

# Victorian Desalination Project



## D&C Utilities Environmental Management Plan Attachment I7 – Soil Management Sub Plan

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### Definitions and Acronyms

The following Definitions and Acronyms are used in this document:

ASS	Acid Sulfate Soils
CWMS	Construction Work Method Statements
D&C	Design and Construct Phase of the VDP
DEWHA	Department of the Environment, Water, Heritage and the Arts
DSE	Department of Sustainability and Environment
DPI	Department of Primary Industries
EES	Environment Effects Statement
EIRP	Environmental Incident Response Plan
EMP	Environmental Management Plan
EPA	Victorian Environment Protection Authority
EP Act	<i>Environment Protection Act 1970</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
IWMP	Industrial Waste Management Policy
JHA	Job Hazard Analysis
JSEA	Job Safety and Environmental Analysis
NEPM	National Environment Protection Measure
O&M	Operation and Maintenance Phase of the VDP
OHS	Occupational Health and Safety
PASS	Potential Acid Sulfate Soils
Performance Criteria	The Performance Criteria outline the overarching requirements based on the environmental objective for each Subject Area of Schedule A of Appendix S3 of the Project Scope and Project Requirements
Plant site	Victorian Desalination Project Wonthaggi Plant site
Pollution of Land (as defined in s.45, <i>Environment Protection Act 1970</i> )	<p>A person shall not pollute land so that the condition of the land is so changed as to make or be reasonably expected to make the land or the produce of the land—</p> <ul style="list-style-type: none"> <li>(a) noxious or poisonous;</li> <li>(b) harmful or potentially harmful to the health or welfare of human beings;</li> <li>(c) poisonous, harmful or potentially harmful to animals, birds or wildlife;</li> <li>(d) poisonous, harmful or potentially harmful to plants or vegetation;</li> <li>(e) obnoxious or unduly offensive to the senses of human beings; or</li> </ul>



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	(f) detrimental to any beneficial use made of the land.
PR	Performance Requirements
PS&PR	Project Scope and Project Requirements
ROW	Construction Right of Way is the approved easement through the VDP Utilities Corridor
SEP	Site Environmental Plans
SEPP	State Environment Protection Policy
Spoil	Excavated material (soil or rock)
The State	The Honourable Timothy James Holding, MP, in his capacity as the Minister for Water of the State of Victoria for and on behalf of the Crown in the Right of the State of Victoria
TDJV	Thiess Degremont Joint Venture
Utilities corridor	Construction footprint of the Victoria Desalination Project transfer pipeline, power supply and associated utilities
VENM	Virgin Excavated Natural Material
VDP	Victorian Desalination Project
VDP Utilities	Collective term used to refer to the power supply, transfer pipeline and communications components of the VDP including compensations reaction stations, surge vessels and the booster pump station. Refer to Section 1.4 of the Utilities Area EMP for further description of these utilities.
WAP	Work Area Packages
WASS	Waste Acid Sulfate Soils
WP	Work Packs



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### **1 Purpose and scope**

This Soil Management Sub Plan describes the existing soil conditions and the management measures required to mitigate the potential negative impacts and issues arising from contaminated soils and spoil generation from the design and construction (D&C) of the Victorian Desalination Project (VDP) transfer pipeline and power supply (collectively referred to as the utilities corridor).

This sub plan must be read in conjunction with the Environmental Management System (EMS) Manual, D&C Environmental Management Plan (D&C EMP) and the D&C Utilities Area EMP. This sub plan forms an attachment to the D&C Utilities Area EMP and addresses requirements listed in the Environmental Compliance Tracker (TDV-0-EV-RP-0001-01), including licence conditions, Performance Requirements (PRs), Performance Criteria (PC) and other obligations which may influence soil management.

Specific management measures from this and other environmental sub plans have been incorporated into Work Area Packages (WAP) and Work Packs (WP) which include Construction Work Method Statements (CWMS), Site Environmental Plans (SEP) and Job Safety and Environmental Analysis (JSEA's) where applicable.

While both contaminated and non-contaminated spoil management is addressed in this sub plan, the latter is also referenced in the Water Quality and Erosion Management Sub Plan (topsoil protection and erosion management) and the Site Rehabilitation and Reinstatement Sub Plan (topsoil segregation and reinstatement).

Acid Sulfate Soil (ASS) management is dealt with separately from Soil Management in the Acid Sulfate Soil Sub Plan.

The following sub-plans will be implemented in conjunction with this plan:

- ~ Water Quality and Erosion Sub Plan
- ~ Flora and Fauna Sub Plan
- ~ Site Reinstatement and Rehabilitation Sub Plan
- ~ Resource Efficiency Sub Plan
- ~ Access and Activities on Agricultural and Grazing Land Sub Plan

### **2 Objectives and Targets**

The objective of this sub plan is to ensure there are no health risks or loss of amenity due to exposure of contaminated soil or generation of spoil to the environment during construction and to ensure project objectives, targets and obligations, including PRs and associated criteria, are met.

Table 1 outlines the relevant soil management objectives and targets nominated to be achieved during the D&C phase of the VDP utilities corridor. Numbered entries are applicable PRs taken from Schedule A of Appendix S3 of the Project Deed. Non-numbered entries in Table 1 have been identified through earlier rounds of agency consultation.

