

Remediation of Contaminated Sites on Morangup Road, Toodyay

Proponent: Department of Environmental Protection

**Report and Recommendations
of the Environmental Protection Authority**

**Environmental Protection Authority
Perth, Western Australia
Bulletin 1026
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1. Introduction

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the factors relevant to a proposal by the Waste Management Division of the Department of Environmental Protection (DEP) to remediate three contaminated properties, located on Morangup Road in Toodyay.

The EPA was advised of the proposal on 19 July 2001. Based on the information provided, the EPA considered that while the proposal had the potential to have a significant effect on the environment, the proposal could be readily managed to meet the EPA's environmental objectives. Consequently it was notified in the *West Australian* newspaper on 13 August 2001 that the EPA intended to set the level of assessment at Environmental Protection Statement (EPS).

The proponent has prepared the EPS document, which accompanies this report (DEP, 2001). The EPA considers that the proposal described can be managed in an acceptable manner subject to the imposition of environmental conditions. The net result of the proposal would be an improved environment.

The EPA therefore has determined under Section 40 (1) of the Environmental Protection Act 1986 that the level of assessment for the proposal is EPS, and this report provides the EPA advice and recommendations in accordance with Section 44 (1) of the Act.

Any person who disagrees with the EPA's decision on the level of assessment may lodge an appeal with the Minister for the Environment and Heritage within 14 days of 20 August 2001.

A separate right of appeal exists for any person who disagrees with the content of, or any recommendations in this report, also within 14 days of 20 August 2001.

2. The proposal

The Western Australian government has committed to remediating three contaminated sites on the west side of Morangup Road, approximately 25km southwest of Toodyay. These sites are listed below:

Site	Lot Number	Area of Property	Approximate Area of Contamination
A	3	100,000m ²	9,700m ²
B	81	100,000m ²	13,700m ²
C	11	94,000m ²	11,400m ²

A small amount of contamination from Site C (approximately 700m²) has entered Lot 12. This contamination will be removed as part of Site C's remediation. Contamination is defined as soil having a contamination of total phenols above 9mg/kg determined by a health and environmental risk assessment.

The proposal involves remediation of the sites in a manner which fulfils the following objectives:

- that landowners are able to utilise their properties for the land's intended rural uses; and
- that any wood tar remaining on the site poses no threat to human health or the environment.

It is anticipated that the site works associated with the remediation will take approximately thirteen weeks.

The proposal is described in detail in Section 6 of the proponent's "Proposed Remediation of Contaminated Sites on Morangup Road, Toodyay" EPS document. The key components of the proposal outlined in section 6 are as follows:

- removal of all infrastructure and fences within the contaminated area, including a large shed on Site C and possibly internal fences on Sites A and C;
- removal of contaminated soil by:
 - a. wetting agent applied to contaminated soil four and two weeks prior to excavation and the soil ripped and thoroughly wet;
 - b. soil wetting agent and water applied to contaminated area two days prior to excavation and to the working face, throughout excavation and loading activities;
 - c. excavate top 250mm of contaminated soil and placed into trucks for disposal;
 - d. the excavated area being sampled and all soil with a total phenol concentration above 9mg/kg excavated for disposal;
 - e. stockpiling the soil from uncontaminated areas over contaminated caprock excavated using a backhoe for use as backfill;
 - f. using the uncontaminated material and imported clean fill to backfill excavated areas to within 250mm of the finished surface; and
 - g. using imported topsoil used to backfill upper 250mm;
- delineation of contamination boundaries (9mg/kg of total phenols) within the caprock and sealing the contaminated caprock by grouting or with an impervious layer;
- validation of the adequacy of the remedial works by sampling and analysis;
- transport of the contaminated soil (approximately 11,000m³) in trucks fitted with covered and sealed trays to the Colebatch Road Class II landfill (located in Northam approximately 45km from the site) or to any other approved landfill for disposal;
- rehabilitation of the sites in accordance with future requirements of the land, following negotiations directly with the landowners; and
- monitoring of groundwater contamination and restrictions on its use, as necessary. If monitoring shows contamination levels above criteria, the Environmental Protection Authority will determine appropriate action on the advice of the Water and Rivers Commission.

