



## Application for Works Approval

### Part V Division 3 of the *Environmental Protection Act 1986*

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<b>Works Approval Number</b>	W6600/2021/1
<b>Applicant</b>	Minesite Recycling Pty Ltd
<b>ACN</b>	128 335 893
<b>File number</b>	DER2021/000285
<b>Premises</b>	Lot 51 Laverton-Leonora Rd LEONORA WA 6438  Legal description - Lot 51 on Plan 189395  As defined by the coordinates in Schedule 1 of the works approval
<b>Date of report</b>	11 January 2022
<b>Decision</b>	Works approval granted

Stephen Checker  
Manager, Waste Industries

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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## 1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and time limited operation of the premises. As a result of this assessment, works approval W6600/2021/1 has been granted.

## 2. Scope of assessment

### 2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

### 2.2 Application summary and overview of premises

On 12 May 2021, Minesite Recycling Pty Ltd (the applicant) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works and the time limited operation of a landfill facility and solid waste depot at the premises. The premises is approximately 9 km east of the town of Leonora.

Minesite Recycling Pty Ltd is a waste and recycling business that provides a site clean-up, waste management and controlled waste service throughout the Goldfields in Western Australia.

The applicant will operate two landfill trenches at a time, progressively covering and rehabilitating each trench before opening another. One trench will be designated as a Class I inert landfill site and the other a Class II putrescible landfill site. A solid waste depot will also be in operation at the site for waste to be sorted for recycling or disposal.

The premises relates to the categories and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6600/2021/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6600/2021/1.

### 2.3 Clearing of native vegetation

The application included a request to clear five hectares of native vegetation within a 29 hectare clearing envelope. The clearing permit assessment report is attached as Attachment 1 to this report.

## 3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

## 3.1 Source-pathways and receptors

### 3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 1 below. Table 1 also details the proposed control measures the applicant has proposed to assist in controlling these emissions, where necessary.

**Table 1: Proposed applicant controls**

Emission	Sources	Potential pathways	Proposed controls
<b>Construction</b>			
Dust	Earthworks, vehicle movements and lift-off from stockpiles	Air/windborne pathway	Reducing speeds Wetting down all unsealed roads Dust generating activities will be limited by weather conditions Maintain water supply for dust suppression.
Noise	Earthworks and vehicle movements	Air/windborne pathway	No controls explicitly stated
<b>Operation</b>			
Dust	Lift off from landfill and stockpiles of waste.	Air/windborne pathway	As above
Noise	Operation of machinery and movement of vehicles	Air/windborne pathway	No controls explicitly stated
Odour	Landfilling of putrescible waste	Air/windborne pathway	Progressive covering of waste in accordance with the <i>Environmental Protection (Rural Landfills) Regulations 2002</i> . Complaints management and investigation
Leachate	Landfilling of putrescible waste and rainfall infiltrating through waste.	Infiltration through soil	No waste will be within 3 m of the highest level of the water table aquifer at the site.
Contaminated stormwater	Rainfall coming in contact with putrescible waste	Overland flow	Diversion drainage will be used to divert surface flows around the landfill to a designated sump
Windblown waste	Landfilling of waste and storage of waste at the solid waste depot	Air/windborne pathway	Fence to be installed around the landfill cell area.

Emission	Sources	Potential pathways	Proposed controls
Fire/smoke	Ignition of waste	Air/windborne pathway	A firebreak of at least 3m will be established around the boundary of the site.

