Class II Landfill, Fernview Farm, Gingin

Veolia Environmental Services (Australia) Pty Ltd

Report and Recommendations
of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
Bulletin 1287
May 2008

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
13/02/07	**Referral received**	
26/03/07	**Intention to set EPS Level of Assessment advertised (no appeals)**	**2**
01/05/08	**Proponent's Final EPS document received by EPA**	**57**
12/05/08	**EPA report to the Minister for the Environment**	**2**

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Appeals Close: 26/05/08
Assessment No. 1736

Contents

1. Introduction and Background

This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for the Environment on the proposal to construct and operate a landfill accepting Class II-type waste, including a landfill gas collection and utilisation plant, in Gingin, Western Australia by Veolia Environmental Services Australia Pty Ltd.

Section 44 of the *Environmental Protection Act 1986* (EP Act) requires the EPA to report to the Minister for the Environment on the outcome of its assessment of a proposal. The report must set out:

- the key environmental factors identified in the course of the assessment; and
- the EPA's recommendations as to whether or not the proposal may be implemented and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may include in the report any other advice and recommendations as it sees fit.

The EPA was advised of the proposal in February 2007. Based on the information provided, the EPA considered that while the proposal had the potential to have an effect on the environment, the proposal, as described, could be managed to meet the EPA's environmental objectives. Consequently it was notified in *The West Australian* newspaper on 26 March 2007 that, subject to preparation of a suitable Environmental Protection Statement (EPS) document, the EPA intended to set the level of assessment at EPS.

The proponent has prepared the EPS document (April, 2008; Version 10) which accompanies this report (Coffey, 2008). The EPS document sets out the details of the proposal, potential environmental impacts and appropriate commitments to manage those impacts. The EPA notes that the proponent has consulted with relevant stakeholders.

The EPA considers that the proposal can be managed to meet the EPA's environmental objectives, subject to the EPA's recommended conditions being made legally binding.

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

2. The Proposal

The proposal is described in detail in the proponent's EPS document (April 2008; Version 10). The proponent initially proposed to construct and operate a "bioreactor" landfill accepting biological liquid wastes and sludge in addition to Class II-type waste in the Shire of Gingin (Figure 1) on the northeast corner of Lot 7778 Wannamal Road South (Figure 2). The proposal was amended to a landfill accepting Class II-type waste, including a landfill gas collection and utilisation plant.