3. Consultation

During the preparation of the EPS, the proponent has undertaken consultation with government agencies and landowners that have a direct interest in the project and other key stakeholders. Consultation was also undertaken with the local community. The process for communication used by the DEP was as follows:

- personal contacts with property owners and neighbours;
- group meetings with residents;
- letter drops;
- open days;
- media releases; and
- advertisements in local newspapers.

The proponent identified the following groups as having an interest or potential interest in the remediation of the contamination on Morangup Road:

- landowners affected by contamination;
- neighbours and nearby residents potentially affected by remediation operations;
- residents along the transport route to the landfill site;
- Morangup community;
- Toodyay community;
- local action groups (Avon Clean and Green, Avon Valley Environmental Society, Toodyay Naturalists);
- local media (Morangup News);
- other Media (papers, television and radio);
- Indigenous community;
- State and local government agencies (Contaminated Sites Branch of DEP, Waters and Rivers Commission, Department of Health and Shire of Toodyay); and
- Shire of Toodyay councillors.

The following three main concerns were identified during the public consultation:

1. returning the contaminated land to the beneficial use of rural activities;
2. health impacts associated with the contaminants in dust during remediation (eg settling in rain water tanks); and
3. caveats being placed on the affected properties affecting land prices.

Items 1 and 2 are addressed in the remediation strategy. With regard to item 3, some caveats may still need to be placed on some of the affected property areas and the landowners have been advised of this.

In August 2000 the DEP established a Project Team of Government agencies to assist with the

planning process for the remediation of the Morangup contaminated sites. In addition to the relevant branches of the DEP, the other agencies used were:

- Department of Health;
- Water and Rivers Commission;
- Department of Industry and Technology, Housing and Works (previously Contract Administration Management Services);
- Shire of Toodyay; and
- Executive Officer of the EPA.

Their roles are outlined in Table 6 of Section 5.5 of the “Proposed Remediation of Contaminated Sites on Morangup Road, Toodyay” EPS document.

The proponent has committed to liaise directly with affected property owners and residents adjacent to the contaminated sites during the remediation process.

The EPA considers that the consultation process has been appropriate and the proponent has taken all reasonable steps to address the concerns raised by the stakeholders.

4. Relevant environmental factors

The summary of all of the environmental factors and their management is outlined in Section 7 of the EPS (DEP 2001).

In the EPA’s opinion, the following are the environmental factors relevant to the proposal:

- soil contamination;
- dust; and
- groundwater contamination.

The EPA has summarised its assessment of these factors in the Conclusions section below.

5. Conclusions

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment and Heritage on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

The EPA has concluded that the factor of soil contamination can be managed to meet the EPA’s objectives of enabling landowners to utilise their properties for the land’s intended beneficial uses and ensuring that any wood tar remaining on the site poses no threat to human health or the environment. A cleanup criterion of 9mg/kg of total phenols was determined from a health and environmental risk assessment. The proponent has committed to undertake the removal of soil contamination (total phenols above 9mg/kg) in accordance with the requirements of an Environmental Management Plan (EMP) that will be prepared by the proponent to the requirements of the EPA and that will be publicly available. This EMP will address remediation issues including occupational health and safety, dust monitoring and management, and excavation, transport and disposal of contaminated soil, and validation prior to backfilling.

The EPA has concluded that the factor of dust can be managed to meet the EPA's objective of prevention of detrimental impacts on the community, provided that the details of the excavation, handling, transport and disposal operations and the dust monitoring and management are addressed in the EMP to the satisfaction of the EPA, and are properly implemented.

