for the EIS and in accordance with the Contaminated Land Management Act Guidelines. Engage a consultant accredited by the EPA under the Contaminated Land Management Act to carry out the Stage 2 site contamination assessment. Monitor contamination during the Works Under the Contract, and revise the report if required. At least 6 weeks prior to completion, submit the final revision of the Stage 2 Contamination report to Roads and Maritime. | Construction          | GEJV ESR, Contaminated Site Assessment Specialist | G36 Cl 4.2.7 |
| CL-13 | Prior to disturbance or removal of the topsoil in any sub area, your Environmental Scientist / Engineer must inspect and document the presence or absence of visible contamination at the ground surface (including asbestos and asbestos containing material). He/she must also document the likelihood of contamination being present in the topsoil below the ground surface and the inspection or other data used to make that assessment. If asbestos or other contamination is visible or considered likely to be present, you must propose management or remediation measures for the contaminant(s) prior to disturbance or removal of the topsoil. | Before and during topsoil stripping | GEJV ESR, Environmental Scientist | RO44 Cl 2.3.2 |

**Asbestos handling**

<p>| CL-14 | An Unexpected Contaminated Land and Asbestos Finds Procedure must be prepared and must be followed should unexpected contaminated land or asbestos be excavated or otherwise discovered during Construction. | Pre-Construction | GEJV ESR | NSW-CoA E49 |</p>
<table>
<thead>
<tr>
<th>ID</th>
<th>Mitigation Measure / Requirement</th>
<th>Implementation Stage</th>
<th>Responsibility</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL-15</td>
<td>An Unexpected Contaminated Land and Asbestos Finds Procedure must be implemented throughout Construction.</td>
<td>Construction</td>
<td>GEJV ESR</td>
<td>NSW-CoA E50</td>
</tr>
<tr>
<td>CL-16</td>
<td>Asbestos handling and disposal requirements must be in accordance with NSW EPA guidelines.</td>
<td>Construction</td>
<td>GEJV ESR, Supervisor, Engineers</td>
<td>OACEMP App. B8 Table 6-1 (SWC-10), G36 Cl 4.2.2</td>
</tr>
<tr>
<td>CL-17</td>
<td>On Site encapsulation of Asbestos Contaminated Material (ACM) encountered on the site will be subject to the approval of Roads and Maritime. If you propose on site encapsulation of ACM, you must prepare a Long Term Environmental Management Plan (LTEMP) for this purpose and consult with and obtain the concurrence and applicable conditions from relevant statutory authorities and agencies. At least 4 weeks prior to on-site encapsulation of ACM, submit details of this consultation together with your LTEMP, to Roads and Maritime.</td>
<td>Only if on-site encapsulation of Asbestos is considered</td>
<td>GEJV ESR, Environmental Scientist</td>
<td>RO44 Cl 2.5.2.1</td>
</tr>
</tbody>
</table>

**CL-18** Prepare an Asbestos Management Sub-Plan (reviewed and approved by a suitably experienced and accredited Environmental Scientist/Engineer) as part of the CEMP (see Annexure B). The Asbestos Management Sub-Plan must be completed in accordance with relevant NSW EPA endorsed guidelines (including the waste guidelines) and relevant industry codes of practice and must include:

(i) Identification of potential asbestos on site, including advance work options to assess and manage or mitigate the risk prior to commencing other works;

(ii) Measures to remove visible asbestos containing materials prior to disturbance of soils;

(iii) Appropriate measures to characterise in situ soil and fill material for the presence of asbestos prior to and during ground disturbance activities in order to characterise existing ground conditions and minimise the volume of potentially asbestos impacted spoil requiring ongoing management and/or disposal;

(iv) Detailed material handling procedures designed to manage and handle any asbestos including adopting work practises that ensure asbestos is not mixed with non-asbestos materials;

(v) A draft Asbestos Removal Control Plan including a methodology for the identification and disposal of asbestos containing materials;

(vi) Procedures for disposal of asbestos in accordance with NSW EPA guidelines (including the NSW EPA (2014) Waste Classification Guidelines) and relevant industry codes of practice; and,

(vii) A methodology for confirming that earthworks materials are free of asbestos.

Odours arising from uncovered contaminated and/or hazardous materials
<table>
<thead>
<tr>
<th>ID</th>
<th>Mitigation Measure / Requirement</th>
<th>Implementation Stage</th>
<th>Responsibility</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL-19</td>
<td>Application of odour suppressing agents to materials as necessary to minimise related impacts should any contaminated or hazardous materials be uncovered during the works.</td>
<td>Construction</td>
<td>GEJV ESR, Site Engineer</td>
<td>OACEMP App. B8 Table 6-1 (AQ-5)</td>
</tr>
<tr>
<td></td>
<td><strong>Inappropriate handling and/or disposal of waste</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL-20</td>
<td>All wastes, including contaminated wastes, would be identified and classified in accordance with the <em>Waste Classification Guidelines: Part 1 Classifying Waste</em>.</td>
<td>Construction</td>
<td>GEJV ESR, Site Engineer</td>
<td>OACEMP App. B8 Table 6-1 (WR-3)</td>
</tr>
<tr>
<td>CL-21</td>
<td>Implement relevant control measures to divert any surface runoff away from the contaminated land, and capture and treat any surface runoff contaminated by exposure to the contaminated land.</td>
<td>Construction</td>
<td>GEJV ESR, Site Engineer Supervisor</td>
<td>G36 Cl 4.2.5</td>
</tr>
<tr>
<td></td>
<td><strong>Contamination from transportation of hazardous goods</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL-22</td>
<td>Transport all hazardous substances in accordance with relevant legislation and codes, including the <em>Road and Rail Transport (Dangerous Goods) (Road) Regulation 1998</em> and the 'Australian Code for the Transport of Dangerous Goods by Road and Rail' (National Transport Commission, 2008).</td>
<td>Construction</td>
<td>GEJV ESR, Site Engineer</td>
<td>OACEMP App. B8 Table 6-1 (HR-6)</td>
</tr>
</tbody>
</table>
7 Compliance Management

7.1 Roles and Responsibilities

GEJV’s Project Team organisational structure and overall roles and environmental responsibilities are outlined in Section 5.1 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 6 of this Plan.