**Table 1: Environmental objectives, targets and performance requirements**

Issue	Objective/Performance Criteria	Target/Performance Requirement
Contaminated Land	<p><b>Protect beneficial uses of land</b></p> <p>Manage and remediate contaminated soils <b>(PR#18118) D, C.</b></p> <p>Comply with the State Environment Protection Policy (Prevention and Management of Contamination of Land) <b>(PR#18118) D, C.</b></p> <p>Protect human health and ecosystems from exposure <b>(PR#18118) D, C.</b></p>	<p>Assess any contamination in accordance with the National Environment Protection (Assessment of Site Contamination) Measure, NEPC 1999 and other relevant guidelines <b>(PR#18120) C.</b></p> <p>Identify any contaminated land within the plant site area and assess the potential for long term impacts <b>(PR#18121) D, C.</b></p> <p>Detail the methodology for any soil removal, assessment, reuse and management <b>(PR#18122) C.</b></p> <p>Manage decontamination of any buildings being demolished or areas within the plant site in which pre-existing land, water or ground contamination is identified or exposed <b>(PR#18123) C.</b></p> <p>Identify procedures to manage contaminated soil and buildings during the construction works, including during building demolishing <b>(PR#18124) C.</b></p> <p>Develop and implement methods and management systems that seek to protect human health and the environment <b>(PR#18125) C.</b></p>
	Identify and test likely areas of contaminated land prior to commencement of works.	<p>Areas likely to possess contaminated land such as railways, unlicensed tips or agricultural dips are identified and tested prior to construction.</p> <p>Assess any contamination in accordance with the National Environment Protection (Assessment of Site Contamination) Measure, NEPC 1999 and other relevant guidelines.</p>
	Manage decontamination of any buildings being demolished or sites in which pre-existing land, water or ground contamination is identified or exposed.	<p>Assess any buildings being demolished for asbestos or other contamination.</p> <p>Any asbestos, other hazardous materials or contaminated soils are disposed of at a licensed disposal facility and in accordance with EPA guidelines referred to in this Sub Plan.</p>
	Identify procedures to manage contaminated soil and buildings during the construction works, including during building demolishing.	Areas likely to possess contaminated land such as railways, unlicensed tips or agricultural dips are identified and tested prior to construction.

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Issue	Objective/Performance Criteria	Target/Performance Requirement
	Develop and implement methods and management systems that seek to protect human health and the environment. in relation to exposure to contaminated soil	Implementation of this sub plan and the supplementary Spoil Management Plan (PLV-3-CN-PR-0002)
Spoil Management	Minimise materials excavated and maximise reuse - <b>C</b> .	Remove only soil required as per construction requirements - <b>C</b> . Reuse spoil onsite or offsite where possible - <b>C</b> .

D = Design phase requirement; C= Construct phase requirement

All PRs from Project Deed Schedule A of Appendix S3 are contained within the D&C Utilities Attachment G – Environmental Obligations Register. The Environmental Compliance Tracker tracks conformance with these PRs and is updated regularly by the TDJV Environmental Coordinator and Area Environmental Managers.

### 3 Legal, Regulatory, License, Permits and Approvals Requirements

This sub plan has been developed in accordance with the following legislation:

- ~ *Environment Protection Act 1970*
  - o Environmental Protection (Industrial Waste Resources) Regulation 2009
  - o SEPP (Prevention and Management of Contaminated Land)
- ~ *Plant Health and Plant Products Act 1995* and the Plant Health and Plant Products Regulations 2006
- ~ National Environment Protection (Assessment of Site Contamination) Measure, 1999
- ~ Occupational Health and Safety (Asbestos) Regulation 2003

The legislative and contractual requirements for the D & C utilities works are summarised in:

- ~ D&C Utilities Area EMP – Attachment E – Environmental Legislation Register
- ~ D&C Utilities Area EMP – Attachment F – Environmental Licence, Permit and Approval Register
- ~ D&C Utilities Area EMP – Attachment G – Environmental Obligations Register.

The applicable PRs from Project Deed Schedule A of Appendix S3 are provided in Table 1.

Under the Project Deed the D&C EMP, all sub plans and any changes to these must be endorsed by the State, who may refer aspects to relevant agencies.

The EPA and any other relevant agencies and stakeholders will be consulted with regard to any specific approval requirements in relation to this sub plan. The requirements of any permits, licence and approvals obtained will be placed in the Environmental Licence, Permit and Approval Register on receipt and updated in the Environmental Compliance Tracker.

## 4 Existing conditions and issues

### 4.1 Investigation and Assessment of Contaminated land

The utilities corridor runs through a predominately agricultural area and larger sized rural residential holdings. The land is largely non-contaminated although there are potential sources of contaminated land associated with landuse including historical railway lines, pastoral land and grazing, crops and orchards, and an unlicensed landfill waste disposal site (see Table 2). A review of the potential for contamination associated with these uses was considered low (TDJV Utilities Environmental Risk Register – Attachment C). However site personnel should be aware of the potential contamination sources.

**Table 2: Utilities Corridor – potential contamination sources**

Issue	Potential contamination sources
Death pit	The death of livestock within farming enterprises, consequently results in many large animals being buried quickly and usually on the immediate property. Therefore, it is possible that death pits may be encountered during the construction phase. If encountered during construction, these pits may present a risk to human health and the surrounding environment.
Livestock dip	Historically livestock were dipped in pits containing chemical drench waters to rid the animals of disease and parasites. Subsequently, these areas have been potentially contaminated with organo-chlorinated chemicals such as DDT and other pesticides.  Abandoned livestock dips a typically located or discovered near existing stockyards, shearing sheds or disused pens.
Fuel storage area	On farming properties, fuel is regularly stored in Above Ground or Underground Storage Tanks (ASTs/USTs). These tanks may leak and contaminate the topsoil, subsoil and groundwater and potentially impact sensitive receptors such as waterways.
Farm chemical storage	On most farms and working properties, storage of chemicals such as lubricants, pesticides, fertilisers, paints and solvents may occur on a small scale. These chemicals are potentially hazardous and have the ability to cause potential contamination to soil and groundwater. The storage of these chemicals is unlikely to be in accordance with EPA guidelines and are unlikely to include safety labelling, bunding or appropriate spill kits.
Buried waste	On many properties, especially on lands affected by gully erosion, rubbish and bulk items are commonly discarded in gullies. Rubbish such as vehicles, drums, tanks and building materials are dumped into gullies to limit the velocity of running waters and slow down soil loss due to erosion. Dumped or buried waste may include contaminates and hazardous substances such as pesticide drums, old batteries, oils.
Asbestos	Asbestos is considered a hazardous material. Asbestos was used in a number of building products and in vehicle brakes, heat shielding, electrical equipment, such as lagging on pipes and many other



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Issue	Potential contamination sources
Railway crossings	<p>applications.</p> <p>Railway crossing are often considered contaminated areas due to the asbestos used in the train brakes and the fuel and oil that can accumulate in these areas due to leaks and train repairs.</p>
Hydrocarbon and other chemical spill	<p>Hydrocarbon (oil and fuel) spills often occur on construction sites and can have significant environmental and economic impacts.</p>