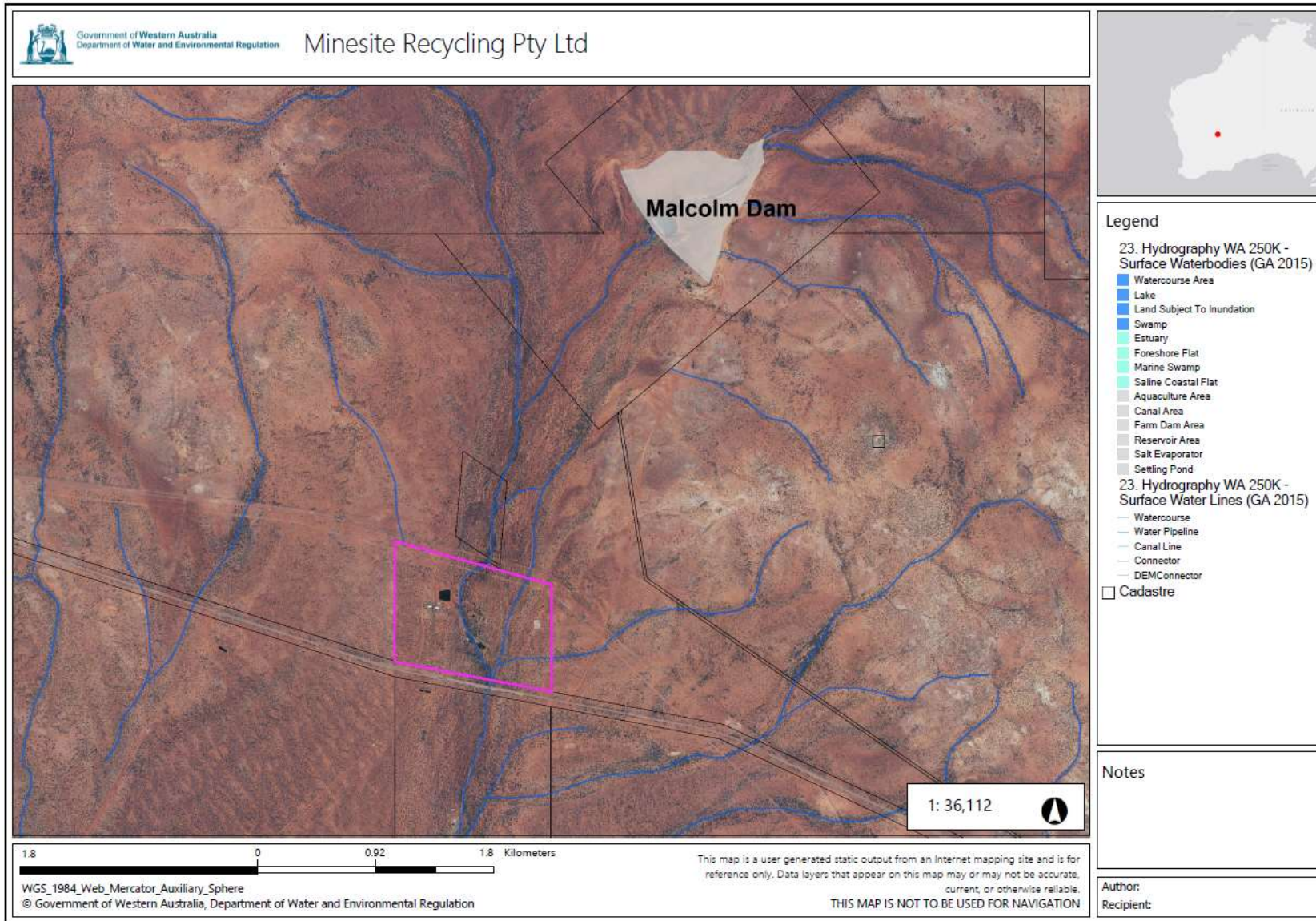
### 3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 2 and Figure 1 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

**Table 2: Sensitive human and environmental receptors and distance from prescribed activity**

Human receptors	Distance from prescribed activity
Braemore Station	~2 km north of the Premises
Minara Station	~3 km north east of the Premises
Town of Leonara	~9 km west of the Premises
Environmental receptors	Distance from prescribed activity
Drainage lines	Three located within the Premises. The closest being ~250 m to the east of the landfill cells.
Underlying groundwater	Groundwater depth was measured at two bores at the Premises. Water was measured at 8.5 m at the northern bore and at 12 m at the southern bore.
Lake Raeside	~ 8.5 km south of the Premises (located down stream of the Premises)
Malcolm Dam	~2.5 km north west of the Premises (located up stream of the Premises)
Goldfield Groundwater Area – are proclaimed under the <i>Rights in Water and Irrigation Act 1914</i>	Premises located within proclaimed area



**Figure 1: Distance to sensitive receptors**

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IR-T13 Decision report template (short) v3.0 (May 2021)

## 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works approval W6600/2021/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

**Table 3: Risk assessment of potential emissions and discharges from the premises during construction and operation**

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
<b>Construction</b>								
Earthworks, vehicle movements and lift-off from stockpiles	Dust	Air/windborne pathway causing impacts to surface water	Three drainage lines located within the Premises	Refer to Section 3.1	C = Minor L = Rare <b>Low Risk</b>	Y	N/A	N/A
	Noise	Air/windborne pathway causing impacts to health and amenity	No residential receptors located within 2 km of the premises	Refer to Section 3.1	No receptors present			
<b>Operation (including time-limited-operations operations)</b>								
<b>Category 62</b> Acceptance and storage of waste pending offsite disposal. Vehicle movements	Dust	Air/windborne pathway causing impacts to surface water	Three drainage lines located within the Premises	Refer to Section 3.1	C = Minor L = Rare <b>Low Risk</b>	Y	Condition 6	N/A
	<b>Category 63</b> Acceptance and burial of inert waste	Noise	Air/windborne pathway causing impacts to health and amenity	No residential receptors located within 2 km of the premises	Refer to Section 3.1	No receptors present		
<b>Category 64</b> Acceptance and burial of putrescible waste		Odour	Air/windborne pathway causing impacts to health and amenity	No residential receptors located within 2 km of the premises	Refer to Section 3.1	No receptors present		
	Leachate from inert landfill	Infiltration through soil profile to groundwater	Groundwater 5 to 15m	Refer to	C = Minor		Conditions 1, 6 and 7	N/A