7.1.1 Environmental Scientist

GEJV has engaged SNC Lavalin to provide the Project environmental scientist services.

7.1.2 Geotechnical Engineer

GEJV has engaged SMEC to provide the Project geotechnical services.

7.2 Communication

Roads and Maritime has prepared a Community Communication Strategy (CCS) to document the approach to stakeholder and community communications for the Project. The CCS identifies opportunities and tools for providing information and consulting with the community and stakeholders during the Construction of the Project. GEJV will support the delivery of the CCS, with specific measures outlined in the Construction Community Liaison Plan (Appendix B12 of the CEMP).

When contamination is identified or contamination removal activities are to occur in the vicinity of any occupied residence or business, GEJV’s Community Relations Manager will inform and engage with the affected resident/s or business owner/s and any other relevant stakeholders at the earliest possible stage, and continue this process until the contamination issue is finalised. Communication of encountered contamination on the Project will be consistent with the guidelines provided in schedule B (8) of the NEPM Guidelines for Community Consultation and Risk Communication and the CCS.

GEJV management will develop an appropriate communication strategy for contamination issues that require notification to the stakeholders, with the extent of the engagement dependent on the nature and impact of the contaminants, proximity of the community, extent of the risk (perceived or real) of the issue and stage of the assessment process. The communication strategy will include methods to proactively provide the community with the fullest possible explanation of known contamination and to provide regular updates on the progress of work to deal with the contamination. Communication techniques will include, but not be limited to, individual discussions with residents and business owners (via telephone, face-to-face meetings and doorknocking), Project website notices, and distribution of information bulletins and brochures to the affected area (refer CCS).

Where asbestos is encountered in locations within the Project area that are in close proximity and visible to the public, displayed signage and active monitoring of the site and Project boundary may be considered effective methods of mitigating the community’s concerns.

Further detail about the CCS is provided in Section 5.5.3 of the CEMP.
7.3 Complaints management

Roa has developed a Complaints Management System (CMS) to document the overall approach to complaints management for the Project. GEJV will adopt the requirements of the CMS, including reporting requirements. The CMS includes a Complaints Register which will record the details of all complaints relating to the Project.

Further detail about the CMS is provided in Section 5.5.3 of the CEMP.

7.4 Training

All employees, contractors and sub-contractors working on site will undergo site induction training relating to potential land contamination management issues prior to Construction commencing. The induction training will address elements related to contaminated land management including:

- Existence and requirements of this CCLMP
- Relevant legislation and regulations
- Environmental and occupational health and safety risks associated with contaminated materials
- Roles and responsibilities for contaminated land management
- Environmentally sensitive locations and no-go exclusion zones
- Signs of contaminated soil
- Visual asbestos identification protocols
- Incident response, management and reporting
- Location of identified potential contaminated land sites
- Environmentally sensitive locations and no-go/exclusion zones
- Complaints response and reporting
- Procedure to follow in the event of a contamination find during Construction works (refer to Annexure A)
- Procedure to follow in the event of uncovering asbestos during Construction works (refer to Annexure B).

If contamination is unexpectedly discovered onsite, all workers involved in the remediation or removal will receive a toolbox informing them of the Site specific controls required for remediation process including:

- Site access restrictions
- Correct use of PPE
- Decontamination procedures
- Use of monitoring equipment
- Waste handling procedures
- Water quality and leachate controls
- Dust control measures and performance measures
Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in contaminated land management or those undertaking an activity with a high risk of environmental impact. Site personnel will undergo refresher training at not less than six monthly intervals.

Daily pre-start meetings conducted by the Superintendent will inform the site workforce of any environmental issues relevant to contaminated land that could potentially be impacted by, or impact on, the day’s activities.

Further details regarding staff induction and training are outlined in Section 5.3 of the CEMP.

### 7.5 Monitoring, inspection and testing

A Construction Water, Soil and Contamination Monitoring Program has been prepared in accordance with NSW-CoA C9(c) and is provided in Annexure A of the CSWMP (Appendix B4 of the CEMP).

Monitoring for contaminated land will include, but not be limited to:

- Monitoring / testing of asbestos containing soil
- Sampling of excess soil material prior to removal of soil material from Construction sites in accordance with the Waste Classification Guidelines (EPA, 2014)
- Sampling of material during and at the completion of demolition works, prior to commencement of Construction at that site, in accordance with AS 2601 – 2001 The Demolition of Structures.
- Prior to disturbance or removal of the topsoil in any area monitoring/inspection of topsoil removal activities in accordance with Roads and Maritime Specification R44 (refer Annexure B).