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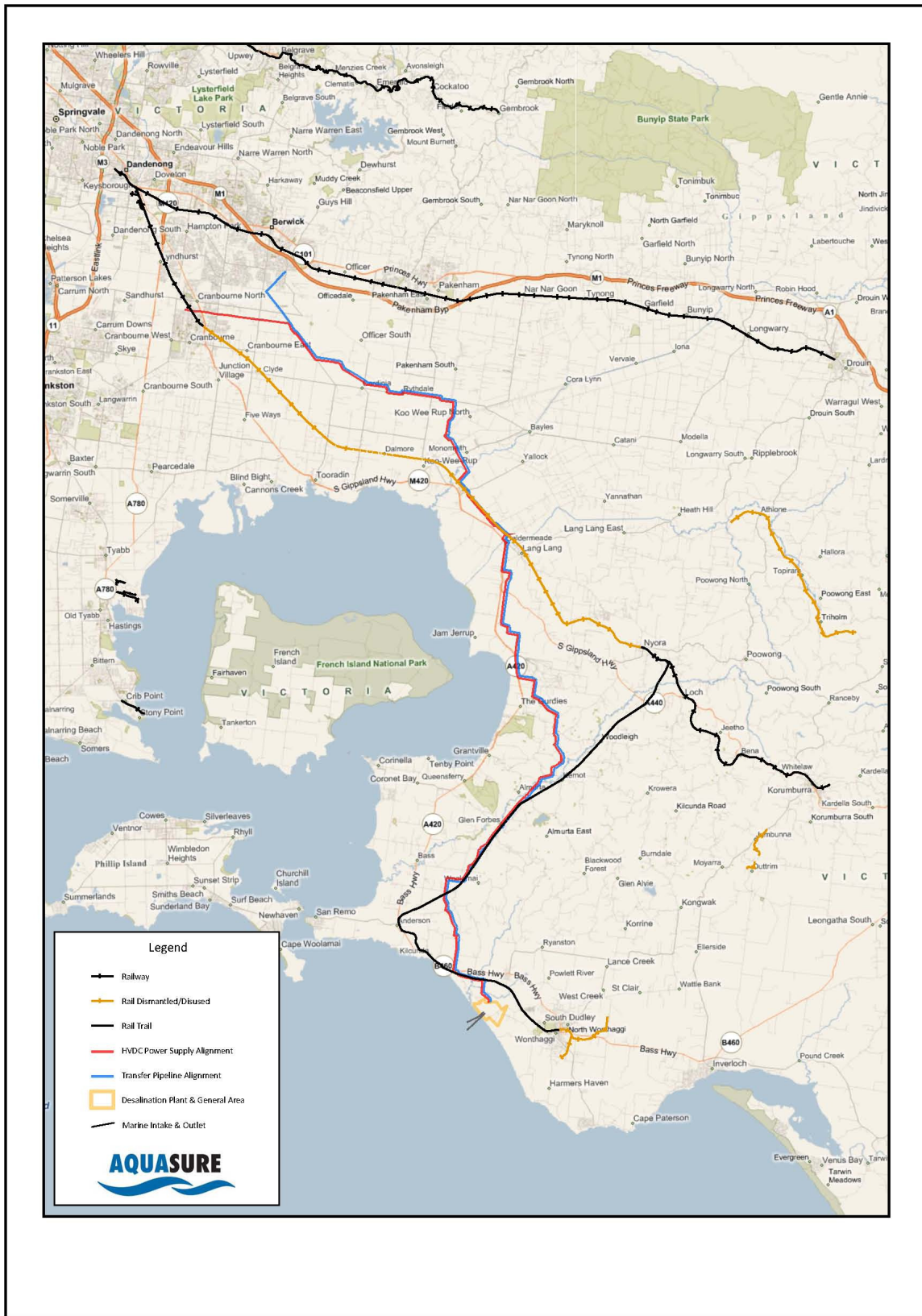


Figure 1: Potential contamination sources – disused railway



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Information for this chapter is based on findings of the EES including:

GHD (2008) Victorian Desalination Project Geotechnical Factual report – Transfer Pipeline.

GHD (2008) Land Contamination Existing Conditions and Impact Assessment – Transfer Pipeline (EES Technical Appendix 59).

Rosengren, N. and Boyd, C. (2008) Transfer Pipeline, Existing conditions – geology, geomorphology and acid sulfate soils (EES Technical Appendix 60)

Rosengren, N. and Boyd, C. (2008) Transfer Pipeline, Impact and risk assessment – geology, geomorphology and acid sulfate soils (EES Technical Appendix 61).

### 4.2 Spoil generation

Spoil generated by the construction of the transfer pipeline and power supply will originate from general earthworks, trenching and pipe jacking operations. It is estimated that in the order of 7,500m<sup>3</sup> of surplus spoil will be generated for every kilometre of transfer pipe laid (approximately 815,000 t of surplus spoil for the project). Installation of the underground power supply will also generate in order of 500m<sup>3</sup> of surplus spoil will be generated for every kilometre of power cable laid.

The project will not agree to any landowner or land occupier request to leave stockpiles of soil from Project Activities within the Project Area or on other land without first obtaining the consent of the relevant catchment management authority and the relevant Water Authority and notification to the local Council.

## 5 Environmental risk

An environmental risk assessment has been carried out for the D & C Utilities works. This assessment is contained in the Environmental Risk Register, Attachment C of the D&C Utilities EMP. Table 3 summarises the potential hazards from project activities, potential impacts of these hazards and the risk of occurrence as rated by the environmental risk assessment.