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Risk Event					Risk rating <sup>1</sup>	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
		causing potential impacts on ecological values and beneficial uses associated with quality of water in the aquifer	below ground level	Section 3.1	L = Unlikely <b>Medium Risk</b>			
	Leachate from putrescible landfill			Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	Conditions 1, 6 and 7	N/A
	Contamination of surface and groundwater from the storage of solid waste	Infiltration through soil profile to groundwater causing potential impacts on ecological values and beneficial uses. Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Groundwater 5 to 15m below ground level Three drainage lines located within the Premises	Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	N	Conditions 1, <b>6 and 7</b>	To prevent contamination of surface and stormwater specifications have been added to the licence that only allow depolluted car bodies, empty and rinsed IBCs to be stored on site. A requirement for e-waste to be stored in covered bins has also been added.
	Sediment laden stormwater	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Three drainage lines located within the Premises	Refer to Section 3.1	C = Minor L = Unlikely <b>Medium Risk</b>	N	Condition 1 and <b>6</b>	To prevent silt laden stormwater entering the drainage lines a requirement has been added to licence requiring stormwater to be diverted away from drainage lines.
	Windblown waste	Air/windborne pathway causing impacts to amenity	Adjacent vegetation and drainage lines	Refer to Section 3.1	C = Minor L = Unlikely <b>Medium Risk</b>	Y	Condition 1 and 6	N/A
	Fire/smoke	Airborne particulate matter causing impacts to health	Adjacent vegetation	Refer to Section 3.1	C = Moderate	N	<b>Conditions 6</b>	A requirement to implement a Fire and Emergency

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Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
		and amenity of human receptors. Damage/destruction of adjacent vegetation			L = Unlikely <b>Medium Risk</b>			Management Plan has been added to condition 6 to ensure that the risk of fire/smoke emissions are adequately managed.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

## 4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

**Table 4: Consultation**

Consultation method	Comments received	Department response
Application advertised on the department's website on 25 October 2021	No submissions received	N/A
Local Government Authority advised of proposal on 21 October 2021	Email received from the Shire of Leonora advising that the Shire would be providing a submission.	N/A
Applicant was provided with draft documents on 3 December 2021	Email received from the Applicant on 11 January 2022 advising that no comments are to be provided.	N/A

## 5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

## References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

## Appendix 1: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)				
Application type				
Works approval	<input checked="" type="checkbox"/>			
Licence	<input type="checkbox"/>	Relevant works approval number:		None <input type="checkbox"/>
		Has the works approval been complied with?		Yes <input type="checkbox"/> No <input type="checkbox"/>
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes <input type="checkbox"/> No <input type="checkbox"/>
		Date Report received:		
Renewal	<input type="checkbox"/>	Current licence number:		
Amendment to works approval	<input type="checkbox"/>	Current works approval number:		
Amendment to licence	<input type="checkbox"/>	Current licence number:		
		Relevant works approval number:		N/A <input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:		None <input type="checkbox"/>
Date application received		12 May 2021		
Applicant and Premises details				
Applicant name/s (full legal name/s)		Minesite Recycling Pty Ltd		
Premises name		n/a		
Premises location		Lot 51 Laverton Leonora Rd, Leonora		
Local Government Authority		Leonora		
Application documents				
HPCM file reference number:		DER2018/001042-5~56		
Key application documents (additional to application form):		Supporting documentation: Works Approval and Native Vegetation Clearing Permit Application - Lot 51 Laverton Leonora Road		
Scope of application/assessment				

**SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)**

Summary of proposed activities or changes to existing operations.