The EPA has concluded that the factor of groundwater contamination can be managed to meet the EPA's objectives of protection of the ecosystems in creeks in the vicinity of the contaminated sites, and protection of human health provided that adequate monitoring of groundwater and ground seepage is undertaken. The proponent has committed to develop a longterm monitoring and management plan for contaminated water at and down gradient of the contaminated sites. This plan will be based on advice from the Water and Rivers Commission, be to the requirements of the EPA and be publicly available. The plan will address monitoring, restriction of access to contaminated water and contingency measures.

In summary, the EPA has concluded that the proposed arrangements for remediation, as set out in Section 2 of this report, are appropriate to return the land to the beneficial use of rural activities. The EPA will require additional information as to matters of detail in relation to a number of the actions. The appropriate mechanism for providing this information to the satisfaction of the EPA is through the preparation by the proponent of Environmental and Groundwater Management Plans.

The proponent has committed to this process in its list of commitments.

6. Recommendations

The EPA considers that the proponent has demonstrated in its EPS document that the remediation proposal is capable of being managed in an environmentally acceptable manner and provides the following recommendations to the Minister for the Environment and Heritage:

1. That the Minister notes that the proposal being assessed is for the remediation of three properties, located on Morangup Road in Toodyay, that are contaminated with wood tar waste that was disposed from the State owned and operated Wundowie Charcoal Iron and Steel Industry.
2. That the Minister considers the report on the relevant environmental factors as set out in Sections 4 and 5.
3. That the Minister notes that the EPA has concluded that the remediation program can be undertaken in an environmentally acceptable manner, and that the net result of the program will be an improved environment, provided there is satisfactory implementation by the proponent of the recommended environmental conditions and proponent commitments as set out in Appendix 2, including the provision for implementation of an environmental management plan.
4. That the Minister imposes the environmental conditions and procedures recommended in Appendix 2 of this report.

Appendix 1

References

Department of Environmental Protection (2001) *Proposed Remediation of Contaminated Sites on Morangup Road, Toodyay.*

Appendix 2

Recommended Environmental Conditions

Recommended Environmental Conditions

**STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
(PURSUANT TO THE PROVISIONS OF THE
ENVIRONMENTAL PROTECTION ACT 1986)**

**REMEDICATION OF CONTAMINATED SITES ON MORANGUP ROAD,
SHIRE OF TOODYAY**

Proposal: The remediation of contaminated sites on part lots 3 (Certificate of Title volume 1664 folio 729), 11 (Certificate of Title volume 1514 folio 102), 12 (Certificate of Title volume 1514 folio 150) and 81 (Certificate of Title volume 1664 folio 747) Morangup Road, to restore the beneficial use of the land to rural activities, as documented in Schedule 1 of this statement.

Proponent: Department of Environmental Protection

Proponent Address: 141 St George's Terrace, Perth WA 6000

Assessment Number: 1391

Report of the Environmental Protection Authority: Bulletin 1026

The proposal to which the above report of the Environmental Protection Authority relates may be implemented subject to the following conditions and procedures:

Procedural conditions

1 Implementation

1-1 Subject to these conditions and procedures, the proponent shall implement the proposal as documented in schedule 1 of this statement.

1-2 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.

Published on

- 1-3 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment and Heritage determines, on advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

2 Proponent Commitments

- 2-1 The proponent shall implement the consolidated environmental management commitments documented in schedule 2 of this statement.
- 2-2 The proponent shall implement subsequent environmental management commitments which the proponent makes as part of the fulfilment of conditions and procedures in this statement.

3 Proponent

- 3-1 The proponent for the time being nominated by the Minister for the Environment and Heritage under section 38(6) or (7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal until such time as the Minister for the Environment and Heritage has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person in respect of the proposal.
- 3-2 Any request for the exercise of that power of the Minister referred to in condition 3-1 shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the proposal in accordance with the conditions and procedures set out in the statement.
- 3-3 The proponent shall notify the Environmental Protection Authority of any change of proponent contact name and address within 30 days of such change.