**Table 3: Summary of utilities area risk assessment for Soil Management**

Activity posing hazard	Risk/ Potential Impact	Inherent Risk (before controls)	Control Measure Reference (Att I07.1)
Excavation, transfer of material and movement of stockpiles and soils	Impact to human health and habitat.  Contaminated materials not handled in accordance with NEPM and EPA guidelines. Possible inappropriate disposal or further contamination of soils / waterways	High	#1-4, 7-8, 11-18
Clearing of ROW including removal of vegetation and topsoil which uncovers contaminated materials	Impact to human health and habitat	High	#3, 8
Clearing of ROW including removal of vegetation and topsoil which uncovers contaminated materials	Contaminated materials not handled in accordance with NEPM and EPA guidelines. Possible inappropriate disposal or further contamination of	High	#1-4, 7-8, 11-18

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	soils / waterways		
Removal of access roads , replacement of topsoil, planting of vegetation	Contaminated materials not handled in accordance with NEPM and EPA guidelines. Possible inappropriate disposal or further contamination of soils / waterways	High	#1-4, 7-8, 11-18
Unexpected discovery of suspected contaminated soil or groundwater.	Localised harm to soil and local water quality	High	#3, 8
Unexpected discovery of acid sulfate soil or rock during construction	Localised harm to soil and local water quality	High	#3, refer to ASS Sub Plan
Accidental disposal of ASS/PASS soils resulting in contamination of unaffected areas *	Impact to aquatic species from leachate	Extreme	Refer to ASS Sub Plan
Inappropriate fill materials used in trenching and excavation activities	Localised harm to soil and local water quality	Moderate	#19

\* Dealt with in the Acid Sulfate Soils Sub Plan.

Attachment C of the D&C Utilities Area EMP should be consulted for a comprehensive assessment of these risks.

The following risks from project activities have been identified elsewhere in the risk assessment as potentially impacting on soil management. They are addressed directly in other sub plans as follows:

- ~ Chemical spills resulting in contamination of soil or waterways (see Hazardous Materials Sub Plan)
- ~ Project personnel health as a result of disturbance of and exposure to contaminated soil including asbestos (see Resource Efficiency Sub Plan)
- ~ Spread of agricultural or horticultural pests or diseases including BJH, Phytophthora or PCN through exposure of disturbance of and exposure to contaminated soil potentially resulting in loss of agricultural productivity (PCN and BJH), spread of declared disease (PCN) to new areas, dieback of native vegetation and remnant native vegetation communities (see Access & Activities on Agricultural & Grazing Land Sub Plan).
- ~ Proliferation of weeds in disturbed areas potentially resulting in an increase density of weeds on agricultural properties or in remnant vegetation and fauna habitats (see Flora and Fauna Sub Plan).

The sections below provide further information on the major environmental risks relating to soil management.

## 5.1 Contaminated Land

Based on land use activities, the potential for contaminants to be encountered along the utilities corridor is low. There have been no known significant historic land uses along the alignment that would give rise to significant contamination.

The key risks applicable to contaminated land during the construction of the utilities corridor are:

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- ~ Impact to human health as a result of disturbance of and exposure to contaminated soil including asbestos
- ~ Impacts to flora and fauna habitat and waterways as a result of disturbance of and exposure to contaminated soil or leachate from contaminated soil
- ~ Contaminated materials not handled in accordance with NEPM and EPA guidelines. Possible inappropriate disposal or further contamination of soils / waterways
- ~ Chemical spills resulting in contamination of soil or waterways.

### 5.2 Spoil generation

Spoil generated from excavation activities in the utilities corridor requires appropriate transport and disposal. These activities introduce risks detailed in other sub plans such as erosion and sedimentation of waterways (see Water Quality and Erosion Management), dust (see Air Quality) and transfer of pests, diseases and weeds as discussed in section 5 above.

A Spoil Management Plan (PLV-3-CN-PR-0002) has been developed detailing the management and disposal of excess spoil including:

- ~ Disposal of spoil to the Booster Pump Station and Southern Compensation for landscape requirements
- ~ Disposal of spoil to existing local quarries
- ~ Disposal of spoil to landfills where cover material is required
- ~ Disposal of spoil to approved contaminated waste disposal sites where contaminated waste is identified (including Acid Sulfate Soils).

### 5.3 Acid Sulfate Soils

The management of Acid Sulfate Soils, including the identification, handling, treatment and disposal is the subject of the Acid Sulfate Soil Management Plan (ASSMP), TDV-0-EV-SB-0012.112-00).

## 6 Control, Management and Mitigation Measures

Attachment I7.1 describes a range of mitigation and control measures to be used to minimise and manage contaminated soil and spoil.

The measures in Attachment I7.1 are designed to address potential impacts from the risks outlined in Section 5 as well as deliver on the objectives, targets and in particular the PRs listed in Section 2. They include requirements and responsibilities for design, construction, evaluating performance and reporting.

Attachment I7.1 also references Design Packages (DPs) in design-related control measures. PRs that relate to design are addressed in accordance with the Design Management Plan (PL-TDV-PM-0-X-000-0011-0-00).

## 7 Site environmental plans

Site Environmental Plans (SEPs) have been developed for the utilities corridor that detail environmental sensitive areas and general management measures implemented to minimise potential impacts of construction activity on the environment and community.



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The information contained in the SEPs is presented in pictorial and tabular drawing format. This is to make them easy to use by all site personnel, consultants and subcontractors. SEPs are updated to reflect operating practices on a regular basis.

The soil management controls set out in the SEPs are drawn from this sub plan. Additional practical management measures are picked up and covered by the Weekly Environmental Checklist.

SEPs are held by Area Environment Managers.

## 8 Evaluating performance and reporting

Environmental audits and site environmental inspections (SEIs) are scheduled to detect where PRs are not being met with appropriate corrective actions developed to address these issues as they arise. Schedules, responsibilities and reporting procedures for soil management are set out in the Monitoring, inspection, audit and reporting schedule - Attachment L of the D&C Utilities EMP.

Monitoring will be undertaken by appropriately qualified personnel, in accordance with the appropriate standards and guidelines as specified in Attachment L of the D&C Plant and General Area EMP.

## 9 Contingency measures

Contingency measures have been developed and are summarised below. The control measures table (Attachment I9.1) focuses on preventative measures.

All environmental incidents will be responded to in accordance with the Utilities Environmental Incident Response Procedure (EIRP) (PR-PLV-PM-3-X-000-0001-00-00). The EIRP provides project specific details for the identification of and response to potential environmental related incidents along the utilities corridor during the D&C phase of the VDP. It provides assistance in managing potential and actual incidents, as well as follow-up and reporting requirements.

Contingencies for contaminated soil, hydrocarbon spill management and spoil management are discussed below.

### 9.1 Contaminated soil

The environmental risk assessment has identified the following circumstances which could occur outside normal operating conditions:

- ~ Unexpected discovery of suspected contaminated soil, liquid or waste during construction
- ~ Unexpected discovery of suspected contaminated groundwater.