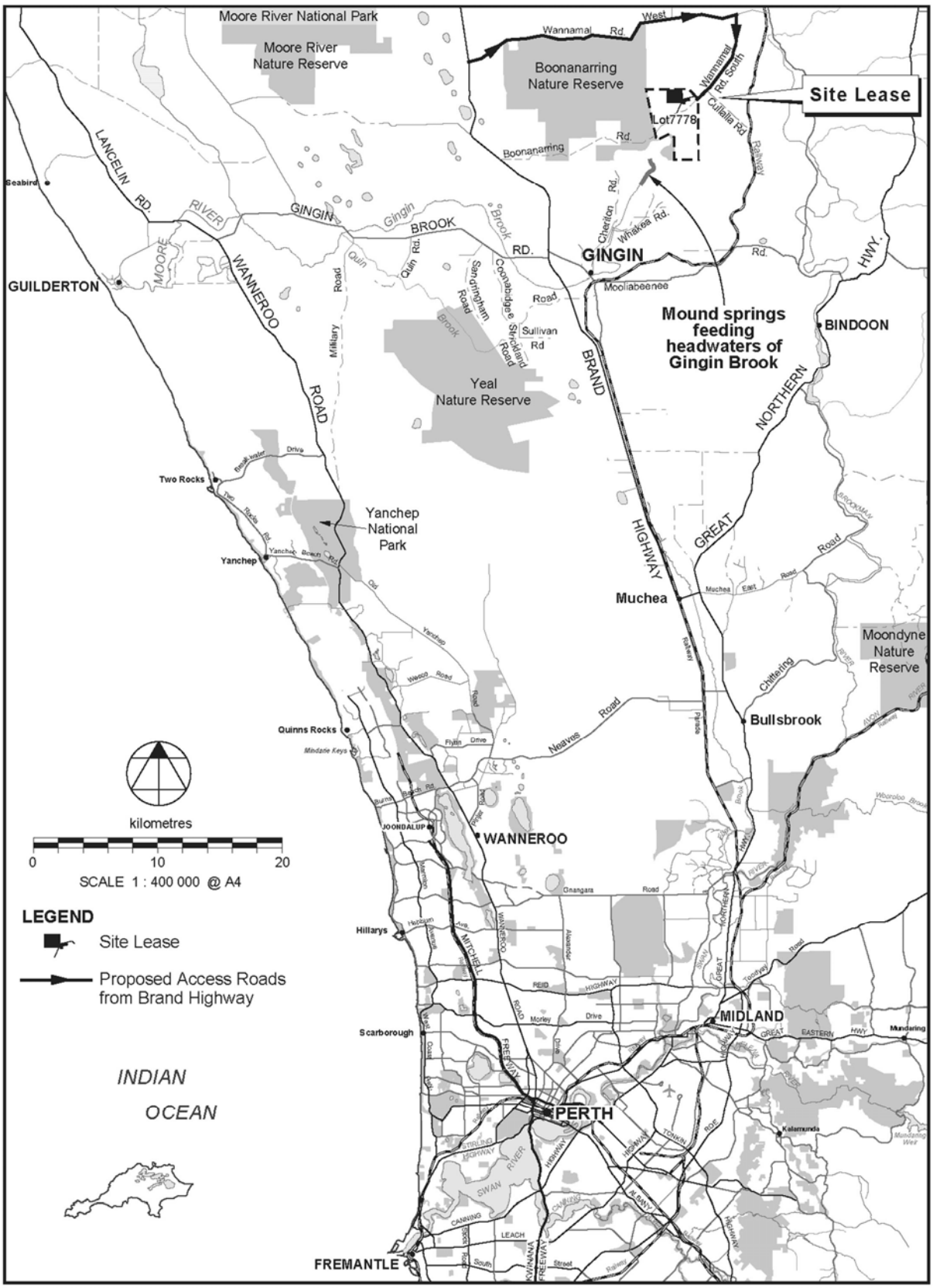


Figure 1: Regional location of the proposal

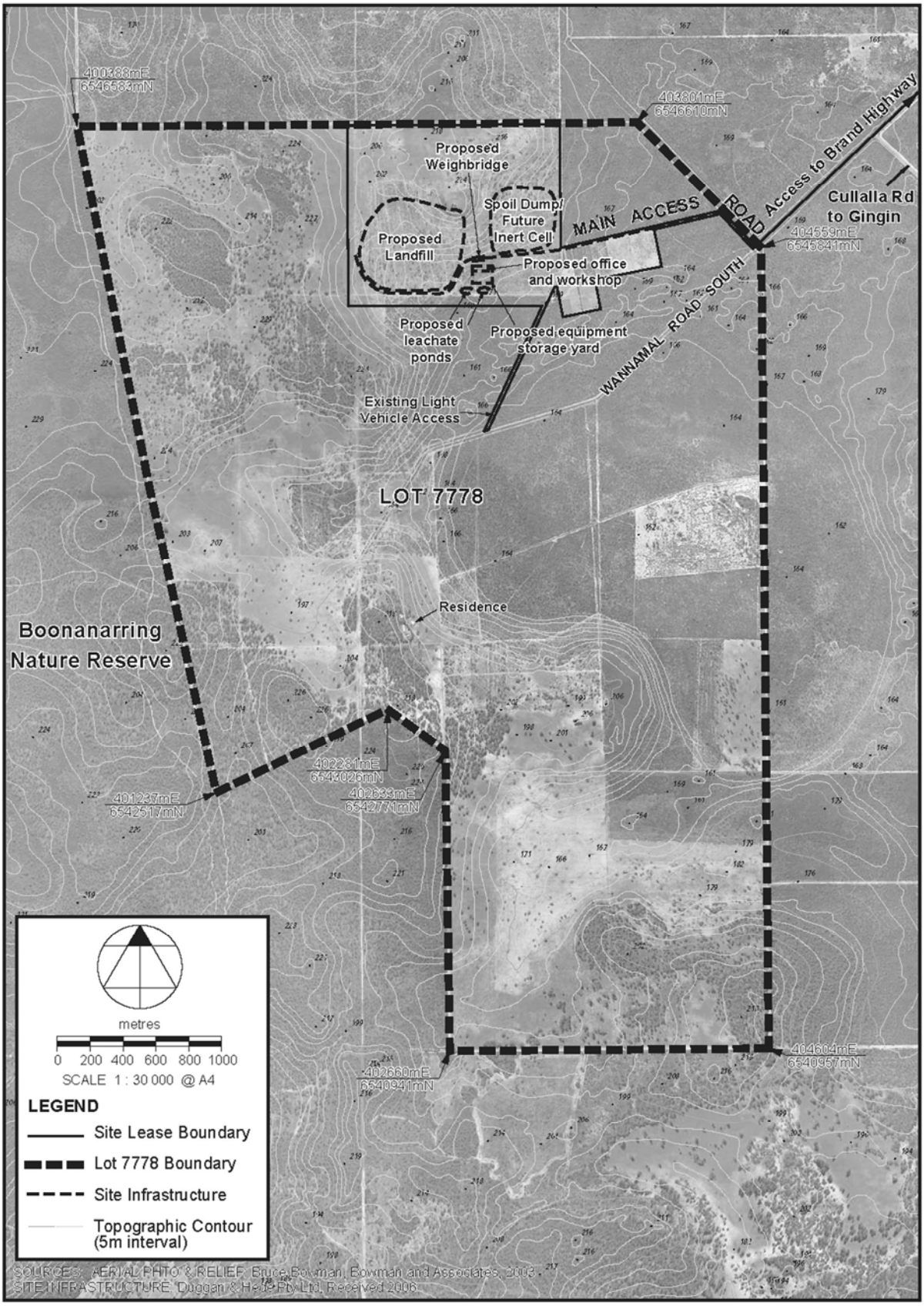


Figure 2: Proposal footprint

Access to Lot 7778 from Brand Highway would be gained through Wannamal Road West and Wannamal Road South, followed by internal roads to the development site (Figure 1; Figure 2).

The landfill is designed to maximise the production and capture of biogas by optimising the conditions for the breakdown of waste through leachate recirculation and control of pH, temperature and microbe levels in the waste.

The landfill would be lined with a layer of geosynthetic clay liner with hydraulic permeability of less than $1x10^{-9}$m/s under a 2mm thick high-density polyethylene flexible membrane liner and a protective geotextile layer. The liner exceeds the requirements of a Class II landfill as outlined in *Draft Best Practice Environmental Management on Siting, Design, Operation and Rehabilitation of Landfill* (Draft Landfill BPEM) (DoE, 2005a).

Leachate from the landfill will be collected from the base of the landfill and either recirculated through the waste or temporarily directed to two leachate storage ponds. The leachate collection system and storage ponds would be designed in accordance with the Draft Landfill BPEM (DoE, 2005a). The storage ponds would have the same liner system as the landfill.