Regular inspections of sensitive areas and activities with the potential to uncover contaminated land will occur for the duration of the Project. Informal daily visual monitoring of excavation activities will be carried out by the plant operators and supervisors for any signs of previously unidentified contamination for the duration of the Project. Contaminated land inspections will be undertaken as part of the weekly environmental inspections. Requirements and responsibilities in relation to monitoring and inspections are documented in Sections 8.1 and 8.2 of the CEMP.

Inspections to be carried out are outlined in Table 7-1.

<table>
<thead>
<tr>
<th>Table 7-1: Contaminated land inspections</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inspection</strong></td>
</tr>
<tr>
<td>Inspect all plant and equipment daily for leakages of fuel, oil or hydraulic fluid. Repair any leaks before using item of plant or</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Contamination management inspections (where contamination is found) | GEJV Environmental Site Representative | Weekly, as required
---|---|---
Inspection of managed bunded areas, erosion and sediment controls as part of the weekly environmental inspection | GEJV Environmental Site Representative, Roads and Maritime Environmental Manager (or delegate), Soil Conservationist, Roads and Maritime Soil Conservationist | Weekly
Assessment of suspected and potential contaminated sites | Construction Manager, GEJV or Roads and Maritime Contamination Specialist, Roads and Maritime Environmental Manager (or delegate) / Roads and Maritime Project Manager | As required

### 7.6 Incident Response

Response to incidents will be undertaken as described in Section 5.6 of the CEMP and in accordance with the Roads and Maritime Environmental Incident Classification and Reporting Procedure (refer to Appendix A7 of the CEMP).

A Pollution Incident Response Management Plan (CEMP - Appendix B11) has been developed to minimise the impact of spills including details on the requirements for managing, cleaning up and reporting.

### 7.7 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with the CCLMP, CoAs, environmental management measures and other relevant approvals, licenses and guidelines.

Audit requirements are detailed in Section 6.4 of the CEMP.

### 7.8 Non-conformances

A non-conformance is the failure or refusal to comply with the requirements of project system documentation, including this CCLMP. Any member of the GEJV Project team may raise a non-conformance or improvement opportunity.
Where a non-conformance is detected or monitoring results directly attributable to the Project exceed a target set in the Construction Water, Soil and Contamination Monitoring Program (refer to Annexure A of the CSWMP), the process described in the Monitoring Program and Section 6.6 and Appendix A9 of the CEMP will be implemented. GEJV’s Quality Plan describes the process for managing non-conforming work practices and initiating corrective / preventative actions or system improvements in accordance with the process outlined in Section 6.6.1 of the CEMP.

7.9 Reporting

Reporting requirements and responsibilities are documented in Section 6.5 of the CEMP and the Construction Water, Soil and Contamination Monitoring Program.

In the event that suspected contamination is uncovered during Construction of the Project, the following reporting will occur:

- In accordance with the Roads and Maritime Environmental Incident Classification and Reporting Procedure (Appendix A7 of the CEMP), the unexpected discovery of contaminated land is classed as a ‘Reportable Event’, as such finds of this nature will be reported to Roads and Maritime in accordance with the guidelines

- Where it is deemed that the contamination has been, or could have been caused or changed by, the operations of GEJV, the EPA will be notified in accordance with Section 60 of the CLM Act.

GEJV will report on contamination monitoring in accordance with the Construction Water, Soil and Contamination Monitoring Program (refer to Annexure A of the CSWMP)

GEJV will maintain accurate records substantiating all Construction activities associated with the Project or relevant to the conditions of approval, including measures taken to implement this CCLMP. Records will be made available to the DP&E and DoEE upon request, within the timeframe nominated in the request.
8 Review and improvement

8.1 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
- Identify environmental hazards/risks not previously included in the risk register
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances 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

GEJV is responsible for ensuring Project environmental risks are identified and included in the risk register and appropriate mitigation measures implemented throughout the Construction of the Project as part of the continuous improvement process. The process for ongoing risk identification and management during Construction is outlined in Section 4.3 of the CEMP.

8.2 Plan Update and Amendment

The processes described in Section 6.8 of the CEMP may result in the need to update or revise this Plan. This will occur as needed.

Any revisions to the CCLMP will be in accordance with the process outlined in Section 6.8 of the CEMP.

A copy of the updated CCLMP and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure - refer to Section 6.7.2 of the CEMP.
Annexure A
Unexpected Discovery of Contaminated Land Procedure
Unexpected Discovery of Contaminated Land Procedure

1 Introduction

1.1 Purpose

This Unexpected Discovery of Contaminated Land Procedure details the actions to be taken when potential contaminated soil/material is encountered during excavation/Construction activities. In the event that hazardous materials are discovered, this Procedure should be implemented.

This Procedure has been developed in accordance with best practice EPA contamination management guidelines and Roads and Maritime specifications.

1.2 Scope

This Procedure is applicable to all activities conducted by site personnel (including sub-contractors) on the Project that have the potential to uncover/encounter contaminated soil/material. This procedure is not applicable to the identification of soils suspected to be contaminated with plant pathogens.

1.3 Induction / training

Where required, all site personnel (including sub-contractors) will be inducted on the identification of potential contaminated soil/material along with the requirements of this Procedure during inductions and/or regular toolbox talks. Site personnel will be informed of the potential sources of contamination within the Project and indications of contamination in soil and groundwater, such as:

- Odour
- Discolouration/staining of soils
- Evidence of landfilling/discarded drums.

1.4 Roles and responsibilities

The GEJV Environmental Site Representative (ESR) will ensure that this Procedure is effectively implemented and all site personnel are aware of the requirements of this Procedure.