Construction of a landfill and waste transfer station

**Category number/s (activities that cause the premises to become prescribed premises)**

**Table 1: Prescribed premises categories**

Prescribed premises category and description	Proposed production or design capacity	
Category 62: Solid waste depot	5,000 tpa	
Category 63: Class I inert landfill	5,000 tpa	
Category 64: Class II inert landfill	200 tpa	

**Legislative context and other approvals**

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input checked="" type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input type="checkbox"/> Expiry: Other evidence <input type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	Approval: Expiry date: If N/A explain why?
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	CPS No: N/A Cleaning has been applied for under the Works Approval
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: N/A Licence/permit No: N/A

**SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)**

<p>Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Application reference No: Licence/permit No:</p>
<p>Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Name: N/A Type: N/A Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Regional office: N/A</p>
<p>Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Name: N/A Priority: N/A Are the proposed activities/landuse compatible with the PDWSA (refer to <a href="#">WQPN 25</a>)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p>
<p>Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004</i>, <i>Environmental Protection (Controlled Waste) Regulations 2004</i>)</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>The proponent holds a controlled waste carrier licence (Licence Number T00606)</p>
<p>Is the Premises within an Environmental Protection Policy (EPP) Area?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises subject to any EPP requirements?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Classification: N/A Date of classification: N/A</p>

# Attachment 1: Clearing Permit Assessment Report



## Clearing Permit Assessment Report

### 1 Application details and outcome

#### 1.1. Permit application details

<b>Permit number:</b>	CPS 9308/1
<b>Permit type:</b>	Works Approval
<b>Applicant name:</b>	Minesite Recycling Pty Ltd
<b>Application received:</b>	31 May 2021
<b>Application area:</b>	5 hectares of native vegetation
<b>Purpose of clearing:</b>	Establish trenches for a Class I inert landfill and a Class II putrescible landfill facility and a waste transfer station
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Lot 51 on Plan 189395
<b>Location (LGA area/s):</b>	Leonora
<b>Localities (suburb/s):</b>	Leonora

#### 1.2. Description of clearing activities

The vegetation proposed to be cleared is distributed across a 29 hectare clearing envelope (see Figure 1, Section 1.5). The location of clearing has been selected to minimise clearing of native vegetation. The north-west corner of the premise was chosen for the landfill facility as it has been previously cleared. Vegetation at this location is minimal and the landfill cells have been designed to avoid clearing until later stages of the project.

The location of additional infrastructure, such as a sump, had not been confirmed by the applicant and therefore the entire 29 hectare lot is included in this assessment.

#### 1.3. Recommended decision on application

<b>Recommended clearing Decision:</b>	Grant
	Date to be determined by works approval
<b>Recommended clearing Decision area:</b>	5 hectares of native vegetation, as depicted in Section 1.5, below.

#### 1.4. Reasons for recommended decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act) and Industry Regulation Work Instruction 08.

In making this decision recommendation, the Delegated Officer had regard for the site characteristics (see Appendix C), relevant datasets (see Appendix H.1) and the findings of a flora, fauna and vegetation surveys (see Appendix F), the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).



The assessment identified that the proposed clearing will result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values; and
- potential displacement impacts to individual fauna inhabiting the area proposed to be cleared.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to have long-term adverse impacts on environmental values and that the potential introduction of weeds into adjacent vegetation can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values. The applicant has suitably demonstrated avoidance and minimisation measures and no residual impacts are likely to result from the proposed clearing.

The Delegated Officer decided to recommend granting clearing as part of the works approval subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds; and
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity

## 1.5. Site map



**Figure 1** Map of the application area

The area cross-hatched yellow indicates the area authorised to be cleared under the granted works approval.

## 2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- *Technical guidance – Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

Advice and schematics (see Figure 2 below) were submitted by the applicant, demonstrating that the extent of clearing has been located within the north-west corner of the application area where there is little to no native vegetation.

The location of other associated infrastructure, such as a sump, cannot be identified at this time. Where possible, the sump will be located to avoid and minimise the clearing of good quality native vegetation.

The Delegated Officer is satisfied that the applicant has undertaken reasonable measures to avoid and minimise potential impacts of the proposed clearing on environmental values.