The key components of the proposal are summarised in Table 1 below:

Table 1: Summary of key proposal characteristics

Element	Description
General	
Project life	Not more than 30 years
Operating hours for waste acceptance	Monday to Friday – 0700 to 1700 Saturday – 0700 to 1600 Public holidays – Open except for Good Friday and Christmas
Development boundary	Delineated by MGA Coordinates in Schedule 2
Total vegetation clearing	Not more than 61 hectares for infrastructure and internal access roads
Waste acceptance and transport	
Waste acceptance rate	Not more than 150,000 tonnes per annum of Class II-type waste[1]
External access roads to landfill site from Brand Highway	Wannamal Road West and Wannamal Road South
Infrastructure	
Landfill area	Not more than 30 hectares
Internal access roads	As shown in Figure 2
Leachate storage ponds	Two ponds lined with same lining system as landfill cells
Other facilities	Landfill gas extraction and utilisation plant, weighbridge, administration office, utilities, equipment storage yard, fencing.
Landfill design	
Landfill design and construction	In accordance with the Department of Environment's 2005 *Draft Best Practice Environmental Management on Siting, Design, Operation and Rehabilitation of Landfill* (DoE, 2005a) for a Class II landfill[1] as a minimum.
Post-capping contours	Not more than 225 metres Australian Height Datum

[1]Class II-type waste and Class II landfill as defined in the Department of Environment (2005b) *Landfill Waste Classification and Waste Definitions 1996 (As Amended)*

The potential impacts of the proposal are discussed by the proponent in the EPS document (Coffey, 2008).

3. Consultation

During the preparation of the EPS, the proponent has undertaken consultation with government agencies and key stakeholders. The first phase of stakeholder consultation involved formal and informal meetings, telephone conversations, distribution of information packages within the community, e-mail correspondence and hosted visits to existing landfill sites managed by the proponent in the eastern states. The second stage of consultation involved continuing liaison with stakeholders, media releases, newsletters, visits to the proponent's other existing operations in Perth and a public meeting.

The main environmental issues raised by the stakeholders during the consultation were:

- Groundwater protection, in relation to risk to Gingin Brook, design of the landfill, leachate and monitoring;
- Waste acceptance criteria; and
- Impacts from using landfill gas.

Stakeholders also raised issues relating to public health and ongoing community consultation. The proponent has advised that stakeholder consultation will continue throughout the life of the proposal.

The agencies, groups and organisations consulted, the comments received and the proponent's response are detailed in Section 6 of the EPS (Coffey, 2008).

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders on the proposed development.

4. Key environmental factors

It is the EPA's opinion that the following key environmental factors relevant to the proposal require evaluation in this report:

(a) Ground and surface water quality; and

(b) Flora and vegetation

The key environmental factors are discussed in Sections 4.1 and 4.2. The description of each factor shows why it is relevant to the proposal and how it will be affected by the proposal. The assessment of each factor is where the EPA decides whether or not a proposal meets the environmental objective set for that factor.

4.1 Ground and Surface Water Quality

Description

Hydrogeology of the proposed site

The proposed landfill is located on the southern Dandaragan Plateau. Investigations into the hydrogeology of the proposal site reveals mainly medium to coarse sands (Barber, 2007).

The site lies above the unconfined Poison Hill Aquifer, which is in hydraulic connection with the Gingin Brook. Groundwater levels are approximately 15m below the proposed landfill liner levels (Coffey, 2008). Groundwater is inferred to flow to the south-west. The Poison Hill Aquifer is not in hydraulic continuity with the main groundwater yielding unit of the Leederville aquifer (Coffey, 2008).

There are no surface water bodies present on the site. The nearest surface water body is the head of the Gingin Brook, located approximately 4km southwest of the site.

Assessment

The EPA's environmental objective for this factor is to maintain the quality of groundwater so that existing and potential uses, including ecosystem maintenance are protected.

Waste type acceptance

The EPA notes that the proposed landfill would only be accepting Class II-type waste, such as putrescible waste, as defined in the Department of Environment (2005b) *Landfill Waste Classification and Waste Definitions 1996 (As Amended)*. The EPA considers that the proposed liner and capping design, which exceeds the minimum specifications for a Class II landfill, would minimise impacts on groundwater if constructed in accordance to the Draft Landfill BPEM (DoE, 2005a).

Should the proponent desire to design and construct cells to Class III requirements, then to ensure future regulatory predictability and timeliness, independent third party certification of such design and construction should be provided to the EPA and the Chief Executive Officer (CEO) of the Department of Environment and Conservation (DEC).

The EPA is aware that as part of the original proposal the proponent intends to accept biological liquid wastes and sludge at the landfill facility. The EPA noted the DEC's advice that current regulations under Part V of the EP Act do not allow for biological liquid waste acceptance at landfills. The DEC has also advised that the current regulations will be amended to introduce a new category of prescribed premise that allows for biological liquid waste acceptance. Once the new regulations are gazetted, the proponent should refer any application for the landfill to be classified under this new category of prescribed premise to the EPA for consideration (recommended Condition 1-3).

Ground and surface water protection

The EPA notes on advice from the DEC and Department of Water (DoW) that sand underlying and around the proposal site is highly transmissive and has limited to no nutrient attenuation capacity. Allan Watson Associates (AWA) was commissioned by the proponent to carry out modelling on the potential leakage rate of the proposed landfill liner configuration. The EPA notes that modelling shows that the proposed liner design meets the liner leakage limit as specified in the Draft Landfill BPEM (AWA, 2007).