The Site Supervisor will be responsible for ensuring that in the event that contaminated land is discovered, site personnel are informed immediately and all work in the vicinity of the find ceases. The Site Supervisor will be advised of any required actions for the control of discovered contamination on site, such as implementation of exclusion zones and signage, and will be responsible for ensuring the actions are undertaken.
The Roads and Maritime Environmental Manager (or delegate) will liaise with the relevant authorities (such as EPA and a Contaminated Land Specialist) where required, and will approve the recommencement of works following any remediation undertaken.

1.5 Review

This Procedure will be updated throughout Construction of the Project to include any new identified sites of contamination, if required, and subsequent additional management measures. This Procedure will be reviewed annually, or as required in accordance with the continuous improvement process described in Section 8 of this CCLMP.

2 Procedure

The steps to be followed in the event that contaminated material is encountered during Construction are outlined below. Indicators of contamination in soils include:

- Discolouration of the soil, including staining and horizontal layers of discolouration
- Odours from soil
- Oily sheen on water leaving soils.

Step 1. Potential contaminated soil/material encountered during Construction activities

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

- **Cease work** in the immediate/affected area
- The Foreman will immediately notify the GEJV Environmental Site Representative (ESR). The ESR will notify the Roads and Maritime Environmental Manager (or delegate) and Environmental Representative (ER).
- Install environmental controls around the site to contain the contaminated material, including diversion of water to minimise potential spread via surface water runoff
- If it is determined that there is a risk of environmental harm from the potential contamination, the EPA will be notified immediately in accordance with the Roads and Maritime Environmental Incident and Classification Procedure (refer to Appendix A7 of the CEMP)
- Recommence works in an alternate area where practicable.

Step 2. Environmental management and work health safety management

Prior to any contamination investigation, management or remediation activities, appropriate Safe Work Method Statements (SWMS) and EWMS will be prepared for review and approval by the Roads and Maritime Environmental Manager (or delegate).

Personal Protective Equipment (PPE) will be worn as per the relevant Material Safety Data Sheet/s. This may include, but not be limited, to:
• Eye goggles
• Face mask
• Rubber boots
• Rubber gloves
• Work clothes (i.e. long sleeve shirt/pants and steel capped boots)
• Disposable overalls (if required)

Step 3. Undertake a site/area contamination investigation

The Roads and Maritime Environmental Manager (or delegate) will 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 will be classified in accordance with the Waste Classification Guidelines (EPA, 2014).

If necessary, the Roads and Maritime Environmental Manager (or delegate) will liaise with the relevant authorities to determine the appropriate management options.

The Roads and Maritime Environmental Manager (or delegate) (in consultation with specialists) will determine the appropriate management measures to be implemented. This may include leaving contamination undisturbed, capping of contamination, treatment or off-site disposal. Material to be disposed of off-site will be transferred to an appropriately licensed waste facility, as outlined in the CWEMP (refer to Appendix B7 of the CEMP).

If the material is determined to be acid sulfate soil (ASS) or potential acid sulfate soil (PASS), the management procedures outlined in the Acid Sulfate Soil Manual (Acid Sulfate Soil Management Advisory Committee, 1998) will be followed.

Step 4. Remedial action

Remedial actions will be incorporated into specific Remediation Action Plans (RAPs). RAPs will be prepared by a suitably qualified and experienced person and in accordance with all guidelines under the Contaminated Land Management Act (NSW).

RAPs will be verified by a Contaminated Land Specialist and submitted to the Roads and Maritime Environmental Manager (or delegate) for approval prior to commencement of remediation.

Relevant EWMS or SWMS will be reviewed and updated when required.

Step 5. Recomence works

Recommence works once remedial works have been implemented and sampling has validated that the remediation strategy has been successful. The Roads and Maritime Environmental Manager (or delegate) will grant approval for GEJV to recommence works.

3 Records
GEJV will maintain a register of any unexpected contamination finds, including a map of all contaminated and/or remediated sites. The register will be made available to the Roads and Maritime Environmental Manager (or delegate) on request for inclusion in Project Monthly Reports.
Annexure B
Asbestos Management Plan
1 Introduction

1.1 Purpose

This Asbestos Management Plan (AMP) has been prepared to document the procedure to be undertaken in the event that potential asbestos containing material (ACM) or actual asbestos is uncovered during Construction of the Project. Implementation of the AMP will ensure that asbestos is managed in such a way as to avoid harm to site personnel, visitors and the community.

Asbestos / ACM fragments that are remnant from previous activities may be scattered throughout the Project area or present in existing stockpiled material. Asbestos-contaminated ground may be encountered when undertaking excavation for roadworks and/or property adjustments at unknown locations. It may also be encountered during demolition works or removal of structures. Disturbance of ground and/or pits associated with utilities creates the potential for exposure to airborne asbestos fibres.

This AMP has been developed in accordance with relevant legislation, EPA-endorsed guidelines (including the waste guidelines), industry codes of practice, Roads and Maritime draft Asbestos Management Procedure (Coffey, 2018) and Roads and Maritime specifications.

1.2 Objectives

The key objectives of this AMP are to:

- Provide the procedure for assessment of asbestos / ACM in the Project area
- Maintain accurate records of the location of asbestos in an Asbestos Register
- Avoid or minimise asbestos-related risks by implementing environmental control measures
- Ensure control measures are effectively implemented
- Ensure asbestos removal is performed by a licensed asbestos removalist under the direction / recommendation of an accredited occupational hygienist.