Contamination may be identified by discoloured or odorous soils, underground fuel storage tanks, pipelines, drums or filling with foreign matter. If these circumstances occur, the process of managing contaminated soil is described in the Contaminated Land Procedure (PLV -3-EV-PR-0003), which is provided at Attachment I7.2. This will be undertaken in consultation with the Project Health and Safety Manager or their representative.

Any incident requiring the use of the Contaminated Land Procedure must be recorded on a Contaminated Soil Record (FM-PLV-EN-3-X-000-0011-00-00). Furthermore, a Contaminated Land Checklist (PLV-3-EN-CK-0002-00) will be filled out, by Environmental Officer, when potential contaminated land has been identified and reported.



## 9.2 Hydrocarbon spill management

In the result of a hydrocarbon spill the Spill Response Procedure outlined in section 5 of Attachment I7.2 Contaminated Land Procedure will be followed.

## 9.3 Spoil management

The environmental risk assessment has identified the following circumstances in relation to spoil management that could occur outside normal operating conditions:

- ~ Contamination of existing waterways resulting from a storm event greater than the one in two year storm event (see Water Quality and Erosion Management Sub Plan, Section 9 Contingency Measures)
- ~ Design of temporary sediment controls is insufficient for the maximum exposed area (see Water Quality and Erosion Management Sub Plan, Section 9 Contingency Measures)
- ~ Unforeseen water and soil contamination due to fuel or oil spill (see Hazardous Materials Sub Plan, Section 9 Contingency Measures).

# 10 References

## 10.1 VDP documents

- ~ Victorian Desalination Project, Environment Effects Statement, Volume 4, Chapter 5 – Geology, Geomorphology and Soils
- ~ Victorian Desalination Project, Environment Effects Statement, Volume 4, Chapter 5 – Geology, Geomorphology and Soils, Technical Appendix 61 – Rosengren and Boyd 2008

## 10.2 Technical/ Legislative Documents

- Environmental Protection (Industrial Waste Resources) Regulation 2009
- EPA (2009) Industrial Waste Resource Guidelines, Asbestos transport and disposal
- EPA (2009) Industrial Waste Resource Guidelines, Soil Hazard Categorisation and Management
- EPA (2009) Industrial Waste Resource Guidelines, Soil Sampling
- EPA (2009) Industrial Waste Resource Guidelines, Sampling and analysis of waters, wastewaters, soils and wastes
- EPA (2009) Industrial Waste Resource Guidelines, Waste codes
- EPA (2009) Industrial Waste Resource Guidelines, Waste categorisation
- National Environment Protection (Assessment of Site Contamination) Measure, 1999
- Occupational Health and Safety (Asbestos) Regulation 2003
- SEPP (Prevention and Management of Contaminated Land)



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## **ATTACHMENT I7.1 – SOIL MANAGEMENT – CONTROL MEASURES TABLE**

## ATTACHMENT I7.1 SOIL MANAGEMENT – CONTROL MEASURES TABLE

#	Issue	PR # addressed	Control Measure	Responsibility *	Project Phase	Evidence	Audit Check
1	Contaminated Spoil	18124, 18125	<p>In all areas regularly inspect and monitor spoil generated by excavation activities for indicators of possible contamination. Typical indicators of contamination include:</p> <ul style="list-style-type: none"> <li>- Odorous and/or discoloured/stained material</li> <li>- Asbestos containing materials</li> <li>- Oil/Grease and/or hydrocarbon sheen</li> <li>- Drums/containers of any sort</li> <li>- Fluids/liquids other than groundwater</li> <li>- Putrescible wastes, general rubbish</li> <li>- Unknown wastes and objects</li> <li>- Unexpected fill materials.</li> </ul> <p>If any of the above items are identified, stop work and follow procedures detailed in the Soil Management Sub Plan, section 9 Contingency Measures</p> <p>For minor spills (small leaks 5000mL or less), contaminated materials will be dug up and placed in the spill bags provided in spill kit. The contaminated soil will then be placed in the contaminated soil bin, for later classification testing and the bag in the contaminated waste bin.</p> <p>For a major spill, contaminated material will be dug up, stockpiled on plastic, covered with plastic and stored on site for later classification testing in accordance with the Contaminated Land Procedure (Attachment I7.2)..</p>	Construction Manager	Construct	<p>Contaminated Soil Record (FM-PLV-EN-3-X-000-0011-00-00).</p> <p>Contaminated Land Checklist (PLV-3-EN-CK-0002-00)</p>	

#	Issue	PR # addressed	Control Measure	Responsibility *	Project Phase	Evidence	Audit Check
2	Contaminated materials – general management	18118, 18120, 18123	Ensure any contaminated spoil removed from the site is appropriately classified through completion of a sampling programme involving methodologies and procedures set out in the relevant sections of <i>Schedule B(2) of the Assessment of Site Contamination NEPM, Victorian EPA Publication 448.3 – Classification of Wastes and State Environmental Protection Policy (Prevention and Management of Contaminated Land)</i> .	Area Environment Manager	Construct	Contaminated Soil Record (FM-PLV-EN-3-X-000-0011-00-00). Furthermore, a Contaminated Land Checklist (PLV-3-EN-CK-0002-00), EPA waste transport certificate	
3	Contamination found	18118, 18120, 18121, 18125	If an area of likely contamination is found on site, which has not been previously identified, work must stop in the affected area and the contamination reported immediately to the TDJV Environment Manager.  Work can recommence in the affected area, once the material has been assessed and if required removed, or placed in a suitable stockpile. If material is to be retained on site ensure this is undertaken in accordance with the Contaminated Land Procedure (Attachment I7.2).	Site manager	Construct	Daily log	
4	Contamination procedures	18124, 18125	Prior to disturbance of land or demolition of any buildings appropriate CWMS and JSEAs will be developed detailing measures to manage identified hazards and risks specific to the site Management of contamination risk will include: <ul style="list-style-type: none"> <li>– Identification of potential hazards and risks</li> <li>– Development of appropriate mitigation measures following the decision framework outlined in the Contaminated Land Procedure (Attachment I7.2)..</li> </ul>	Area Environment Manager	Construct	CWMS and JSEA	

