



**mainroads**  
WESTERN AUSTRALIA

# **GNH 523, 593, 660, 770, 764 and Cue Wondinong 7.1 SLK Strategic Material Pits**

## **Supporting Document**

June 2019

# Contents

<b>1</b>	<b>SUMMARY .....</b>	<b>3</b>
1.1	Project Information .....	3
1.2	Impacts to Key environmental aspects .....	3
<b>2</b>	<b>PROJECT DESCRIPTION .....</b>	<b>2</b>
2.1	Project Location .....	2
<b>3</b>	<b>ASSESSMENT OF VEGETATION CLEARING .....</b>	<b>6</b>
3.1.1	Measures to Avoid and Minimise Clearing .....	6
3.1.2	Vegetation Details .....	7
3.1.3	Assessment against the Ten Clearing Principles .....	12
<b>4</b>	<b>ADDITIONAL ACTION REQUIRED .....</b>	<b>18</b>
<b>5</b>	<b>CONSTRAINTS MAPPING .....</b>	<b>19</b>
<b>6</b>	<b>REFERENCES .....</b>	<b>21</b>
<b>7</b>	<b>APPENDICES .....</b>	<b>22</b>
	Appendix A: Department of Planning, Lands and Heritage AHIS Search .....	23
	Appendix B: DoEE Protected Matters Database Search .....	26

# 1 SUMMARY

## 1.1 Project Information

**Project Title:** GNH 523, 593, 660, 770, 764 and Cue Wondinong 7.1 SLK

**Project location(s):** This project occurs on Great Northern Highway (GNH) 523, 593, 660, 770, 764 and Cue Wondinong Road 7.1 SLK within the Shires of Meekatharra, Cue and Mount Magnet.

**Project purpose / components:** This project involves the investigation and stockpiling of potential road building material areas for maintenance and construction purposes.

**Area proposed to be cleared:** 390 hectares (ha).

**Temporary clearing required:** Yes, 390ha.

Project activities will be completed using a separate clearing permit to undertake native vegetation clearing. Details regarding native vegetation clearing and an assessment against the clearing principles are addressed in Section 3.1.3.

## 1.2 Impacts to Key environmental aspects

- The project requires the clearing of approximately 390 hectares of native vegetation.
- Aboriginal Heritage - A heritage survey has been commissioned for this project.
- Land - Project Manager to gain all the relevant land approvals.
- Surface Water - Watercourses intersect the project but no bed and banks is required. Management actions will be implemented.
- Flora - 11 individuals of *Drummondita miniata* (P3) will need to be removed for this project.
- This project is:
  - At variance to Principle (f) due to the removal of up to 10.13ha of riparian vegetation
  - Not likely to be at variance to the remaining Principles.

## 2 PROJECT DESCRIPTION

This project involves the investigation and stockpiling of potential road building materials on various locations on GNH within the Shire of Meekatharra, Cue and Mount Magnet. These material pits will be used to source material for future maintenance and construction purposes.

- 523 SLK LHS-Investigate ~63ha of leased pastoral land.
- 593 SLK-Investigate ~238ha of leased pastoral land.
- 631 SLK (Cue Wondinong 7.1 SLK)-Investigate ~135ha of leased pastoral land.
- 660 SLK-Investigate ~115ha of leased pastoral land.
- 764 SLK-Investigate ~181ha of leased pastoral land.
- 770 SLK-Investigate ~49ha of leased pastoral land.

### 2.1 Project Location

The project area is located on (Figure1-6):

Road	SLK	Shire	Co-ordinates
GNH	523	Mount Magnet	-28.2904, 117.8547
GNH	593	Mount Magnet	-27.7622, 117.8094 and -27.7776, 117.8596
GNH	660	Cue	-27.1632, 117.9775
GNH	770	Meekatharra	-26.4099, 118.6381
GNH	764	Meekatharra	-26.4347, 118.7204
Cue Wondinong	7.1	Cue	-27.4229, 117.955

The location and boundaries of the study area (20 km radius) for the project are shown in Figure 7. Project Location and Study Area.