The surface expression of the Poison Hill aquifer, located approximately 4km southwest of the site, is recognised as the head of the Gingin Brook. Gingin Brook is the primary water source for the Gingin Town residents. The EPA considers that the potential low risk of offsite groundwater contamination would be further reduced through the proposed leachate management and contingency measures.

The EPA considers that with the implementation of recommended conditions 6-1 to 6-5, which requires the design and construction of the cells to a minimum of Class II landfill standard and monitoring and reporting of groundwater quality to the CEO of the DEC, potential impacts to ground and surface water can be managed to be environmentally acceptable.

Summary

Having particular regard to the:

- placement of Class II-type waste as defined in the Department of Environment (2005b) *Landfill Waste Classification and Waste Definitions 1996 (As Amended)* in the landfill;
- design of the landfill liner and capping system exceeding specifications for a Class II landfill;
- Leachate management and contingency measures; and
- Works Approval and licence required under Part V of the EP Act,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor provided that recommended Ministerial Conditions 1-3 and 6-1 to 6-5 are implemented.

4.2 Flora and Vegetation

Description

The vegetation on the proposed site is classified as part of the Cullula Complex (Heddle *et al*, 1980). The pre-clearing extent of the Cullula Complex in the Swan Coastal Plain area covered by the EPA Guidance Statement 10: *Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region* is 25,194 ha (EPA, 2006). The present extent (1997/98) of the Cullula complex is 11,931 ha, which is approximately 47% of the pre-clearing extent. 3.4% of the pre-clearing extent is in secure tenure (EPA, 2006).

Flora and vegetation surveys were conducted in May 2006, November 2006 and September 2007. No species of Declared Rare or Priority Flora or Threatened Ecological Communities were recorded during the surveys.

A total of 57.5 hectares (ha) of vegetation is proposed to be cleared for the landfill footprint.

From Brand Highway, site access would be through Wannamal Road West, Wannamal Road South and initially through a previously cleared easement to the south of the footprint, shown as 'Existing Light Vehicle Access' on Figure 2. The proposed long-term access roads are Wannamal Road West, Wannamal Road South and an internal access road to the east of the landfill footprint, shown as 'Main Access Road' on Figure 2. A total of 2.72 ha of vegetation is proposed to be cleared for the eastern internal access road and would be surveyed in 2008 to verify that no Declared Rare Flora or Threatened Ecological Communities are present.

Assessment

The EPA's environmental objective for this factor is to maintain the abundance, diversity, geographic distribution and productivity of flora at species and ecosystem levels through the avoidance or management of adverse impacts.

Vegetation Clearing

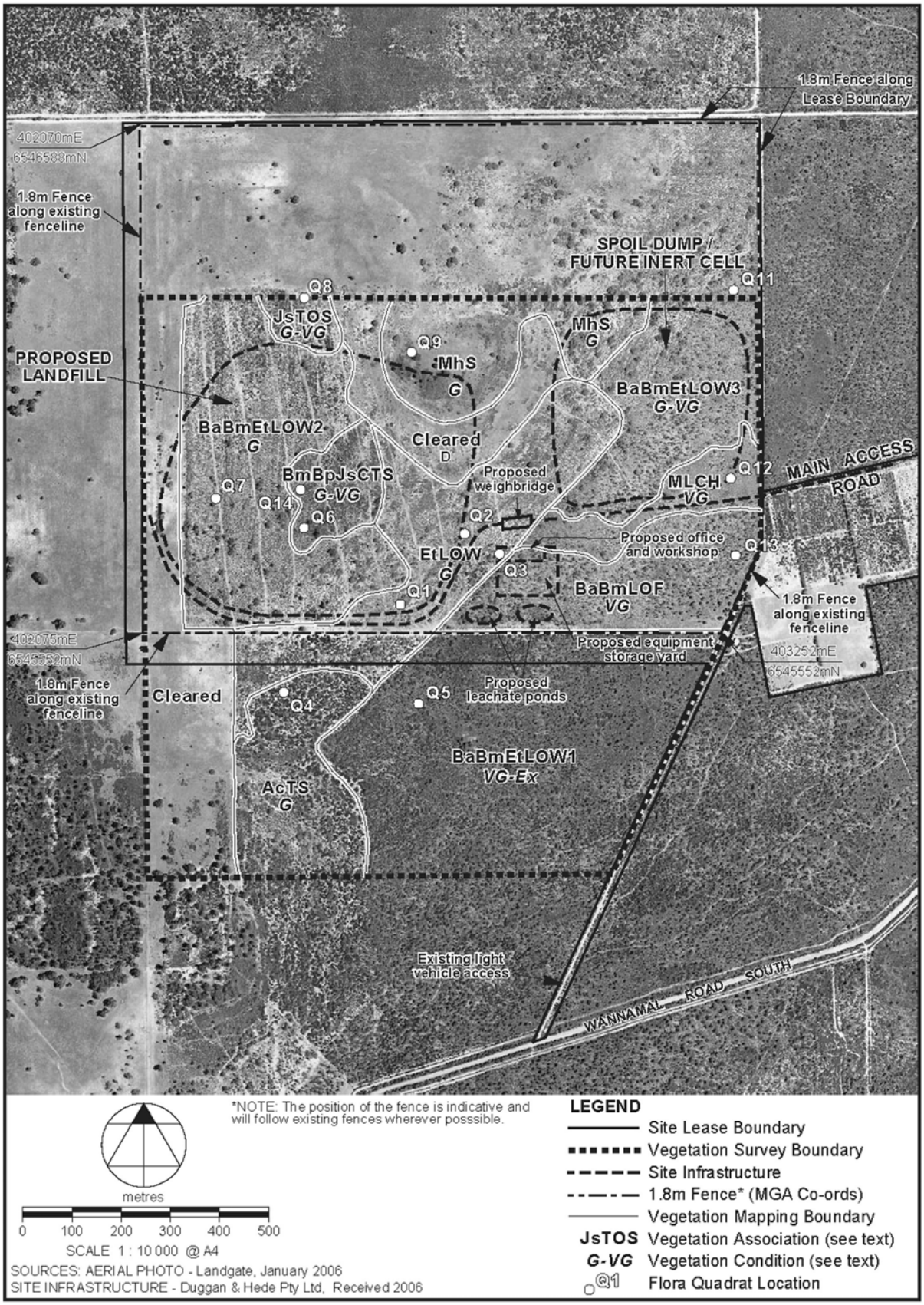
Table 2 shows the condition of the vegetation to be cleared for the landfill footprint and the access road.