1.3 Scope

Work involving, or likely to involve the disturbance of asbestos is considered a high risk Construction activity. Implementation of the AMP will be done in addition to EWMS and Safe Work Method Statements (SWMS) for the management of materials containing asbestos. EWMS and SWMS will be completed and reviewed by the Roads and Maritime Environmental Manager (or delegate) and ER prior to the commencement of activities to which they apply. EWMS and SWMS will support the implementation of this AMP.
1.4 Induction / training

All site personnel (including sub-contractors) will undertake an induction to ensure that they understand the types and location of ACM/potential ACM on site and control measures and safe work methods before they commence work. Site personnel will be adequately trained to recognise the health risks of asbestos, use of the Asbestos Register, processes and safe work procedures to be followed to prevent exposure and correct use of PPE.

Prior to commencement of each shift, or change in shift, the Construction Manager (CM) will inform all site personnel of any planned asbestos removal work on site.

A copy of the AMP will be kept at the Construction work site where the work is being carried out.

1.5 Roles and responsibilities

All site personnel are responsible for ensuring they are familiar with the Asbestos Register and the locations where asbestos / ACM is identified. Any suspected asbestos / ACM finds will be reported to the CM and the Environmental Scientist/Engineer.

Environmental Scientist/ Engineer

GEJV has engaged SNCLavalin to provide an Environmental Scientist/Engineer, who is appropriately degree qualified and has a minimum of five years’ experience in contaminated land, site assessment and remediation. The Environmental Scientist/Engineer will also have appropriate accreditation as an occupational hygienist.

The Environmental Scientist will be responsible for taking samples of suspected asbestos / ACM, arranging air monitoring and testing and engaging an asbestos removalist.

The Environmental Scientist/Engineer will be on site:
- during advance contamination assessments (refer Section 2 below)
- whenever topsoil operations are underway and
- at other times required within Roads and Maritime QA specification R44.

Removal of asbestos must be undertaken by the holder of a Class A or Class B Asbestos Removal Licence issued by WorkCover NSW, as required.

1.6 Review

The AMP will be updated throughout Construction of the Project to document the location of any asbestos / ACM discovered on site and any changes to Construction methodologies and subsequent additional management measures. The AMP will be reviewed annually, or as required in accordance with the continuous improvement process described in Section 8 of the CCLMP.

2 Topsoil Management

2.1 Advance contamination inspection
Prior to disturbance or removal of the topsoil in any area, the Environmental Scientist / Engineer will inspect and document the presence or absence of visible contamination at the ground surface (including asbestos and asbestos containing material) of the area in accordance with Roads and Maritime Specification R44. The Environmental Scientist / Engineer will also document the likelihood of contamination being present in the topsoil below the ground surface and the inspection or other data used to make that assessment. If asbestos or other contamination is visible or considered likely to be present, GEJV will propose management or remediation measures for the contaminant(s) prior to disturbance or removal of the topsoil. The Environmental Scientist / Engineer’s report and any proposals for management or remediation will be issued to Roads and Maritime as a Hold Point. Roads and Maritime will consider the documents and instruct GEJV regarding the methodology for topsoil removal.

2.2 Removal of topsoil

Following advance contamination investigation works detailed in Section 2.1, Roads and Maritime QA Specifications G36 and G38, the Environmental Scientist / Engineer will attend and inspect all topsoil removal works and provide ongoing advice regarding the appropriate management of topsoil that is considered likely to be contaminated, including by asbestos.

For areas with visible surface contamination or where subsurface contamination has been suspected, the Environmental Scientist / Engineer will monitor the methodology employed for topsoil removal and the management or remediation measures instructed by Roads and Maritime for their effectiveness. The Environmental Scientist / Engineer may recommend changes to the methodology and/or management or remediation measures, in which case GEJV will seek further instruction from Roads and Maritime.

For areas without visible surface contamination or suspected subsurface contamination, the Environmental Scientist / Engineer will monitor the topsoil removal activities and if any topsoil contamination becomes evident during the removal process, GEJV will cease work in that area, follow the Unexpected Finds Procedure (Section 3) and seek further instruction from Roads and Maritime.

Each topsoil lot will be tilled with an excavator (in 100 mm depth increments) to allow the Environmental Scientist / Engineer to assess the topsoil composition prior to commencing topsoil removal or management or remedial measures. Deeper tilling will be undertaken if necessary to enable the Environmental Scientist / Engineer to determine the presence or extent of any contamination.

The Environmental Scientist / Engineer will provide a contaminant clearance report for each topsoil lot not containing any contaminated material and a contamination report for each contaminated topsoil lot noting the nature of the contaminant and the method of treatment or disposal approved by Roads and Maritime.

Removal of topsoil or other material contaminated with asbestos / ACM will be in accordance with the procedure outlined in Section 3 of this Plan.

3 Unexpected asbestos / ACM find procedure

In the event that a person on site identifies or disturbs asbestos / ACM that is not already identified in the Asbestos Register, GEJV will follow all reporting and notification
requirements in the Roads and Maritime Environmental Incident Classification and Reporting Procedure, including notifying the ER. GEJV will also undertake the following actions:

1. Stop work in the area potentially impacted by ACM as soon as it is safe to do so and move to the upwind side of the area, or away from the area.

2. Assess the potential immediate risk to human health posed by the unexpected find and assess if evacuation is necessary.

3. Delineate an exclusion zone around the affected area using fencing and/or appropriate barriers and signage. Keeping soil damp will minimise the release of fibres to air.