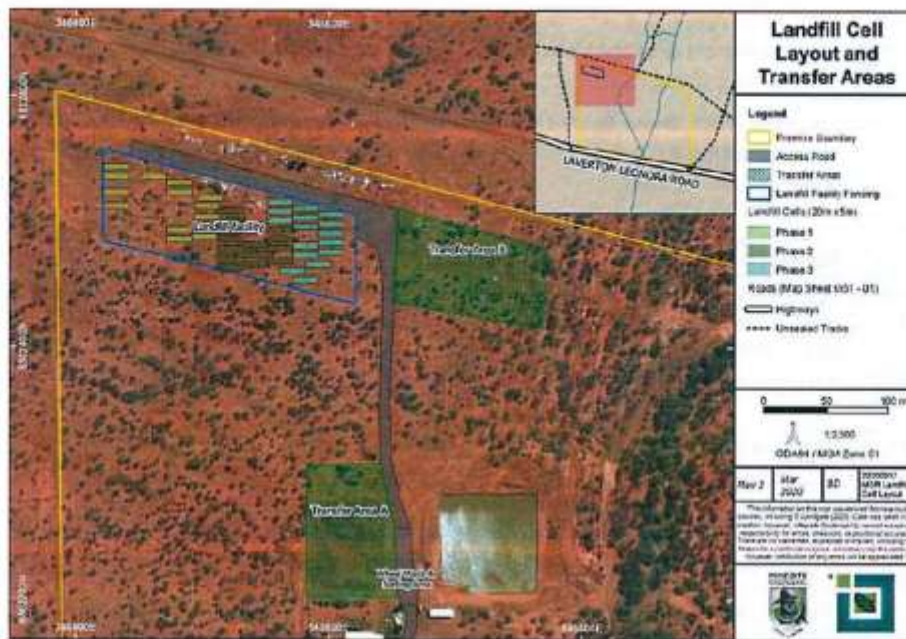


Figure 4 Layout of landfill cells and transfer areas

Figure 2: Schematic of landfill cells and transfer areas (Minesite Recycling Pty Ltd, 2021)

### 3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix C) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix D) identified the impacts of the proposed clearing are limited and able to be managed to be environmentally acceptable with standard avoid and minimise, hygiene and fauna management conditions.

### 3.3. Relevant planning instruments and other matters

This assessment is undertaken concurrently with a works approval application. The controlling instrument will be the works approval and recommended measures from this assessment will be incorporated into this instrument.

**End**

## Appendix C. Site characteristics

### C.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by native vegetation and adjacent (west) to a tributary to Lake Raeside.</p> <p>Spatial data indicates the local area (20-kilometre radius from the centre of the area proposed to be cleared) retains approximately 99 per cent of the original native vegetation cover.</p>
Ecological linkage	<p>There are no mapped ecological linkages within, or in close proximity to the application area. The application area is part of an expansive tract of native vegetation and is not likely to be part of an ecological linkage at a local or regional scale.</p>
Conservation areas	<p>There are no conservation areas within the local area.</p>
Vegetation description	<p>A vegetation survey (Native Vegetation Solutions, 2020) indicates the vegetation within the proposed clearing area consists of mulga shrubland described as Open Shrub Mallee (Muir, 1977) was dominated by <i>Acacia aneura</i>, <i>Acacia mulganeura</i>, <i>Acacia ramulosa</i> var. <i>ramulosa</i>, <i>Eremophila compacta</i>, <i>Eremophila latrobei</i> subsp. <i>latrobei</i>, <i>Solanum lasiophyllum</i> and <i>Teucrium teucriiflorum</i>. The full survey description and maps are available in Appendix F.</p> <p>This is consistent with the mapped vegetation type(s):</p> <ul style="list-style-type: none"> <li>• Beard vegetation association 18, which is described as Low woodland; mulga (<i>Acacia aneura</i>) (Shepherd et al, 2001)</li> </ul> <p>The mapped vegetation type retain approximately 99 per cent of the original extent (Government of Western Australia, 2019).</p>
Vegetation condition	<p>A vegetation survey (Native Vegetation Solutions, 2020) indicates the vegetation within the proposed clearing area is in degraded to good (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> <li>• Good: Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.</li> <li>• Degraded: Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.</li> </ul> <p>The full Keighery (1994) condition rating scale is provided in Appendix E. The survey descriptions and mapping are available in Appendix F.</p>
Climate and landform	<p>Extracted from Native Vegetation Solutions (2020)</p> <p>"The annual average rainfall at Leonora is 236.4 mm, which falls (&gt;1 mm) on an average of 29.1 days (BOM, 2020). Rainfall is relatively even throughout the year with slightly larger rainfall events occurring between the months of January and August (Figure 3). Prior to the survey in 2020, rainfall in January and March exceeded monthly averages, with January receiving more than double the average rainfall. February received below average rainfall (BOM, 2020)."</p> <p>The application area slopes slightly to the east with approximately 20 metres elevation decline from the west to the east side of the application area.</p>