#	Issue	PR # addressed	Control Measure	Responsibility *	Project Phase	Evidence	Audit Check
5	Spoil Management	18122	<p>Prepare a Spoil Management Plan detailing the management and disposal of excess including:</p> <ul style="list-style-type: none"> <li>~ Disposal of spoil to the Booster Pump Station and Southern Compensation for landscape requirements</li> <li>~ Disposal of spoil to existing local quarries</li> <li>~ Disposal of spoil to landfills where cover material is required</li> <li>~ Disposal of spoil to approved contaminated waste disposal sites where contaminated waste is identified (including Acid Sulfate Soils).</li> </ul>	Area Environment Manager	Construct	Completed Spoil Management Plan	
6	Spoil Management	18122	No agreement will be made with landowner or land occupier to leave stockpiles of soil from Project Activities within the Project Area or on other land without first obtaining the consent of the relevant catchment management authority and the relevant Water Authority and notification to the local Council.	Construction Manager	Construct	Authorised consent	
7	Contaminated soil management	18118, 18121	<p>Contaminated soil management procedures (including identification and assessment of potential contaminated soil) will be incorporated into following design packages:</p> <ul style="list-style-type: none"> <li>– DP 3-0065 Booster Pump Station</li> <li>– DP 3-0067 Creek Crossings</li> <li>– DP 3-0068 Water Quality Monitoring Stations</li> <li>– DP 3-0069 Pipe Line Easement</li> <li>– DP 3-0514 - Pressure Reducing Station Detail &amp; Pit – DP1</li> </ul>	Design Package Manager	Design	Verified Design	
8	Potential contaminated soil	18125	Confirm potential for contaminated spoil and acid sulfate soils prior to construction to prevent inappropriate management of such spoil types.	Area Environment Manager	Construct	Site Environmental Inspection	
9	Spoil Management	18122	Confirm expected spoil volumes against on-site or spoil beneficial re-use requirements.	Construction Manager	Construct	Spoil tracking logs	

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#	Issue	PR # addressed	Control Measure	Responsibility *	Project Phase	Evidence	Audit Check
10	Spoil beneficial reuse	18122	Confirm if all/any spoil generated (with the exception of acid sulfate soil or contaminated soils) can be beneficially reused on site in preference to importing fill, or disposal to landfill. Surplus spoil must be disposed of in accordance with the Spoil Management Plan Also ensure that any re-used spoil is in conformance with the control measures in the Agricultural and Flora & Fauna sub plans to prevent disease spread.	Area Environment Manager	Construct	Spoil Management Plan	
11	Contaminated soil reuse	18122	Reuse of contaminated soil must be in accordance with SEPP (Prevention and Management of Contaminated Land), in particular the NEPM HIL criteria set for the proposed land use	Area Environment Manager	Construct	CWMS and JSEA	
12	Separate spoil	18118	Separate all spoil and segregate into: <ul style="list-style-type: none"> <li>- Topsoil</li> <li>- Virgin Extracted Natural Material (VENM)</li> <li>- Hazardous and non-hazardous wastes (i.e. contaminated/non-contaminated soil, etc.)</li> <li>- Various waste states (e.g. liquids/solids).</li> </ul>	Area Environment Manager / Site Engineer	Construct	Inspection records	
13	Records	18125	Maintain spoil and waste management records, including: <ul style="list-style-type: none"> <li>- Haulage docketts</li> <li>- Daily output records</li> <li>- Daily haulage log sheet per work site</li> <li>- Inspection records</li> <li>- Weighbridge (site based or off-site facility) records</li> <li>- Monthly summary sheets.</li> </ul>	Site Manager	Construct	Records maintained	
14	Waste Transport	18125	If any spoil material is removed from the site ensure it is assessed for contamination (against 'Soil Hazard Categorisation and Management', EPA publication IWRG621). If it is a prescribed waste (most likely low level contaminated soil), ensure it is tracked in accordance with EPA's Waste Transport Certificate	Area Environment Manager	Construct	Waste transport records	

#	Issue	PR # addressed	Control Measure	Responsibility *	Project Phase	Evidence	Audit Check
15	Waste transport	18125, 21143	Use appropriately licensed (EPA) waste transporters for the transportation of spoil to off-site locations (see #17 above).	Site Manager	Construct	Waste transport records	
16	Waste Transport	18125	Cover all trucks transporting spoil to off-site locations and check tailgates are secured before leaving the site.	Site Manager	Construct	Inspection records	
17	Induction	-	All personnel are appropriately inducted and are aware of any hazards associated with the management of soil (both contaminated and non-contaminated).	Site Manager	Construct	Training records	
18	Idling emissions	23153	Unnecessary idling for trucks and plant should be avoided with engines turned off during periods of inactivity.	Site Manager	Construct	Inspection records	
19	Clean fill	21143	Ensure that only clean fill is used to fill trenches or other earthworks activity	Site Manager	Construct	Inspection records	

\* The *Responsibilities* column refers in many cases to senior positions within the project organisation, due to the changing nature of project teams. In practice some responsibilities may be delegated by the person nominated.



D&C Utilities EMP Attachment I7 – Soil Management Sub Plan

## **ATTACHMENT 17.2 – SOIL MANAGEMENT – CONTAMINATED LAND PROCEDURE**

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## **1 Project Overview**

The Victorian Desalination Plant (VDP) is a project commissioned by the Victorian Government to help provide a rain independent clean drinking water source for the Victorian people. The desalination plant is located on the Bass Coast approximately three kilometres from Wonthaggi. The VDP comprise a desalination plant with the capacity to produce 150 to 200 GL of drinking water per year, marine structures for the seawater intake and the saline concentrate outlet associated with the plant, a pipeline to transfer water from the plant to Melbourne’s water supply network in Berwick, and a power supply infrastructure to supply electricity for the plant and the Booster Pump Station as well as ancillary infrastructure. It is the Government’s intention that the plant and associated infrastructure will be operational by the end of 2011.

## **2 Purpose and Scope**

The purpose of the Contaminated Land Procedure is to ensure that any potentially contaminated land and/or water encountered during the construction phase of the VDP transfer pipeline and power supply or may soil contamination as a result of the project activities (e.g. spills) are appropriately dealt with to minimise the risk to:

- Project personnel health as a result of disturbance of and exposure to contaminated soil including asbestos.
- Flora and fauna habitat and waterways as a result of disturbance of and exposure to contaminated soil.
- Contaminated materials not handled in accordance with NEPM and EPA guidelines and possible inappropriate disposal or further contamination of soils / waterways.
- Chemical spills resulting in contamination of soil or waterways.