4. Contact the Environmental Scientist / Engineer for advice and request a site visit to undertake a risk assessment of the unexpected find and determine what further assessment and/or remediation works are required.

5. Implement advice and validate outcomes are assessed by the Environmental Scientist / Engineer to be satisfactory. Document outcome, presenting recommendations to the Roads and Maritime Project Manager.

6. The Roads and Maritime Project Manager to confirm that works may resume in the affected area in consultation with the ER.

Note: Where a NSW EPA Accredited Site Auditor has been engaged, Roads and Maritime in consultation with the specialist Contaminated Land Consultant, will inform the Site Auditor of the unexpected find and proposed measures to remediate/manage risks from ACM. These measures should be endorsed by the Site Auditor before implementation.

The unexpected asbestos management procedure during Construction is summarised in the flow chart in Attachment 1.

Where small fragments of ACM or suspected ACM are found, and provided that:

- the total number of fragments is < 20, or
- the total surface area of the fragment/piece is < 1 m², or
- the fragments are spread over an area of < 10 m², and
- the fragments are non-friable and located on ground surface or within the topsoil layer

If the unexpected find meets the criteria above, the Environmental Scientist / Engineer will collect any fragments and place it in a 200 mm polythene bag for later disposal at an appropriate waste facility. A detailed visual inspection of the area will be carried out by the Environmental Scientist / Engineer, which will involve wet raking of the areas to a depth of 10 cm for any further fragments. If no further fragments are identified, works can continue.

If, during the visual inspection, the Environmental Scientist / Engineer determines that the criteria described above are exceeded, or if suspected asbestos / ACM continues to be identified during excavation works and/or if it is thought that any uncovered material might be considered asbestos containing and friable, works will cease and the Environmental Scientist / Engineer will assess the situation and determine an appropriate course of action in accordance with Section 4.
The Environmental Scientist / Engineer will remove samples of the material for testing at a NATA-accredited laboratory and will monitor airborne dust levels. Following testing, the Environmental Scientist / Engineer will determine and report:

- If the asbestos is non-friable or friable
- The extent of the contamination
- Options for the appropriate remediation of the area (Section 4)
- The requirement for a licenced asbestos removalist (Section 4)
- The requirement for health screening of workers on site.

4 Asbestos management principles

4.1 Risk control

Asbestos-contaminated material encountered during Construction of the Project will be identified, managed, encapsulated on site, or removed and disposed off-site at a licenced waste facility. GEJV will engage only appropriately licensed, accredited and insured asbestos removalists to handle, remove, encapsulate and/ or dispose of asbestos / ACM in accordance with legislation.

The following risk control methods for asbestos / ACM will be used during Construction:

- Removal and disposal of ACM
- Encapsulation of ACM
- Safe work practices, tools and equipment
- Personal Protective Equipment (PPE)
- Decontamination process.

4.2 Management of ACM

Factors that influence how ACM in soil is managed include:

- The form of the ACM and the likelihood that it will release fibres into the air
- The location, lateral extent and depth of ACM-impacts within the Project and
- The current and future uses of the Project, and whether these uses could affect the risk posed by ACM.

The presence of other contaminants may also affect the option selected to manage ACM. Where there is uncertainty in how to assess these factors, the Project Manager will seek advice from Roads and Maritime Environmental Manager (or delegate) or specialist Contaminated Land Consultant.

The checklists provided in Attachments 2 and 3 provide a method to evaluate the feasibility of source removal and encapsulation, and the selection of the most appropriate ACM management option.
4.3 Source removal and off-site disposal

Table 4-1 outlines the techniques which may be used to remove ACM in soil.

**Table 4-1: ACM removal techniques, applications and limitations**

<table>
<thead>
<tr>
<th>Removal Technique</th>
<th>Applicability and Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand Picking</td>
<td>• suitable for bonded ACM in near surface soils only (i.e. &lt;10 cm)</td>
</tr>
<tr>
<td></td>
<td>• raking may enhance removal, although only in sandy soils</td>
</tr>
<tr>
<td></td>
<td>• not applicable for friable asbestos</td>
</tr>
<tr>
<td></td>
<td>• less effective in areas of dense vegetation</td>
</tr>
<tr>
<td>Tilling</td>
<td>• mechanical tilling to turn over soil followed by hand picking</td>
</tr>
<tr>
<td></td>
<td>• suitable for bonded ACM in soils to approx. 30 cm in sandy soils</td>
</tr>
<tr>
<td></td>
<td>• not applicable for friable asbestos</td>
</tr>
<tr>
<td></td>
<td>• less effective in areas of dense vegetation, or clayey soils</td>
</tr>
<tr>
<td>Mechanical screening</td>
<td>• suitable for large volumes of soil impacted by Bonded ACM</td>
</tr>
<tr>
<td></td>
<td>• susceptible to generate fibres requiring effective dust/fibre control</td>
</tr>
<tr>
<td></td>
<td>• not applicable for friable asbestos</td>
</tr>
<tr>
<td>Mechanical excavation</td>
<td>• physical excavation of soil containing ACM where impact extends beneath surface soils</td>
</tr>
<tr>
<td></td>
<td>• generates larger volume of soil that requires further management (i.e. off-site disposal,</td>
</tr>
<tr>
<td></td>
<td>screening, spreading and handpicking/tilling)</td>
</tr>
</tbody>
</table>

The Environmental Scientist / Engineer will attend and monitor any asbestos / ACM removal works or remediation measures undertaken for treatment of asbestos / ACM on site.