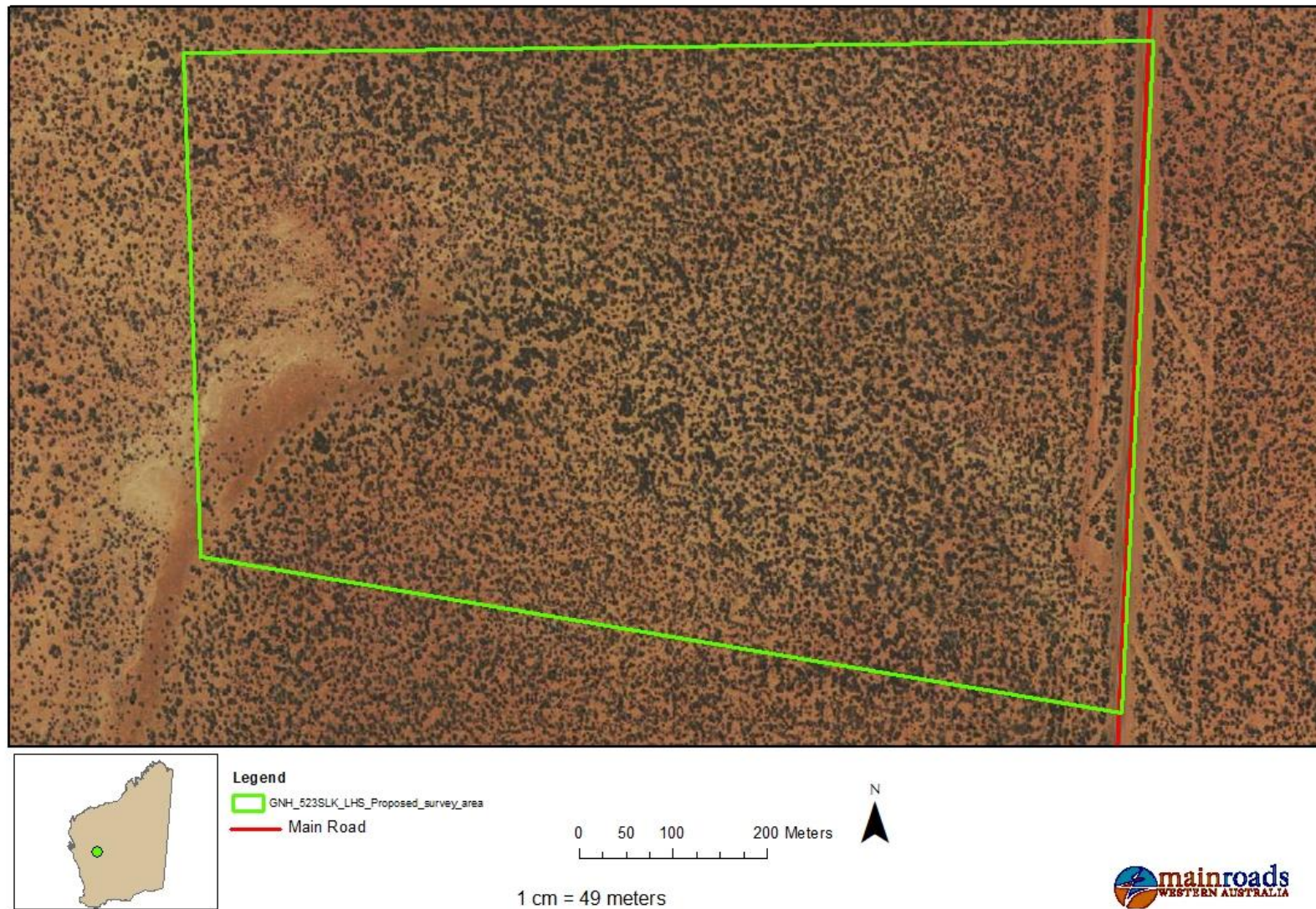


Figure 1. Project Area GNH 523 SLK



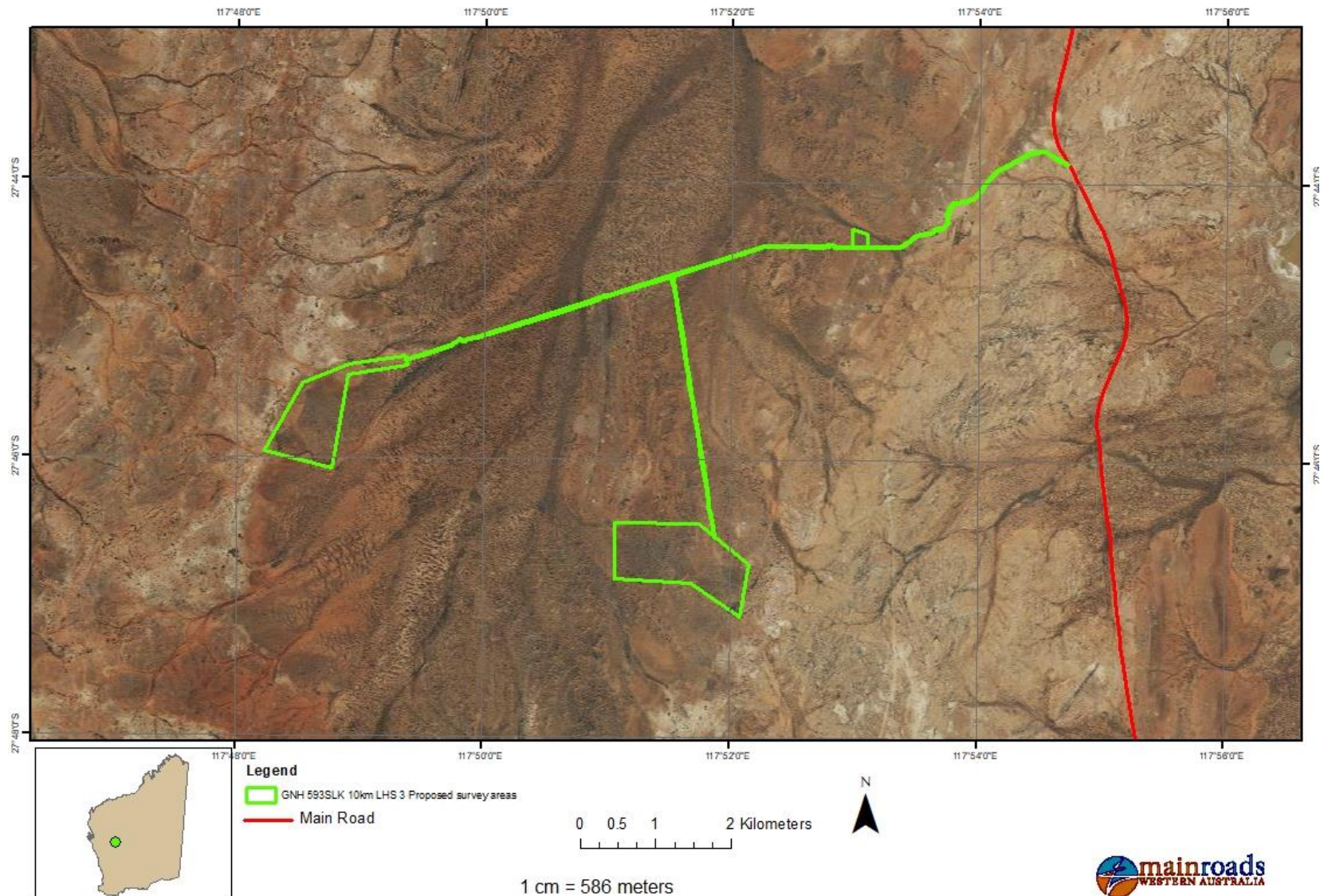


Figure 2. Project Area GNH 593 SLK



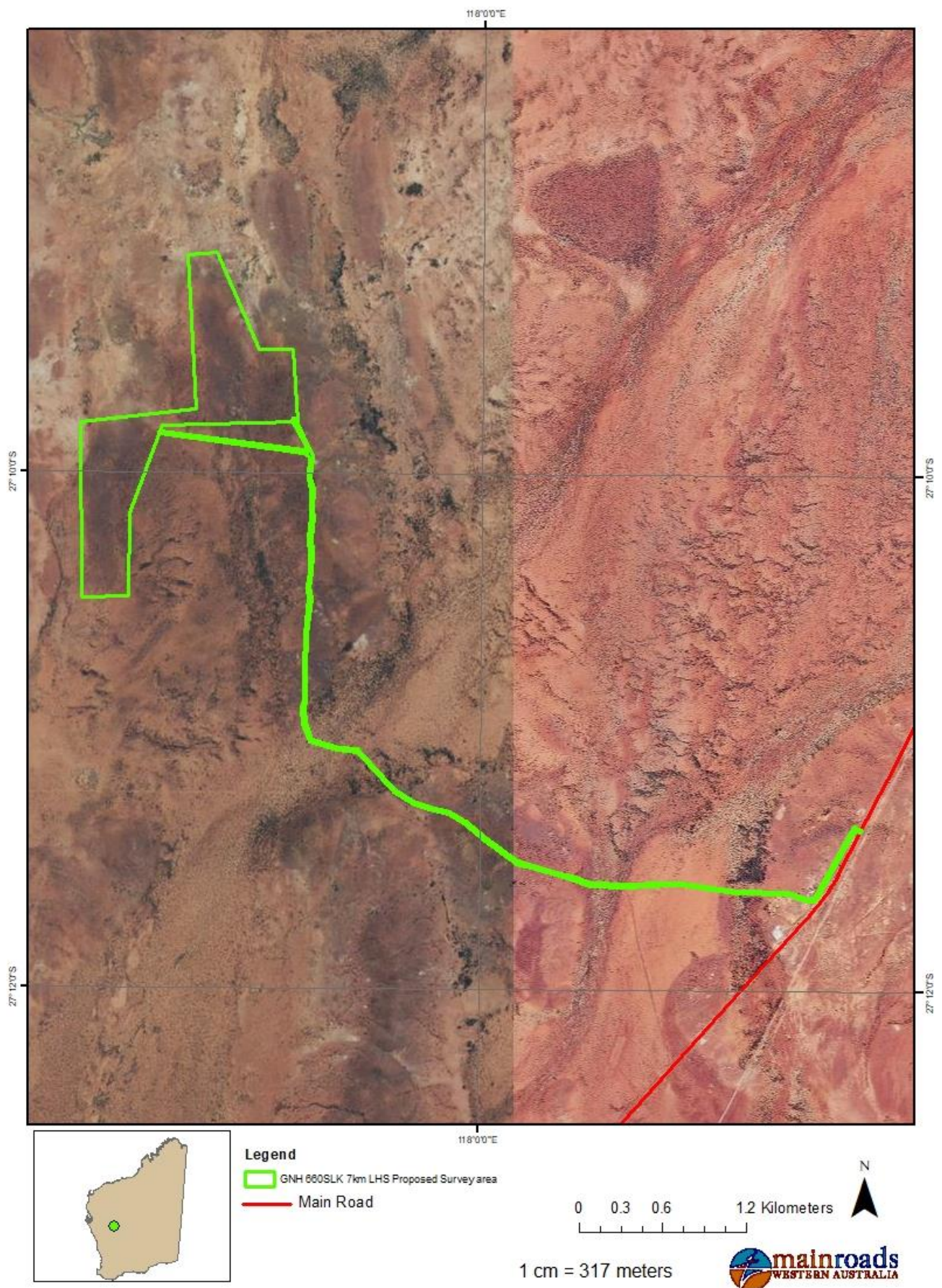


Figure 3. Project Area GNH 660 SLK



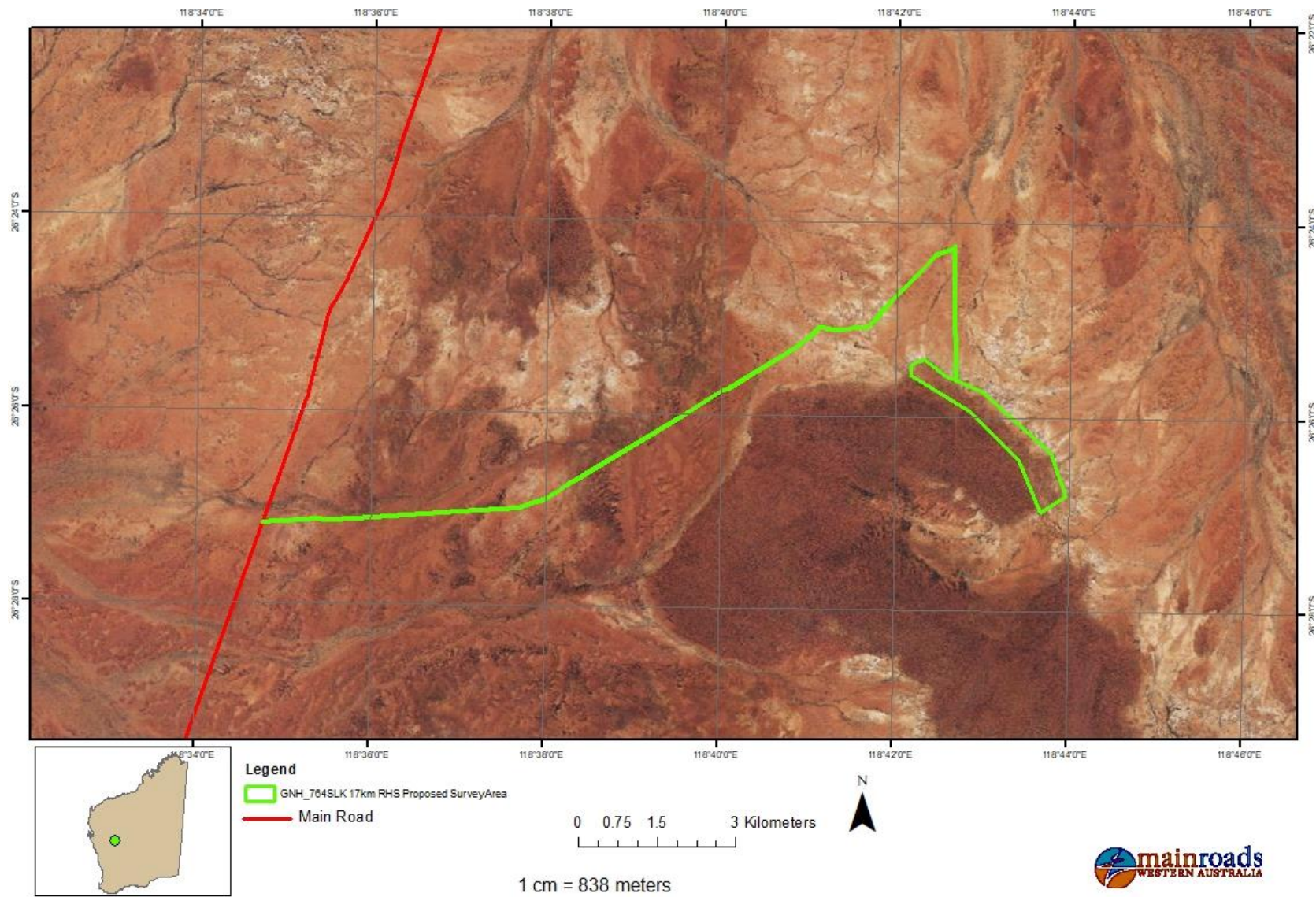


Figure 4. Project Area GNH 764 SLK