4 Commencement

- 4-1 The proponent shall provide evidence to the Minister for the Environment and Heritage within five years of the date of this statement that the proposal has been substantially commenced.
- 4-2 Where the proposal has not been substantially commenced within five years of the date of this statement, the approval to implement the proposal as granted in this statement shall lapse and be void unless the Minister for the Environment and Heritage grants an extension referred to in condition 4-4. The Minister will determine any question as to whether the proposal has been substantially commenced.
- 4-3 The proponent shall make application to the Minister for the Environment and Heritage for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement at least six months prior to the expiration of the five year period referred to in conditions 4-1 and 4-2.

4-4 Where the proponent demonstrates to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years for the substantial commencement of the proposal.

5 Compliance Auditing

5-1 The proponent shall submit a Validation Report, in accordance with proponent commitment no. 8 (Schedule 2).

5-2 Unless otherwise specified, the Chairman of the Environmental Protection Authority is responsible for assessing compliance with the conditions, procedures and commitments contained in this statement and for issuing formal written advice that the requirements have been met.

5-3 Where compliance with any condition, procedure or proponent commitment is in dispute, the matter will be determined by the Minister for the Environment and Heritage.

Schedule 1

The Proposal

The proponent will remediate the three sites, and a small area external to one of the sites, and return the land to a rural beneficial use.

The three contaminated sites occur on private properties located on the west side of Morangup Road, approximately 25 km southwest of Toodyay. They are depicted in figure 1 (attached) and are listed below:

Site	Lot Number	Area of Property (square metres)	Approximate Area of contamination (square metres)
A	3	100,000	9,700
B	81	100,000	13,700
C	11	94,000	11,400

A small amount of contamination from Site C has entered the adjacent Lot 12. This contamination extends over approximately 700 square metres and will be removed as part of the remediation of Site C.

The remediation of these sites will involve:

1. removal of all infrastructure and fences within the contaminated area, including a large shed on Site C and possibly internal fences on Sites A and C;
2. removal of contaminated soil by:
 - a. wetting agent applied to contaminated soil four and two weeks prior to excavation and the soil ripped and thoroughly wet;
 - b. soil wetting agent and water applied to contaminated area two days prior to excavation and to the working face, throughout excavation and loading activities;
 - c. excavate top 250mm of contaminated soil and placed into trucks for disposal;
 - d. the excavated area being sampled and all soil with a total phenol concentration above 9mg/kg excavated for disposal;
 - e. stockpiling the soil from uncontaminated areas over contaminated caprock excavated using a backhoe for use as backfill;
 - f. using the uncontaminated material and imported clean fill to backfill excavated areas to within 250mm of the finished surface; and
 - g. using imported topsoil used to backfill upper 250mm;
3. delineation of contamination boundaries (9mg/kg of total phenols) within the caprock and sealing the contaminated caprock by grouting or with an impervious layer;
4. validation of the adequacy of the remedial works by sampling and analysis;
5. transport of the contaminated soil (approximately 11,000m³) in trucks fitted with covered and sealed trays to the Colebatch Road Class II landfill (located in Northam approximately 45km from the site) or to any other approved landfill for disposal;

6. rehabilitation of the sites in accordance with future requirements of the land, following negotiations directly with the landowners; and
7. monitoring of groundwater contamination and restrictions on its use, as necessary. If monitoring shows contamination levels above criteria, the Environmental Protection Authority will determine appropriate action on the advice of the Water and Rivers Commission.

The proponent will prepare a validation report to the requirements of the Environmental Protection Authority at the conclusion of remedial works (proponent commitment No 8 in Schedule 2).