GEJV will provide appropriate validation to demonstrate removal of ACM using the above techniques has been successful.

4.4 Signage

GEJV will install warning signs and labels to clearly identify asbestos affected areas and where asbestos related work is being carried out. Protective barricades will be installed to delineate the asbestos related area/s and restrict unauthorised persons from entering the asbestos removal work. Stockpiles will be covered and labelled.

Signage and barricades will stay in place until all licensed asbestos removal work is complete and a clearance certificate is provided.

4.5 Control of airborne asbestos

An asbestos removalist may use techniques to eliminate or minimise the generation of asbestos fibres if required. The techniques include wet spraying method, saturation and water injection method and the dry method (only used if the wet spray method is not suitable due to safety reasons). GEJV will follow any directions provided by the asbestos removalist.
4.6 Removal of asbestos / ACM

The Environmental Scientist / Engineer will determine if a licensed asbestos removalist will be required for removal works. A licensed asbestos removalist will be required for removal works where there is friable asbestos, or the contaminated area is greater than 10 m$^2$. There are two types of asbestos removal licences: Class A and Class B. The type of licence required depends on the type and quantity of asbestos or ACM to be removed, as outlined in Table 4-2.

Table 4-2: Asbestos removal licence classes

<table>
<thead>
<tr>
<th>Licence type</th>
<th>What asbestos can be removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>Can remove any amount or quantity of asbestos or ACM, including:</td>
</tr>
<tr>
<td></td>
<td>• any amount of friable asbestos or ACM</td>
</tr>
<tr>
<td></td>
<td>• any amount of asbestos-contaminated dust or debris (ACD)</td>
</tr>
<tr>
<td></td>
<td>• any amount of non-friable asbestos or ACM.</td>
</tr>
<tr>
<td>Class B</td>
<td>Can remove:</td>
</tr>
<tr>
<td></td>
<td>• any amount of non-friable asbestos or ACM</td>
</tr>
<tr>
<td></td>
<td>Note: A Class B licence is required for removal of more than 10 m$^2$ of non-friable asbestos or ACM but the licence holder can also remove up to 10 m$^2$ of non-friable asbestos or ACM.</td>
</tr>
<tr>
<td></td>
<td>• ACD associated with the removal of non-friable asbestos or ACM</td>
</tr>
<tr>
<td></td>
<td>Note: A Class B licence is required for removal of ACD associated with the removal of more than 10 m$^2$ of non-friable asbestos or ACM but the licence holder can also remove ACD associated with removal of up to 10 m$^2$ of non-friable asbestos or ACM.</td>
</tr>
<tr>
<td>No licence required</td>
<td>Can remove:</td>
</tr>
<tr>
<td></td>
<td>• up to 10 m$^2$ of non-friable asbestos or ACM</td>
</tr>
<tr>
<td></td>
<td>• ACD that is:</td>
</tr>
<tr>
<td></td>
<td>- associated with the removal of less than 10 m$^2$ of non-friable asbestos or ACM</td>
</tr>
<tr>
<td></td>
<td>- not associated with the removal of friable or non-friable asbestos and is only a minor contamination.</td>
</tr>
</tbody>
</table>

The licensed asbestos removalist will prepare an Asbestos Removal Control Plan prior to the removal of any asbestos / ACM. The Asbestos Removal Control Plan documents the specific control measures to be implemented to ensure site personnel and others are not at risk when asbestos removal work is being conducted. It includes how the asbestos removal will be carried out, including the method, tools, equipment and PPE to be used and the asbestos / ACM to be removed, including the location, type and condition of the asbestos / ACM.

The Roads and Maritime Environmental Manager (or delegate) and Roads and Maritime Project Manager will be informed prior to excavation or removal of asbestos or ACM. If the removal activity is to occur in the vicinity of any occupied residence or business, GEJV's Community Relations Manager will notify the affected resident/s or business owner/s in accordance with the Community Communication Strategy.
4.7 Clearance

Following removal of asbestos / ACM, the licensed asbestos removalist will arrange for a clearance inspection of the area to facilitate the issue of a clearance certificate and allow Construction to recommence in the affected area. The clearance inspection is conducted by:

- an independent licensed asbestos assessor, for work that was carried out by a Class A licensed asbestos removalist
- an independent competent person, for asbestos work that is not required to be carried out by a Class A licensed asbestos removalist

To be independent, the licensed asbestos assessor must not be involved in the removal of asbestos for that specific job and is not involved in a business or undertaking involved in the removal of the asbestos for that specific job.

A clearance certificate will be issued if the independent licensed asbestos assessor or competent person is satisfied that the asbestos removal area and the immediate area are free from visible asbestos contamination. Entry to the area will be permitted following confirmation of certification.

4.8 Disposal

The Asbestos Removal Control Plan prepared by the licensed asbestos removalist will include a waste disposal program that will detail the method of transport and location of disposal of asbestos / ACM removed from site and any other asbestos waste.

The licensed asbestos removalist will dispose of any asbestos waste at a licensed asbestos waste disposal site in accordance with NSW EPA guidelines (including Waste Classification Guidelines (EPA, 2014)) and relevant industry codes of practice. Disposal of ACM will be to an approved asbestos waste facility listed on the NSW EPA website (https://www.epa.nsw.gov.au/your-environment/household-building-and-renovation/dealing-with-household-asbestos/facilities-accept-household-asbestos). GEJV will notify the Roads and Maritime Environmental Manager (or delegate) and Roads and Maritime Project Manager at least 24 hours prior to removal of ACM from site and will provide details of the proposed method and location of disposal.