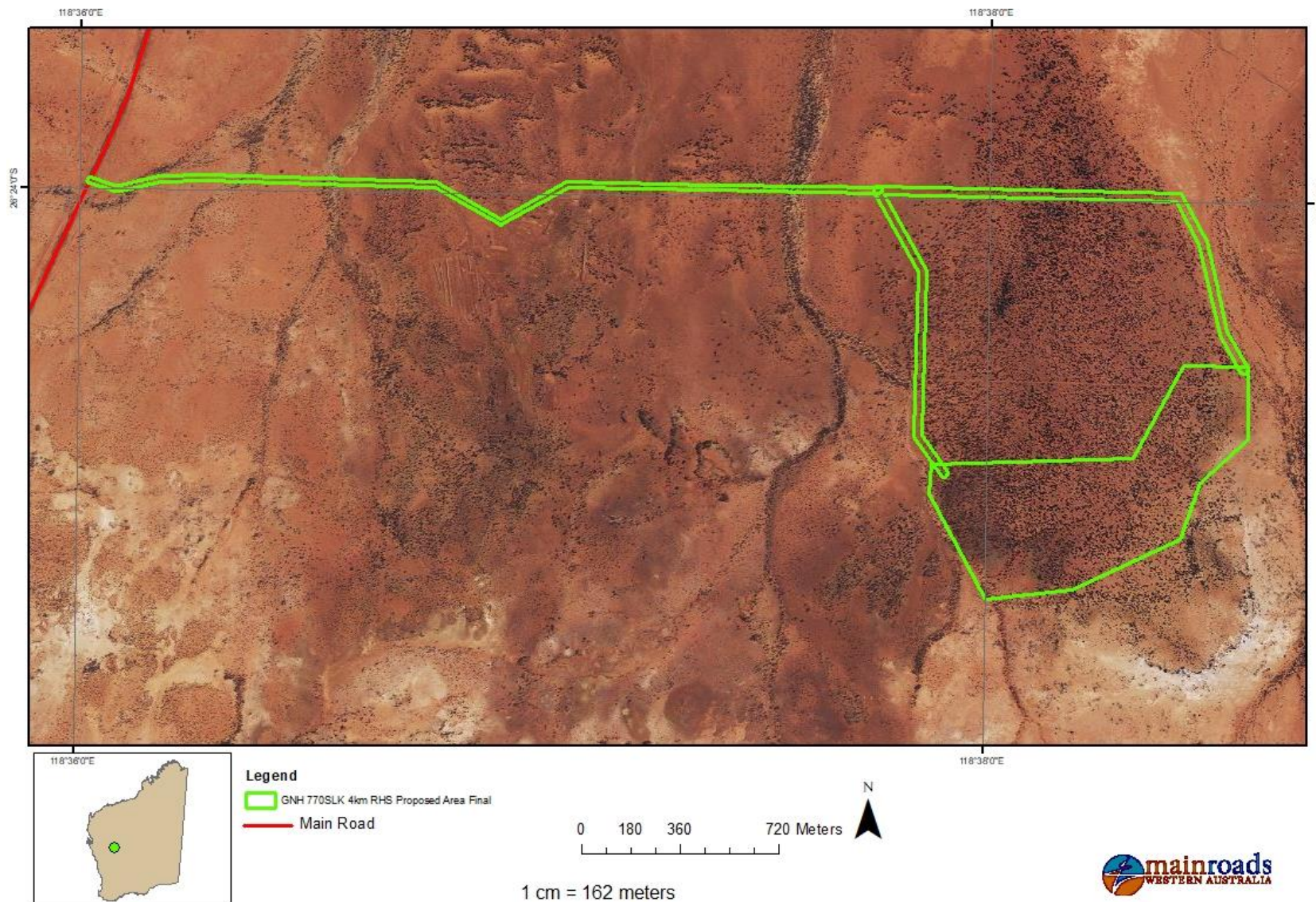


Figure 5. Project Area GNH 770 SLK



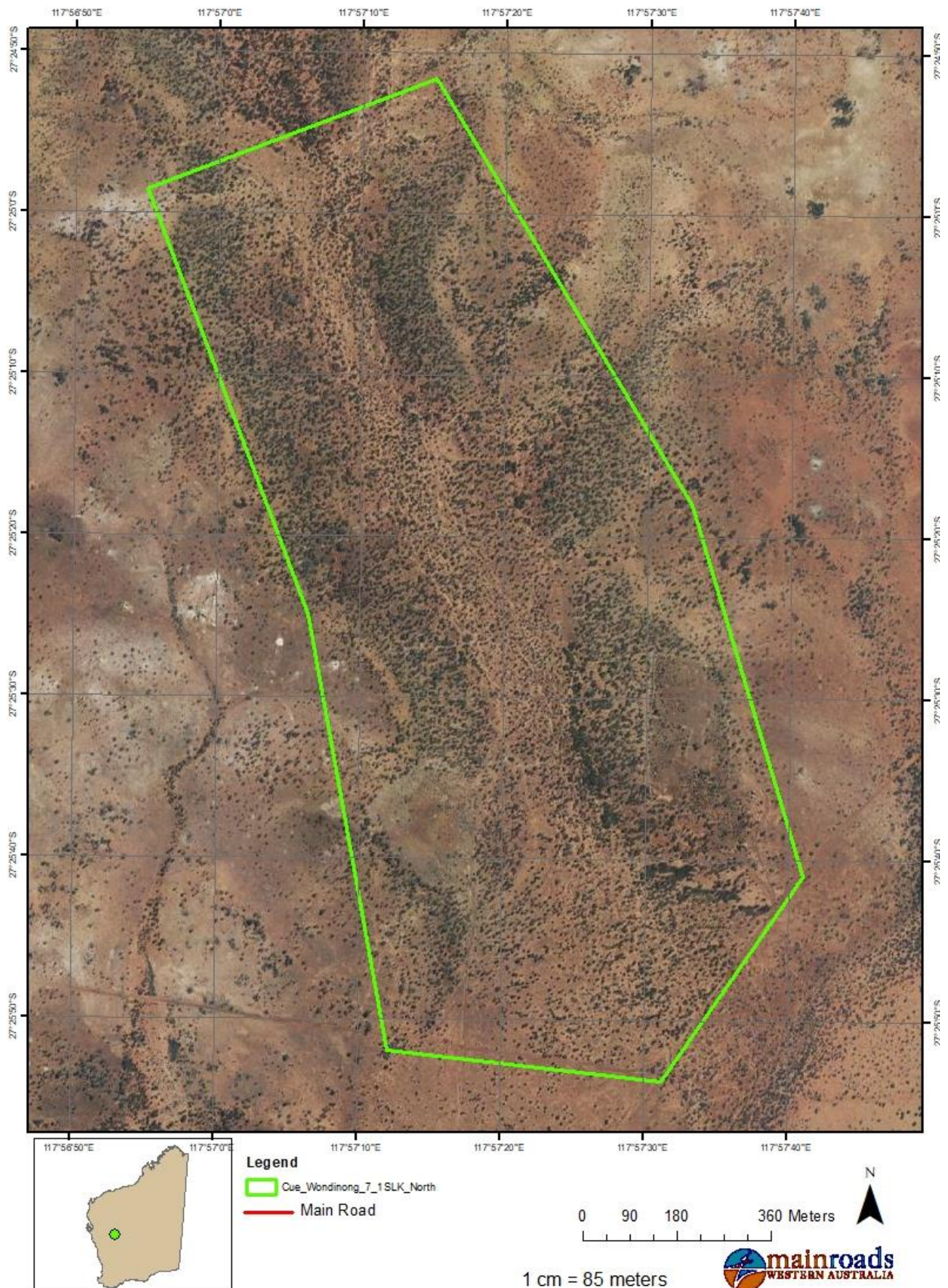


Figure 6. Project Area Cue Wondinong 7.1 SLK



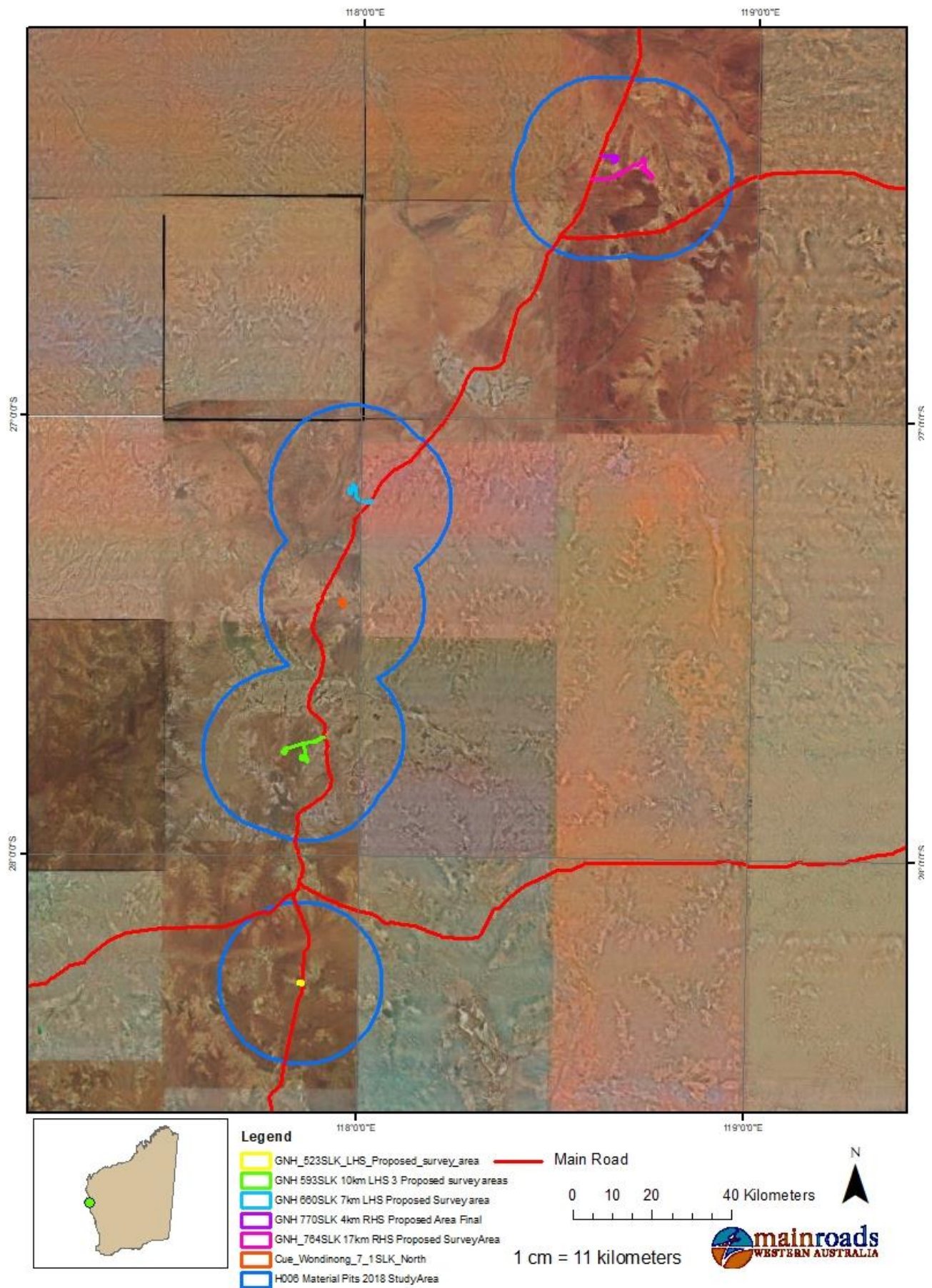


Figure 7. Project Location and Study Area

### **3 ASSESSMENT OF VEGETATION CLEARING**

#### **3.1.1 Measures to