Table 2: Extent of Vegetation Clearing

Vegetation Condition	Area to be cleared (ha)
Degraded (or Cleared)	4.06
Good	46.1
Good to Very Good	6.12
Very Good	1.25
Very Good to Excellent	0
Unsurveyed	2.72
Total	**60.3**

The EPA notes that the total clearing for the proposal represents approximately 0.24% of the pre-clearing extent of the Cullula Complex in the Swan Coastal Plain area covered by the EPA Guidance Statement 10 and 0.5% of the present extent (1997/98) of remaining Cullula Complex vegetation. A 1.8m fence with litter control capping will be constructed along the line from Map Grid of Australia (MGA) coordinate 402075mE, 6545552mN to MGA coordinate 403252mE, 6545552mN to minimise impacts on the area of 'Very Good' to 'Excellent' condition vegetation to the south of that fence line (Figure 3). The EPA is satisfied that the landfill footprint has been located to minimise impacts on 'Excellent' condition vegetation.

The EPA notes that the proponent has outlined management and mitigation measures in the EPS document (Version 10) and considers that these measures would further minimise impacts on flora and vegetation.



See Figure 5 in EPS document for details on 'Vegetation Association' and 'Vegetation Condition'

Figure 3: Area of 'Very Good' to 'Excellent' condition vegetation to be fenced off

Rehabilitation

The EPA considers that the surface of the cap should be rehabilitated to pre-development condition or better and notes the proponent's commitment to revegetate the cap of the landfill cells with selected local native species based on the data obtained from pre-construction vegetation surveys.

Summary

Having particular regard to the:

- extent of clearing representing approximately 0.5% of the remaining extent of the Cullula Complex vegetation in the System 6/System 1 area; and
- revegetation of the cap with selected local native species,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor provided that recommended Ministerial Conditions 7-1 is implemented.

5. Recommended Conditions

Having considered the proponent's commitments and the information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by Veolia Environmental Services to construct and operate a landfill accepting Class II-type waste and associated landfill gas collection and utilisation plant in Gingin is approved for implementation. These conditions are presented in Appendix 2.

6. Other Advice

The EPA notes that the proponent is required to apply for a Works Approval and Licence under Part V of the EP Act to construct and operate the proposed landfill accepting Class II-type waste and associated landfill gas collection and utilisation plant. The EPA understands that issues such as details of leachate management and groundwater monitoring, litter and pest management, dust, odour and post-closure can be managed under the approval process under Part V of the EP Act.

7. Conclusions

The EPA has considered the proposal by Veolia Environmental Services Australia Pty Ltd to construct and operate a Class II landfill, including a landfill gas collection and utilisation plant, in Gingin.

Ground and surface water quality

The EPA notes that the proposed landfill would only be accepting Class II-type waste, as defined in the Department of Environment (2005b) *Landfill Waste Classification and Waste Definitions 1996 (As Amended)*. The proponent should refer changes to type of waste acceptance to the EPA for consideration. The EPA considers that the proposed liner and capping design, which exceeds the specifications for a Class II landfill, would

minimise impacts on groundwater if constructed in accordance to the Draft Landfill BPEM (DoE, 2005a).

The EPA considers that potential risk to ground and surface water would be minimised through the satisfactory implementation of the Leachate Monitoring and Management Plan, which addresses leachate management and contingency measures.

Flora and vegetation

The EPA notes that approximately 0.5% of the present extent (1997/98) of remaining Cullula Complex vegetation in the System 6/part System 1 area as defined in Table 4 of the EPA Guidance Statement 10 (EPA, 2006) would be cleared and considers that the landfill has been sited to minimise impacts on 'Excellent' condition vegetation. The EPA also notes the proponent's commitment to revegetate the cap with selected local native species.

The EPA has therefore concluded that the proposal can be managed to meet the EPA's environmental objectives, provided there is satisfactory implementation by the proponent of their commitments and the recommended conditions set out in Appendix 2.

8. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the proposal being assessed is for the construction and operation of a Class II landfill, including a landfill gas collection and utilisation plant, in Gingin;
2. That the Minister considers the report on the key environmental factors as set out in Section 4;
3. That the Minister notes that the EPA has concluded that the proposal can be managed to meet the EPA's environmental objectives, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 2; and
4. That the Minister imposes the conditions and procedures recommended in Appendix 2 of this report.

Appendix 1

References

Allan Watson Associates (2007) *Veolia Environmental Services Fernview Farm Bioreactor Landfill Proposal: Assessment of Bioreactor Landfill Liner Integrity*, July 2007, Perth, WA.

Barber, C. (2007). *Hydrogeology of a Proposed Bioreactor Landfill site, Fernview Farm, Cullalla, Northeast of Gingin: Report for ATA Environmental, April 2006.* Included in Appendix C of "Veolia Environmental Services Australia Pty Ltd - Proposed Regional Bioreactor Landfill, Fernview Farm, Gingin: Environmental Approval Supporting Documentation". 9 January 2007, Perth, WA.