Characteristic	Details
Soil description	The soil is described as extensive, gently undulating calcareous stony plains supporting bluebush shrublands (Schoknecht et al., 2004).
Land degradation risk	The application area has no land degradation risk factor mapping and is not likely to have any high land degradation risk factors based on soil types throughout the local area.
Waterbodies	The desktop assessment and aerial imagery indicated that there are no wetlands within, or in close proximity to, the application area.  There is one manmade dam and a tributary to Lake Raeside which are adjacent (east) to the application area.
Hydrogeography	Groundwater Salinity (Total Dissolved Solids) is mapped at 1000-3000 mg/L. Hydrogeology is described as <ul style="list-style-type: none"> <li>Ab: Fractured and deeply weathered rocks - local aquifers, minor groundwater resources, locally large supplies from fracture zones and permeable horizons in weathering profile; Mafic and ultramafic rocks, basalt, komatiite and minor metasediments; subsurface weathered to clay (indicated by light colour)</li> </ul> <p>The application area is mapped within Goldfields groundwater Rights in Water Irrigation Area.</p>
Flora	There are records of three priority flora taxa (all priority three) within 20 kilometres of the application area, none of which are found on the same soil type as the application area.  A flora survey identified: <i>"No flora located in the survey area, are gazetted as Threatened pursuant to Section 5(1) of the Biodiversity Conservation Act 2016. No plant taxa listed as Threatened pursuant to Schedule 1 of the Environment Protection and Biodiversity Conservation Act 1999 were located within the survey area."</i>  <i>One Priority Flora Species, Eucalyptus kruseana (P4) was recorded in the survey area at two locations. It is assumed that this species was planted or seeded on the property, as its natural distribution occurs around Karonie, some 250km southeast of the survey area."</i> (Native Vegetation Solutions, 2020)
Ecological communities	One priority and no threatened ecological communities have been recorded in the local area (20km radius). <ul style="list-style-type: none"> <li>Melita calcrete groundwater assemblage type on Raeside palaeodrainage on Melita (Sons of Gwalla) Station: Priority One ecological community. This PEC is known from a unique assemblage of invertebrates identified in groundwater calcretes. Threats: mining</li> </ul> <p>A survey of the application area identified: <i>"No unique or restricted vegetation communities were identified, and all vegetation types/communities are common, widespread and well represented in the Eastern Murchison subregion."</i> (Native Vegetation Solutions, 2020)</p>
Fauna	Seven conservation significant fauna are recorded in local area.  A vertebrate fauna risk assessment identified: <i>"One threatened species of fauna and one migratory/marine species of birds identified under the EPBC Act 1999 potentially occur in the project area. There are three Schedule species listed under the BC Act 2016 and one species listed on the DBCA's Priority Fauna List that potentially occur in the project area."</i> (Terrestrial Ecosystems, 2020)

Characteristic	Details
	None of the conservation significant fauna identified have critical habitat within the application area.

### Appendix D. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><b>Principle (a):</b> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain locally or regionally significant flora, fauna, habitats, assemblages of plants.</p>	Not likely to be at variance	No
<p><b>Principle (b):</b> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain any significant or critical habitat for conservation significant fauna.</p>	Not likely to be at variance	No
<p><b>Principle (c):</b> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is unlikely to contain habitat for threatened flora species listed under the BC Act.</p>	Not likely to be at variance	No
<p><b>Principle (d):</b> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain species that can indicate a threatened ecological community listed under the BC Act.</p>	Not likely to be at variance	No
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><b>Principle (e):</b> "Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."</p> <p><u>Assessment:</u></p> <p>The extent of the mapped vegetation type and native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	Not likely to be at variance	No
<p><b>Principle (h):</b> "Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."</p> <p><u>Assessment:</u></p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of any conservation areas.		
<b>Environmental value: land and water resources</b>		
<p><u>Principle (f):</u> "Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."</p> <p><u>Assessment:</u></p> <p>Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to impact on- or off-site hydrology and water quality.</p>	Not likely to be at variance	No
<p><u>Principle (g):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."</p> <p><u>Assessment:</u></p> <p>The mapped soils are not susceptible to land degradation. Noting the extent of native vegetation that will be retained within the application area, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."</p> <p><u>Assessment:</u></p> <p>Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."</p> <p><u>Assessment:</u></p> <p>The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p> <p>Given no water courses or wetlands are recorded within the application area, the proposed clearing is unlikely to contribute to waterlogging.</p>	Not likely to be at variance	No

### Appendix E. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

#### Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.



Condition	Description
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

## Appendix F. Biological survey information excerpts

Excerpt from Native Vegetation Solutions (2020) vegetation description, vegetation mapping and condition mapping.