## **3 Contamination Type**

Possible sources of contamination personnel may encounter during the construction of the pipeline and power supply are described below Table 1.

<b>Contamination type</b>	<b>Description</b>
Death pit	The death of livestock within farming enterprises, consequently results in many large animals being buried quickly and usually on the immediate property. Therefore, it is possible that death pits may be encountered during the construction phase. If encountered during construction, these pits may present a risk to human health and the surrounding environment.

PLJV –Contaminated Land Procedure

Contamination type	Description
Livestock dip	<p>Historically livestock were dipped in pits containing chemical drench waters to rid the animals of disease and parasites. Subsequently, these areas have been potentially contaminated with organo-chlorinated chemicals such as DDT and other pesticides.</p> <p>Abandoned livestock dips a typically located or discovered near existing stockyards, shearing sheds or disused pens.</p>
Fuel storage area	<p>On farming properties, fuel is regularly stored in Above Ground or Underground Storage Tanks (ASTs/USTs). These tanks may leak and contaminate the topsoil, subsoil and groundwater and potentially impact sensitive receptors such as waterways.</p>
Farm chemical storage	<p>On most farms and working properties, storage of chemicals such as lubricants, pesticides, fertilisers, paints and solvents may occur on a small scale. These chemicals are potentially hazardous and have the ability to cause potential contamination to soil and groundwater. The storage of these chemicals is unlikely to be in accordance with EPA guidelines and are unlikely to include safety labelling, bunding or appropriate spill kits.</p>
Buried waste	<p>On many properties, especially on lands affected by gully erosion, rubbish and bulk items are commonly discarded in gullies. Rubbish such as vehicles, drums, tanks and building materials are dumped into gullies to limit the velocity of running waters and slow down soil loss due to erosion. Dumped or buried waste may include contaminants and hazardous substances such as pesticide drums, old batteries, oils.</p>
Asbestos	<p>Asbestos is considered a hazardous material. Asbestos was used in a number of building products and in vehicle brakes, heat shielding, electrical equipment, such as lagging on pipes and many other applications.</p>
Railway crossings	<p>Railway crossing are often considered contaminated areas due to the asbestos used in the train brakes and the fuel and oil that can accumulate in these areas due to leaks and train repairs.</p>
Hydrocarbon and other chemical spill	<p>Hydrocarbon (oil and fuel) spills often occur on construction sites and can have significant environmental and economic impacts. For hydrocarbon spill procedure refer Appendix A.</p>

## **4 Contaminated Land Procedures**

### **4.1 Assessment of known or potential contaminated soil**

Soil that is suspected of asbestos, hydrocarbon or other contamination must be assessed and removed in accordance with the following statutory instruments:

- ~ Environmental Protection (Industrial Waste Resources) Regulation 2009
- ~ Occupational Health and Safety (Asbestos) Regulation 2003
- ~ SEPP (Prevention and Management of Contaminated Land).

Figure 1 summarises the procedure for the assessment of potential or known contaminated soils in accordance with the requirements of these instruments.

### **4.2 Disposal**

All contaminated material must be classified in accordance with EPA guidelines prior to disposal. Figure 2 summarises the procedure to classify contaminated material prior to disposal.

### **4.3 Waste Transport Certificates**

Prescribed wastes must be transported under the EPA waste transport certificate system. It is the responsibility of the waste producer, transporter and receiver to ensure that a waste transport certificate is completed for each consignment of prescribed industrial waste.

### **4.4 Reporting**

Any incident requiring the use of the Contaminated Land Procedure must be recorded on a Contaminated Soil Record (FM-PLV-EN-3-X-000-0011-00-00). Furthermore, a Contaminated Land Checklist (PLV-3-EN-CK-0002-00) will be filled out, by Environmental Officer, when potential contaminated land has been identified and reported.

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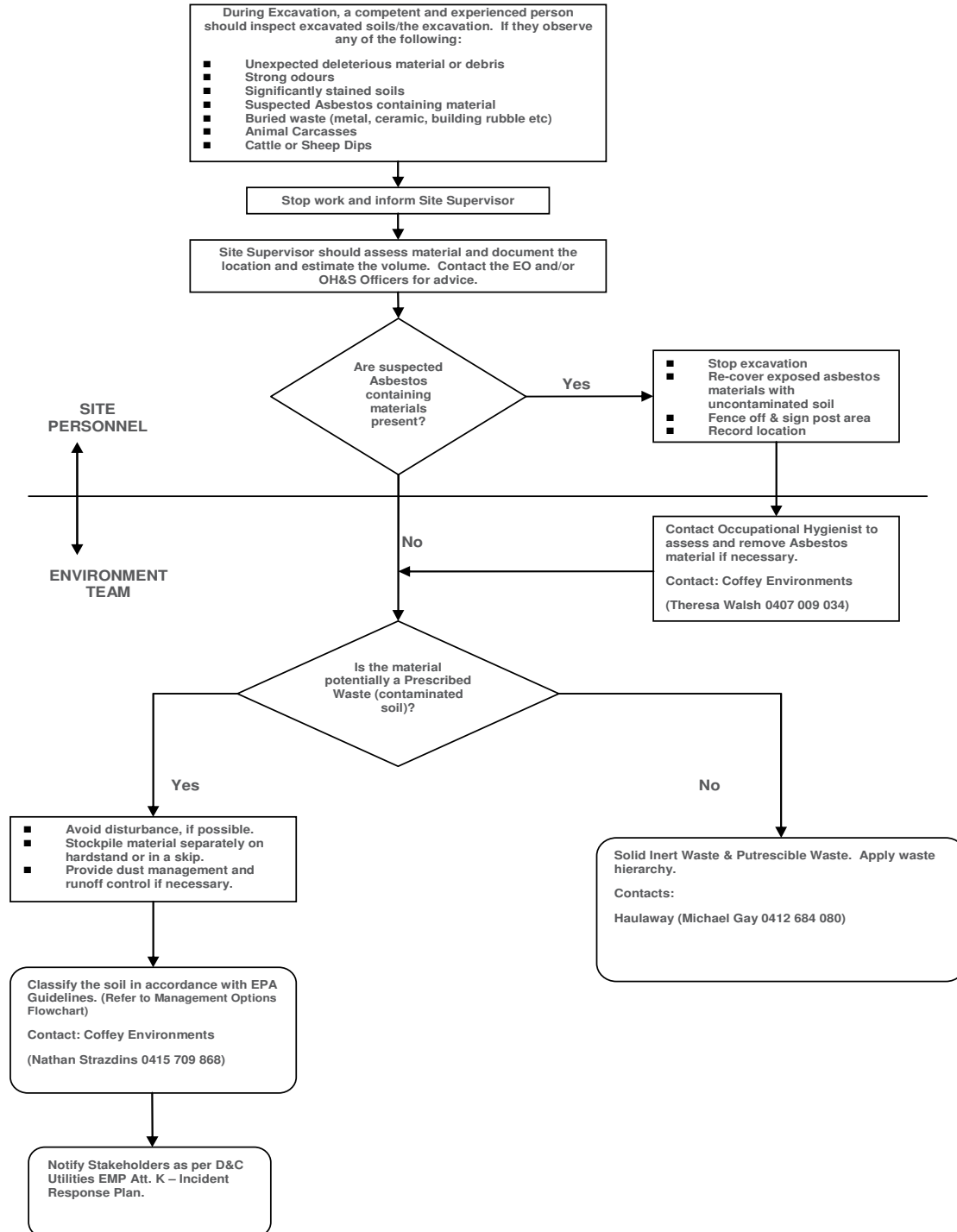