Coffey Environments (Coffey) (2008). *Veolia Environmental Services Australia Pty Ltd - Proposed Regional Landfill, Fernview Farm, Gingin: Environmental Approval Supporting Documentation*. 30 April 2008, Perth, WA.

Department of Environment (DoE) (2005a). *Draft Best Practice Environmental Management Siting, Design, Operation and Rehabilitation of Landfills*. November 2005, Perth, WA.

Department of Environment (2005b). *Landfill Waste Classification and Waste Definitions 1996 (As Amended)*. July 2005, Perth, WA.

Environmental Protection Authority (EPA) (2000). *EPA Position Statement 2: Environmental Protection of Native Vegetation in Western Australia*. December 2000, Perth, WA.

Environmental Protection Authority (2006). *EPA Guidance Statement 10: Level of Assessment for Proposals Affecting Natural Areas Within the System 6 Region and Swan Coastal Plain Portion of the System 1 Region*. June 2006, Perth, WA.

Heddle E.M., Loneragan O.W. and Havel J.J. (1980) Vegetation of the Darling System. IN: DCE 1980 *Atlas of Natural Resources, Darling System, Western Australia*. Department of Conservation and Environment, Perth, WA.

Appendix 2

Recommended Environmental Conditions

RECOMMENDED ENVIRONMENTAL CONDITIONS

Statement No.

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

CLASS II LANDFILL, LOT 7778 DIAGRAM 209805, 1189 WANNAMAL ROAD SOUTH, CULLULA, SHIRE OF GINGIN

Proposal: To construct and operate a landfill accepting Class II-type waste. Six cells will be constructed with a total operational lifetime of not more than 30 years. A landfill gas collection system and utilisation plant facility will also be constructed.

Proponent: Veolia Environmental Services (Australia) Pty Ltd

Proponent Address: 4-6 Rivers Street, BIBRA LAKE WA 6163

Assessment Number: **1736**

Report of the Environmental Protection Authority: Bulletin 1287

The proposal referred to in the above report of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as assessed by the Environmental Protection Authority and described in schedule 1 of this statement subject to the conditions and procedures of this statement.

1-2 The proponent shall implement the proposal within the boundary delineated by the AMG coordinates in schedule 2.

1-3 The proponent shall refer any changes to the type of waste intended for acceptance to the Environmental Protection Authority.

2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister for the Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal.

2-2 The proponent shall notify the Chief Executive Officer of the Department of Environment and Conservation (CEO) of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.

3 Time Limit of Authorisation

3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.

3-2 The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

4-1 The proponent shall submit to the CEO environmental compliance reports annually reporting on the previous twelve-month period, unless required by the CEO to report more frequently.

4-2 The environmental compliance reports shall address each element of an audit program approved by the CEO and shall be prepared and submitted in a format acceptable to the CEO.

4-3 The environmental compliance reports shall:

1. be endorsed by signature of the proponent's chief executive officer or a person, approved in writing by the CEO, delegated to sign on behalf of the proponent's chief executive officer;

2. state whether the proponent has complied with each condition and procedure contained in this statement;

3. provide verifiable evidence of compliance with each condition and procedure contained in this statement;

4. state whether the proponent has complied with each key action contained in any environmental management plan or program required by this statement;

5. provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by this statement;

6. identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance;

7. review the effectiveness of all corrective and preventative actions taken; and

8. describe the state of implementation of the proposal.

4-4 The proponent shall make the environmental compliance reports required by condition 4-1 publicly available in a manner approved by the CEO.

5 Performance Review and Reporting

5-1 The proponent shall submit to the CEO a Performance Review Report at the conclusion of the first, second, fourth, sixth, eighth and tenth years after the start of implementation and then, at such intervals as the CEO may regard as reasonable, which addresses:

1. the major environmental risks and impacts; the performance objectives, standards and criteria related to these; the success of risk reduction/impact mitigation measures and results of monitoring related to management of the major risks and impacts;

2. the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable; and

3. significant improvements gained in environmental management which could be applied to this and other similar projects.

5-2 The proponent shall make the Performance Review Reports required by condition 5-1 publicly available in a manner approved by the CEO.

6 Ground and Surface Water

6-1 The proponent shall construct the landfill cells in accordance with the minimum specifications for a Class II landfill as defined in *Draft Best Practice Environmental Management on Siting, Design, Operation and Rehabilitation of Landfill* (Department of Environment, 2005).

6-2 The proponent shall ensure that at all times landfill and waste mining activities preserve the quality of ground and surface water consistent with ANZECC* requirements, taking into consideration natural background water quality, so that existing and potential uses, including ecosystem maintenance, are protected.

* - *Australian Water Quality Guidelines for Fresh and Marine Waters*, ANZECC (November 1992, and its updates).

6-3 The proponent shall monitor the quality of groundwater on and in proximity to the proposal area shown in Figure 2 in schedule 1 (attached). This monitoring shall be done in accordance with the requirements of the CEO of the Department of Environment and Conservation.

6-4 The proponent shall submit the results of the monitoring to the CEO of the Department of Environment and Conservation in accordance with the timing and requirements of condition 6-3.

6-5 In the event that the requirements of condition 6-2 are not met, the proponent shall provide proposed management measures to the CEO of the Department of Environment and Conservation.

7 Flora and Vegetation

7-1 The proponent shall implement the proposal to avoid disturbance of areas south of line from Map Grid of Australia coordinate 402075mE, 6545552mN to Map Grid of Australia coordinate 403252mE, 6545552mN where 'Very Good' to 'Excellent' condition vegetation has been recorded.