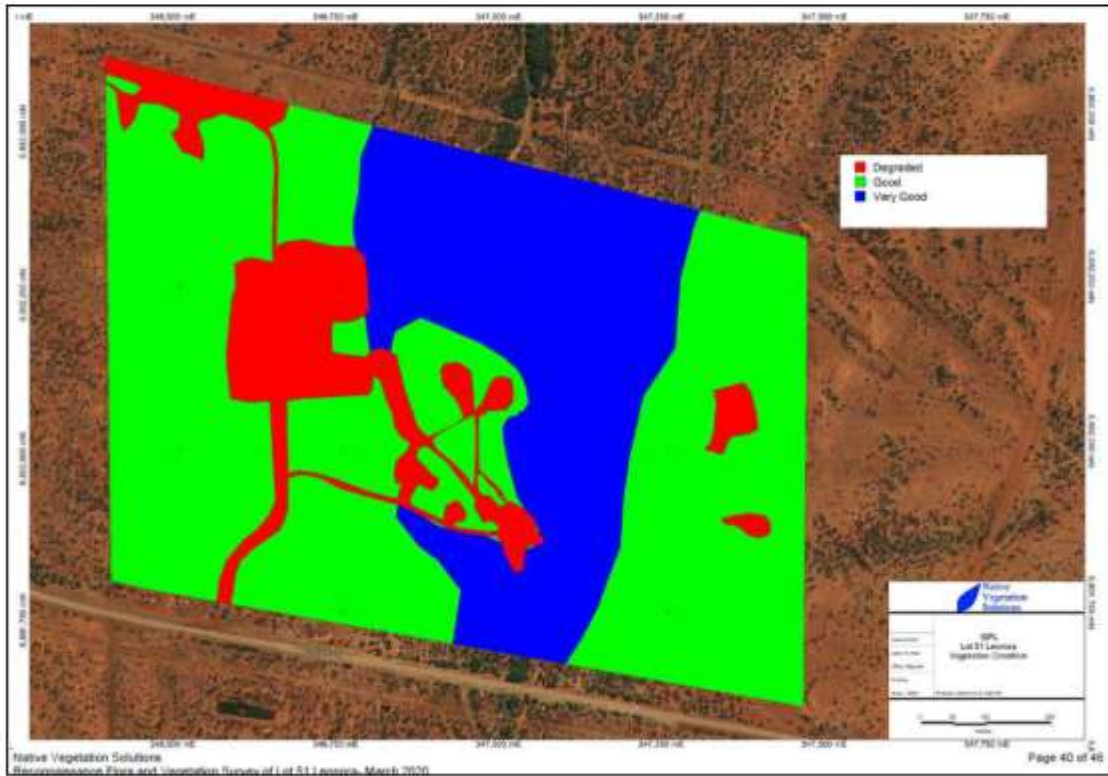
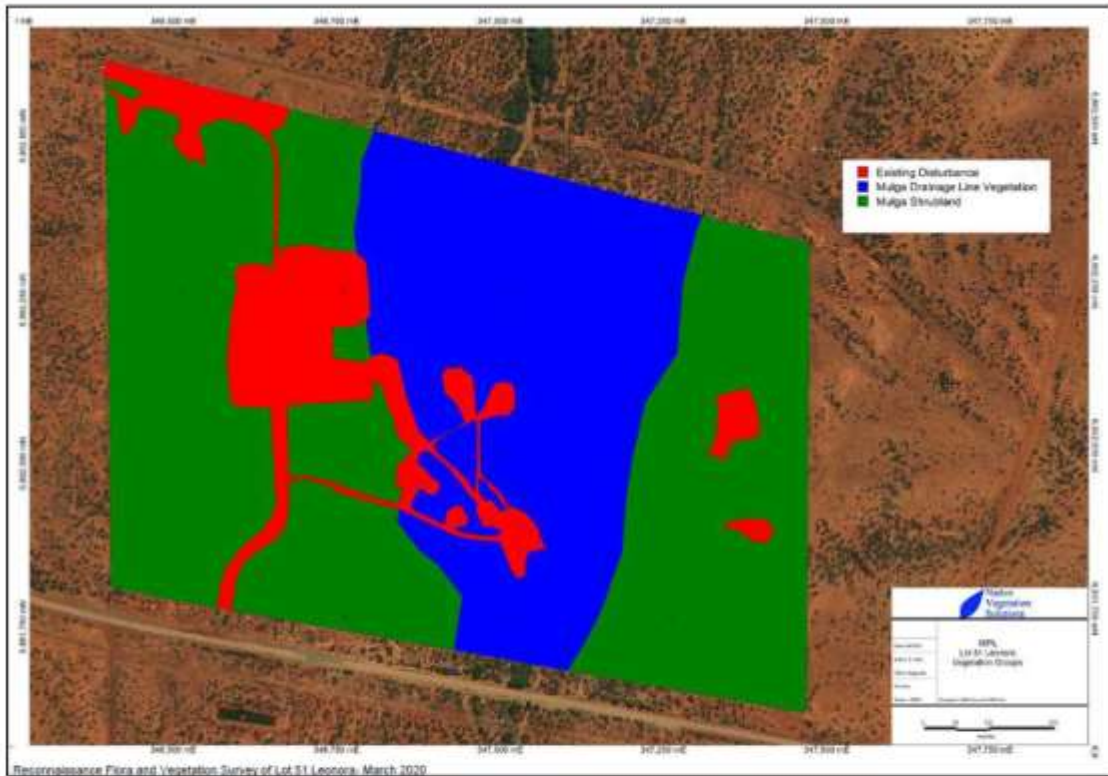
### 3.2.2.1 Mulga Shrubland