Figure 1. Flow chart for the discovery and removal of contaminated land

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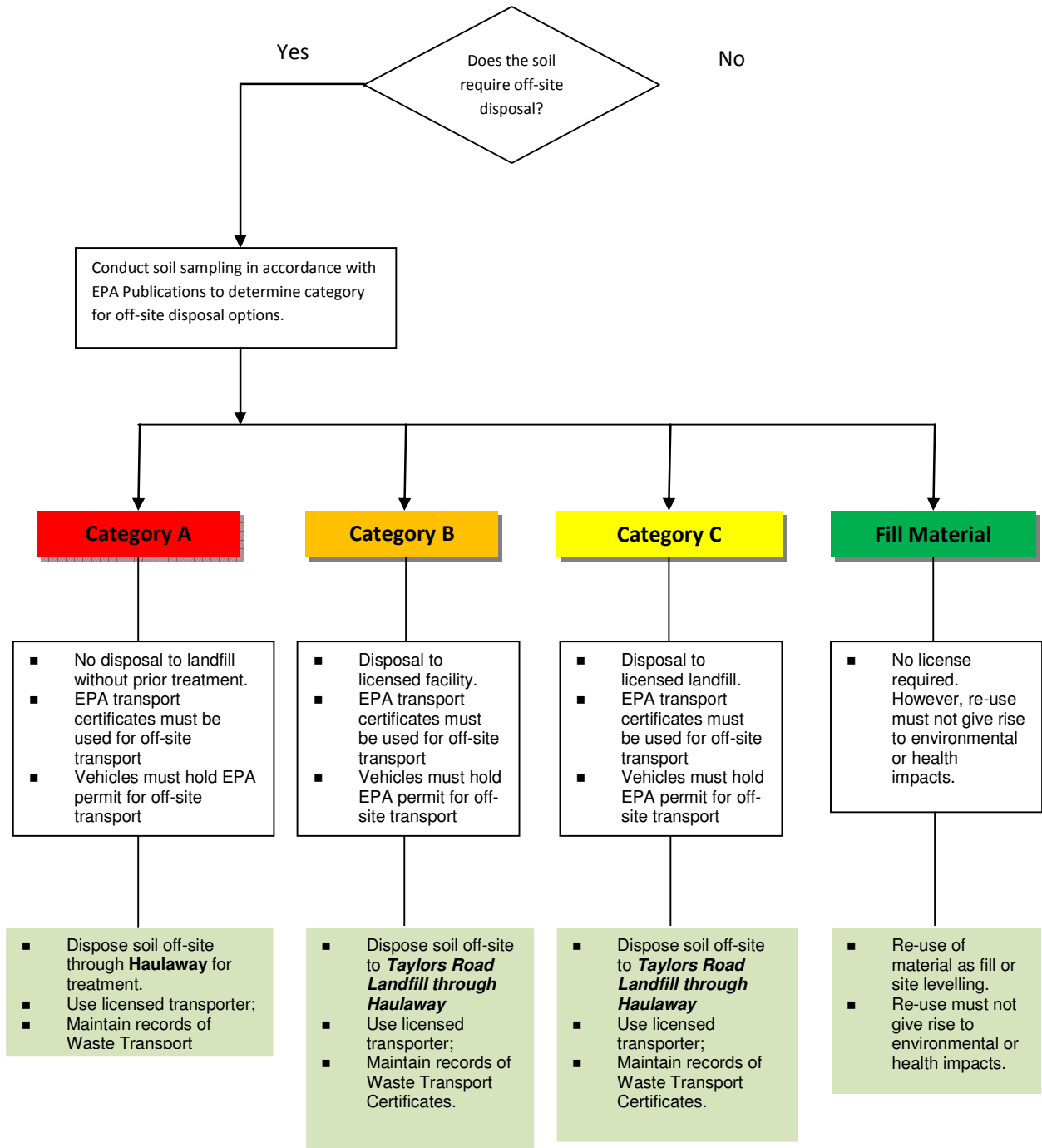


Figure 2. Management Options for Contaminated Land

## 5 Spill Response Procedure

In the result of a hydrocarbon spill the following procedure will be followed:

- Stop work
- Contain the spill and prevent any further environmental contamination/spillage/pollution (if safe to do so) using the materials available within the spill kits.
- Notify your Supervisor and/or Environmental Officer of the spill.

For minor spills (small leaks of 5000mL or less), contaminated materials will be dug up and placed in the spill bags provided in spill kit. The contaminated soil will then be placed in the contaminated soil bin, for later classification testing and the bag in the contaminated waste bin.

For a major spill, contaminated material will be dug up, stockpiled on plastic, covered with plastic and stored on site for later classification testing in accordance with the contaminated land procedure outlined in section 4.