Notes

1. Where a condition states "on advice of the Environmental Protection Authority", the Environmental Protection Authority will provide that advice to the Department of Environment and Conservation for the preparation of written notice to the proponent.

2. The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment and Conservation.

3. The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment and Conservation over the fulfilment of the requirements of the conditions.

4. The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the *Environmental Protection Act 1986.*

Schedule 1

The Proposal (Assessment No. 1736)

General Description

The proposal is to construct and operate a landfill accepting Class II-type waste and associated landfill gas collection and utilisation plant. The proposal is located in the Shire of Gingin (Figure 1) on the northeast corner of Lot 7778 Wannamal Road South (Figure 2).

From Brand Highway, site access would be through Wannamal Road West, Wannamal Road South and initially through a previously cleared easement to the south of the footprint, shown as 'Existing Light Vehicle Access' on Figure 2. The proposed long-term access roads are Wannamal Road West, Wannamal Road South and an internal access road to the east of the landfill footprint, shown as 'Main Access Road' on Figure 2.

The proposal is described in the following document – *Proposed Regional Landfill, Fernview Farm, Gingin: Environmental Approval Supporting Documentation, Version 10* (30 April 2008).

Summary Description

A summary of the key proposal characteristics is presented in Table 1.

8.1.1 Table 1: Summary of key proposal characteristics

Element	Description
General	
Project life	Not more than 30 years
Operating hours for waste acceptance	Monday to Friday – 0700 to 1700 Saturday – 0700 to 1600 Public holidays – Open except for Good Friday and Christmas
Development boundary	Delineated by AMG Coordinates in Schedule 2
Total vegetation clearing	Not more than 61 hectares for infrastructure and internal access roads
Waste acceptance and transport	
Waste acceptance rate	Not more than 150,000 tonnes per annum of Class II-type waste[1]
External access roads to landfill site from Brand Highway	Wannamal Road West and Wannamal Road South
Infrastructure	
Landfill area	Not more than 30 hectares
Internal access roads	As shown in Figure 2
Leachate storage ponds	Two ponds lined with same lining system as landfill cells
Other facilities	Landfill gas extraction and utilisation plant, weighbridge, administration office, utilities, equipment storage yard, fencing.
Landfill design	
Landfill design and construction	In accordance with the Department of Environment's 2005 *Draft Best Practice Environmental Management on Siting, Design, Operation and Rehabilitation of Landfill* for a Class II landfill[1] as a minimum.
Post-capping contours	Not more than 225 metres Australian Height Datum

[1]Class II-type waste and Class II landfill as defined in the Department of Environment *Landfill Waste Classification and Waste Definitions 1996 (As amended).*

Figures (attached)