This vegetation group consisted of 20 Families, 29 Genera and 57 Species. The vegetation group was approximately 44.74 ha which makes up 54.72% of the survey area.

Open Shrub Mallee (Muir, 1977) was dominated by *Acacia aneura*, *Acacia mulganeura*, *Acacia ramulosa* var. *ramulosa*, *Eremophila compacta*, *Eremophila latrobei* subsp. *latrobei*, *Solanum lasiophyllum* and *Teucrium teucriiflorum*.



Figure 5: Mulga Shrubland within the survey area



Excerpt of fauna habitat mapping from Terrestrial Ecosystems Fauna Habitat Assessment (2020)

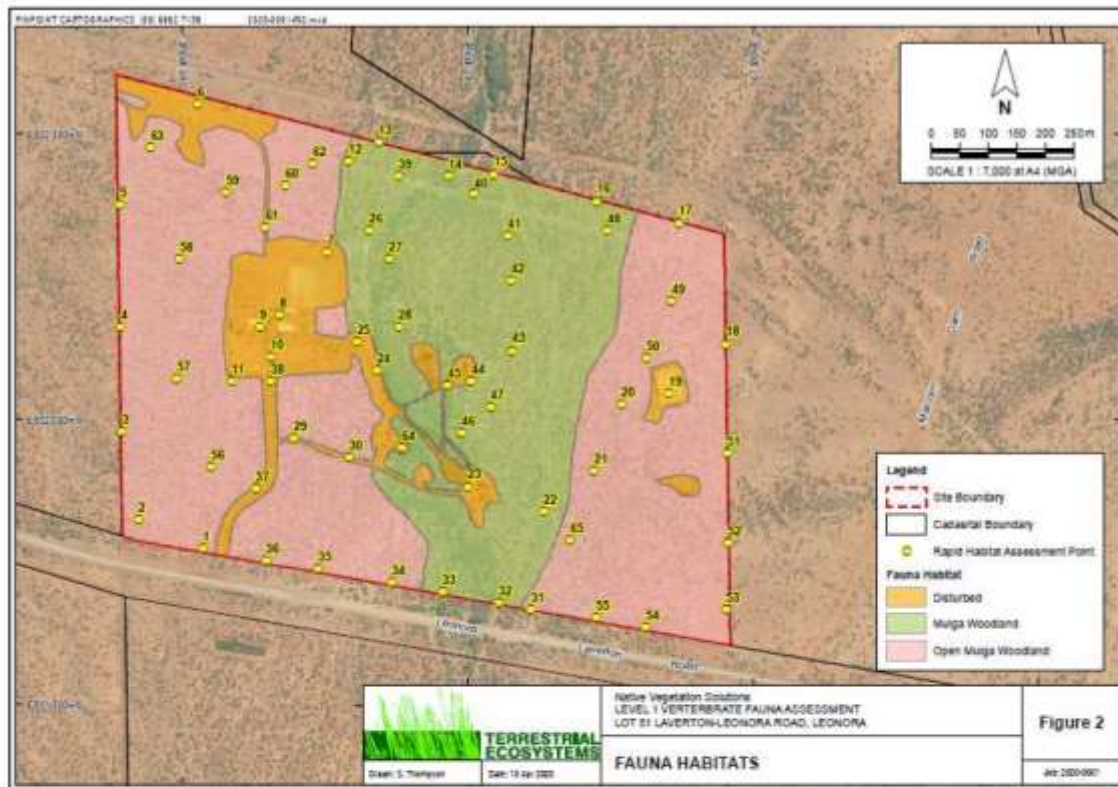


Figure 2

## Appendix H. Sources of information

### H.1. GIS databases

Publicly available GIS Databases used (sourced from [www.data.wa.gov.au](http://www.data.wa.gov.au)):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)

- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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