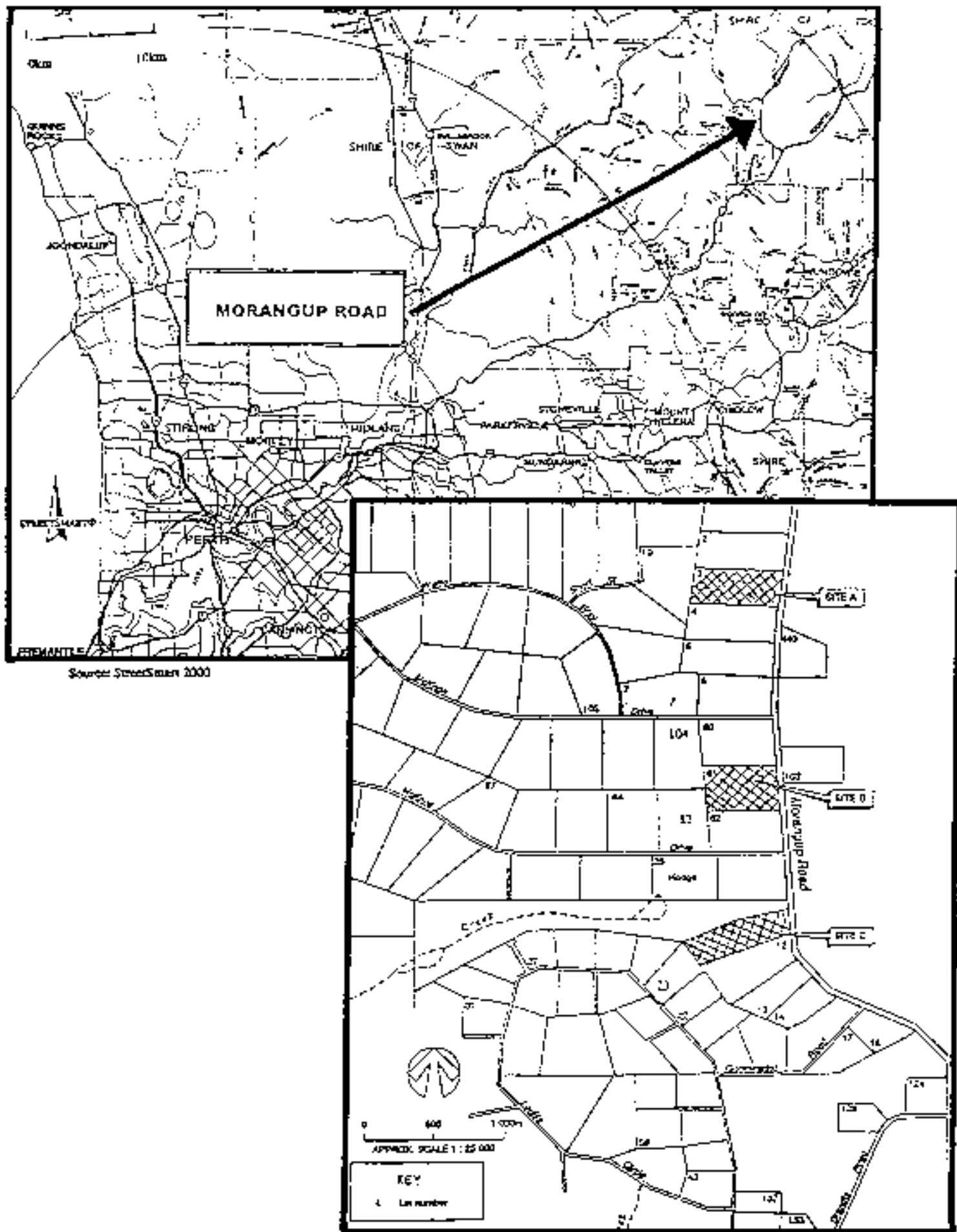


FIGURE 1
LOCATION OF CONTAMINATED SITES
ON MORANGUP ROAD

**Proponent's Consolidated Environmental Management
Commitments**

July 2001

**REMEDICATION OF CONTAMINATED SITES ON MORANGUP
ROAD, SHIRE OF TOODYAY**

**ENVIRONMENTAL MANAGEMENT COMMITMENTS FOR REMEDIATION OF CONTAMINATED SITES AT MORANGUP,
SHIRE OF TOODYAY (Assessment No 1391)**