GEJV will maintain records of all asbestos / ACM disposed off site, the location of the facility at which it was disposed, and any receipt/certificate issued by the facility/disposal authority.

4.9 Decontamination

Decontamination of site personnel, PPE and tools used in asbestos removal work will minimise exposure and spread of asbestos outside of the removal area.

Personal decontamination will occur every time a worker leaves the asbestos removal work area and involves removal of all visible asbestos dust/residue from PPE and Respiratory. Protective Equipment using an asbestos vacuum cleaner and /or wet wiping with a damp cloth. Disposable PPE is considered asbestos waste and will be disposed of at an appropriate waste facility. Non-disposable protective clothing will be laundered in a suitable laundering facility that is equipped to launder asbestos-contaminated clothing.
Workers must be aware of personal hygiene and ensure that they carefully wash when leaving an asbestos removal area, paying particular attention to hands, fingernails, face and head. Tools will be dismantled (where appropriate), cleaned under controlled conditions and decontaminated prior to removal from the area, or disposed of at a suitable off site location.

### 4.10 Encapsulation

Encapsulation involves the placement of a cover layer over ACM-impacted soil to isolate this material so that it cannot be readily disturbed and release fibres. The cover layer may comprise soils, road or pavement construction materials of a specified form and thickness.

Encapsulation of ACM within the earthworks formation on site minimises the need to dispose of the material off site. Encapsulation of ACM on site will be determined by a Geotechnical Engineer and Environmental Scientist / Engineer in accordance with the requirements of Roads and Maritime Specification R44, NSW-CoA E47 and Federal CoA-7 and 8.

Non-woven geotextiles are used to separate ACM-impacted material from the clean materials used to construct the cover layer. Geotextile materials should be of a high visibility colour to provide a warning of underlying ACM contamination. The geotextile selected may also need other properties, depending on its application (e.g. increased tensile strength, permeability, chemically inert etc.).

The following will be considered for the location and method of encapsulation on the Project:

- Under pavement or above ground method of encapsulation
- Preferred placement will be below large fill embankments
- Nature of material with ACM e.g. topsoil, general fill, mixed with other materials (asphalt, concrete) affecting suitability for reuse under pavement
- Encapsulated ACM will be located to:
  - be at a depth of emplacement to minimise risk of pavement failures and impact on underground utilities
  - be in an area free of drainage structures and utilities which will require maintenance
  - be in an area off line to the critical path of road Construction
  - be where excavation can be undertaken relatively easily
  - allow easy access for maintenance, inspection and revegetation work
  - avoid additional clearing or impact on threatened species or EECs
  - minimise flood risk
  - not impact on groundwater sources
  - be removed from sensitive receivers.

Prior to on site encapsulation of ACM, the Geotechnical Engineer and Environmental Scientist / Engineer, in consultation with relevant statutory authorities and agencies, will prepare a Long Term Environmental Management Plan (LTEMP) for the encapsulation. GEJV will submit the LTEMP, including details of consultation undertaken during its
development and copies of any applicable statutory documentation, to the Roads and Maritime Environmental Manager (or delegate) for approval at least four weeks prior to on site encapsulation of ACM. The Roads and Maritime Environmental Manager (or delegate) will assess the proposed encapsulation plan for consistency with Roads and Maritime specifications and other requirements.

The LTEMP should include:

- A summary of the encapsulation arrangement, including the survey recording the location, lateral extent and depth of ACM encapsulated, the form of ACM present and thickness and form of the cover layer
- A regime to conduct periodic inspections of the cover layer to check it remains effective
- Guidance for workers conducting subsurface works that encroach or overlap the area where ACM has been encapsulated including measures to prevent exposure during the works and requirements to reinstate the cover layer at the completion of the works
- Notation on Section 149 Planning Certificate indicating the site is the subject of an LTEMP
- Arrangements to disseminate the LTEMP to Roads and Maritime Stakeholders (e.g. a record added to Roads and Maritime Asset Log system, Dial Before You Dig records etc.).

5 Monitoring, reporting and records

5.1 Monitoring

The Environmental Scientist / Engineer may recommend that, as a precaution during asbestos removal works, continuous asbestos fibre monitoring be carried out at the perimeter of the area, and if deemed necessary, personal exposure asbestos fibre air monitoring for workers in area. Monitoring will be undertaken daily in accordance with Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC: 3003(2005)] (National Occupational Health and Safety Commission, 2005) and How to Safely Remove Asbestos Code of Practice (Safe Work Australia, 2011).

5.2 Reporting

Reporting will be carried out in accordance with the requirements of the Asbestos Management Plan.

Any asbestos finds will be reported by the Environmental Scientist / Engineer to the Roads and Maritime Environment Manager (or delegate) and the EPA in accordance with the Environmental Incident Classification and Reporting Procedure (refer Appendix A7 of the CEMP).

5. Asbestos register

GEJV will maintain an Asbestos Register that documents all identified or potential asbestos-containing material in the Project area. The Asbestos Register will contain the following information:

- Identification of any potential or asbestos-containing material
• Location, type and condition of the asbestos-containing material
• Date when the asbestos was identified
• Labelling of the asbestos
• Maps, photographs or diagrams detailing the location of the asbestos within the Project area.

The Asbestos Register will be made available to the Roads and Maritime Environmental Manager on request for inclusion in Project Monthly Reports.