Figure 1 – Regional location of proposal
Figure 2 – Proposal footprint

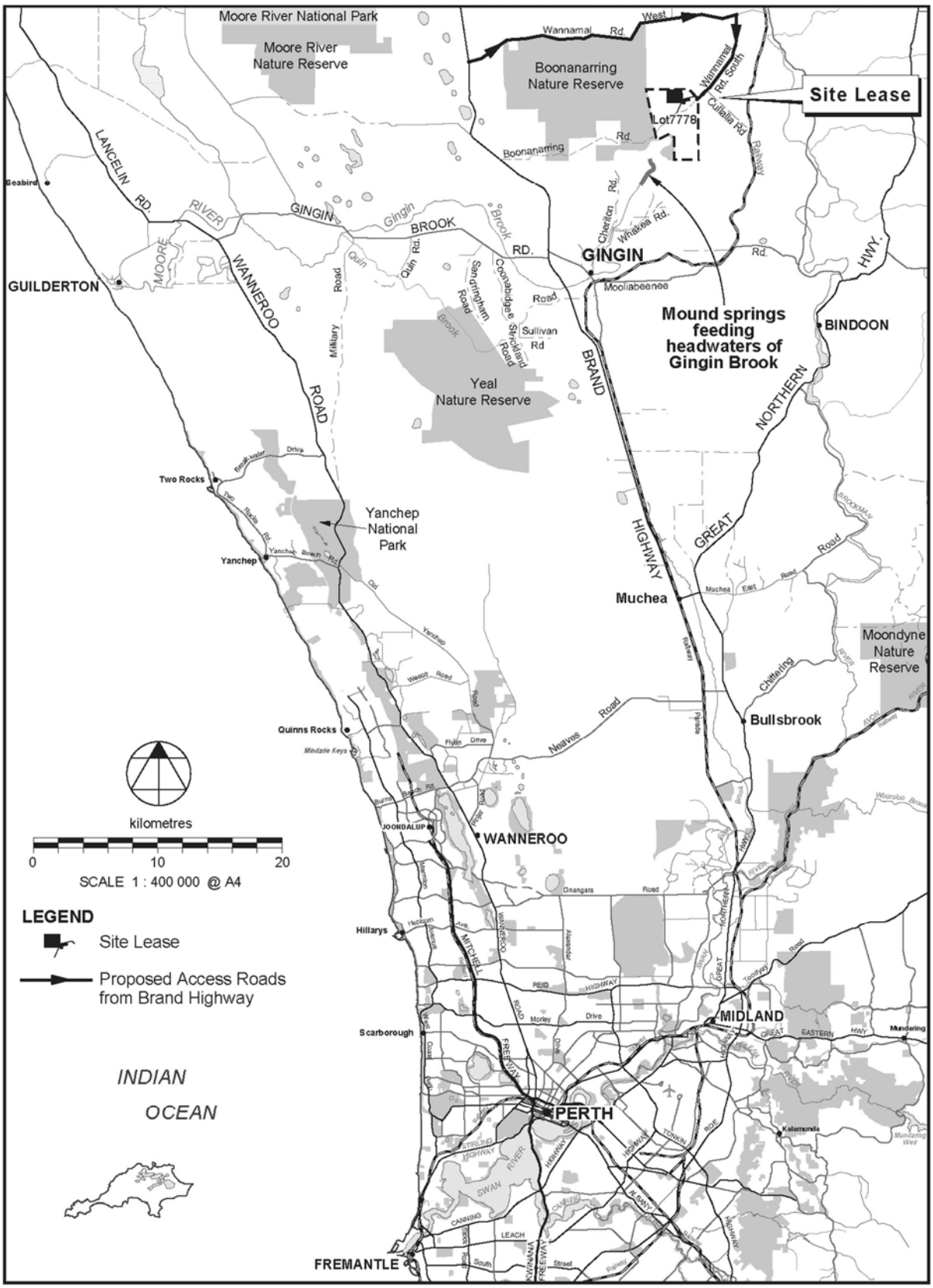


Figure 1: Regional location of proposal

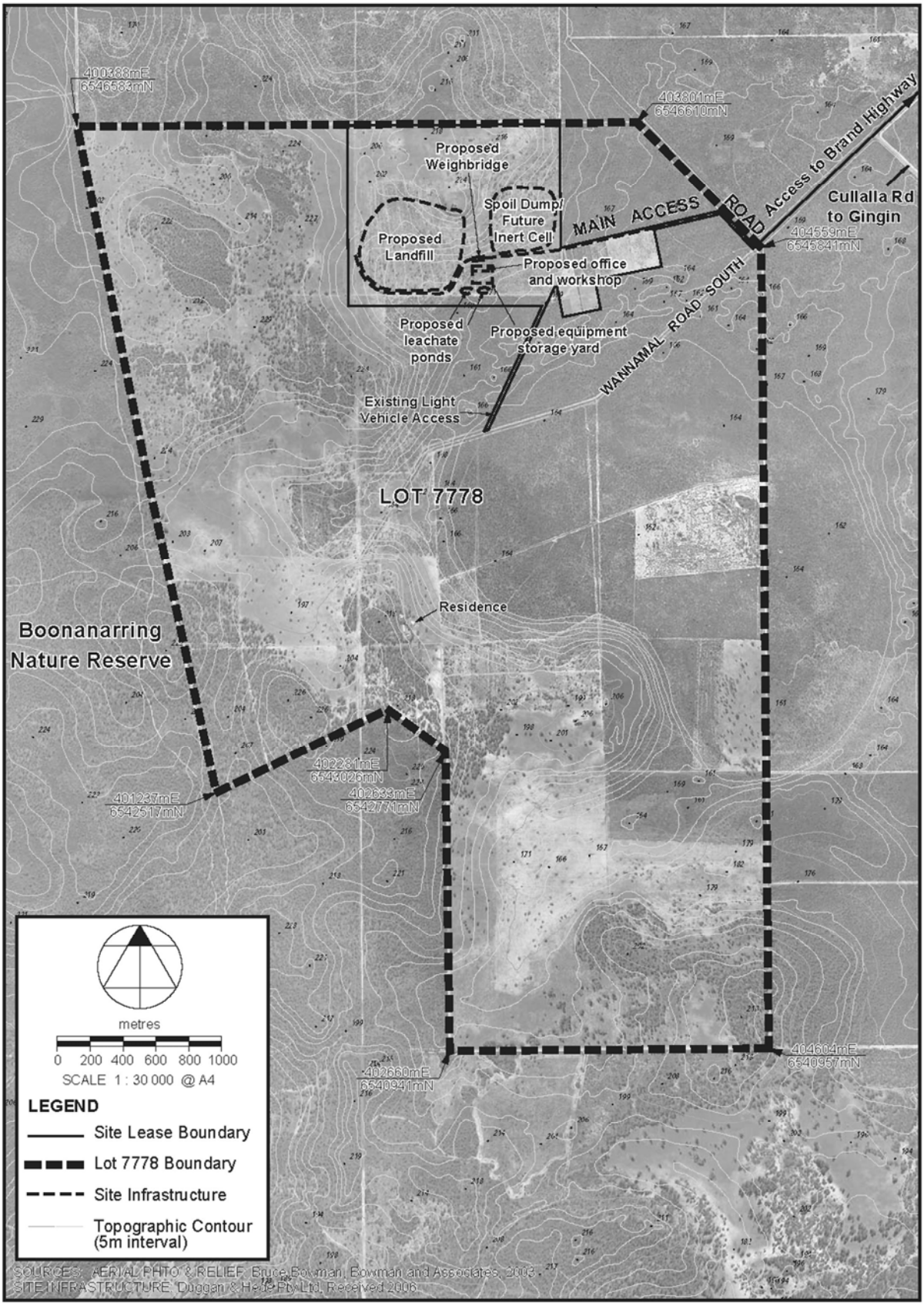


Figure 2: Proposal footprint

Schedule 2

The Proposal (Assessment No. 1736)

AMG coordinates to delineate boundary of proposal development area.

402075mE, 6545552mN
403252mE, 6545552mN
402868mE, 6544720mN
402895mE, 6544730mN
403299mE, 6545607mN
403350mE, 6545422mN
403579mE, 6545470mN
403546mE, 6545646mN
403951mE, 6545727mN
403905mE, 6545953mN
404308mE, 6546047mN
404507mE, 6545836mN
404522mE, 6545849mN
404315mE, 6546069mN
403338mE, 6545841mN
403330mE, 6546598mN
402070mE, 6546588mN