No.	Topic	Actions	Objectives	Timing	Requirements/Advice
1	Environmental Management Plan	<p>Develop an environmental management plan for the remediation of contaminated soil and caprock at Morangup, addressing:</p> <ul style="list-style-type: none"> o Removal and restoration of fences and infrastructure o Occupational health and safety o Dust monitoring and management (including a two day dust trial to test monitoring equipment and establish background levels, and development of dust action levels, established on advice from the Department of Health) o Noise and vibration o Surface water management o Contaminated caprock delineation and capping o Excavation of contaminated soil o Transport of contaminated soil o Management of contaminated soil at landfill site o Validation prior to backfilling o Rehabilitation o Public communication and complaints resolution 	To ensure that the contaminated sites at Morangup are remediated to a level and in a manner that is protective of human health and the environment.	Prior to commencement of full scale remedial works.	Requirements of: EPA On advice from: DOH, WRC, Worksafe
2	Environmental Management Plan	Make the Environmental Management Plan publicly available.	To ensure that the contaminated sites at Morangup are remediated to a level and in a manner that is protective of human health and the environment.	Prior to commencement of full scale remedial works.	Requirements of: EPA

No.	Topic	Actions	Objectives	Timing	Requirements/Advice
3	Environmental Management Plan	Implement the Environmental Management Plan.	To ensure that the contaminated sites at Morangup are remediated to a level and in a manner that is protective of human health and the environment.	At commencement of full scale remedial works.	Requirements of: EPA
4	Public Consultation	Liaise directly with affected property owners and residents adjacent to the contaminated sites at Morangup and provide regular community consultation and communication process by regular newsletters and information sessions for the public.	To inform the community of the progress of remediation at the Morangup contaminated sites and facilitate communication between the affected landowners and adjacent residents and the proponent on the performance of the remedial works. To address issues as they arise and communicate details regarding progress, timing, impacts and likely completion, between the involved parties.	Prior to, during remedial works and at the conclusion of the validation report.	Requirements of: EPA
5	Groundwater Monitoring and Management Plan	Develop a long term monitoring and management plan for contaminated groundwater at and down hydraulic gradient of the contaminated sites at Morangup, addressing: <ul style="list-style-type: none"> o Siting and construction of additional bores; o Monitoring program (analyses and frequency); o Management to restrict access to contaminated groundwater; and o Contingency measures. 	To ensure future groundwater quality is managed to protect human health and the environment.	At completion of remedial works.	Requirements of: EPA On advice from: WRC
6	Groundwater Monitoring and Management Plan	Make the Groundwater Monitoring and Management Plan publicly available.	To ensure future groundwater quality is managed to protect human health and the environment.	At completion of remedial works.	Requirements of: EPA

No.	Topic	Actions	Objectives	Timing	Requirements/Advice
7	Groundwater Monitoring and Management Plan	Implement the Groundwater Monitoring and Management Plan.	To ensure future groundwater quality is managed to protect human health and the environment.	At completion of remedial works.	Requirements of: EPA On advice from: WRC
8	Validation Report	Submit a report within two months following completion of site work to the EPA, which provides evidence of conformance to the Environmental Conditions and Commitments for the project.	To document that the clean up of the contaminated sites at Morangup has been performed in accordance with EPA requirements.	Within two months following completion of remedial works.	Requirements of: EPA On advice from: DOH

Legend:

EPA	Environmental Protection Authority
DOH	Department of Health, Western Australia
WRC	Water and Rivers Commission