Avoid and Minimise Clearing**

The design and management measures implemented to avoid and minimise the project clearing impacts are below.

- Project is restricted by the presence of the material.
- The smallest possible area will be used.
- Once the pit is exhausted of material it will be rehabilitated.



### 3.1.2 Vegetation Details

#### 3.1.2.1 Project Site Vegetation Description

##### 523 SLK LHS

This project area is comprised of two vegetation associations:

###### P12

*Acacia pteraneura* and *Acacia craspedocarpa* scattered tall shrubs to tall open shrubland sometimes over *Eremophila galeata* open shrubland over *Ptilotus schwartzii* scattered herbs.

###### P16

*Acacia mulganeura* with *A. aneura* and/or *A. ayersiana* (hybrid) tall open shrubland over *Eremophila forrestii* subsp. *forrestii* and *A. ramulosa* var. *ramulosa* or *E. spuria* scattered shrubs over *Eriachne helmsii* scattered tussock grasses.

The project area is in very good (EPA, 2016) condition.

##### 593 SLK

This project area is comprised of ten vegetation associations:

###### CC2

*Eragrostis eriopoda* scattered tussock grasses on clay plain.

###### D3

*Acacia craspedocarpa*, *Acacia tetragonophylla* and/or *Acacia ?incurvaneura* x *mulganeura* tall shrubland to tall open scrub over *Eremophila galeata* or *Eremophila ?forrestii* scattered shrubs over occasional *Ptilotus obovatus* low open shrubland.

###### DD1

*Maireana pyramidata* and *M. glomerifolia* open shrubland.

###### P9

Occasional *Acacia pruinocarpa* low open woodland over *A. incurvaneura*, *A. ramulosa* var. *linophylla* and sometimes *A. ?incurvaneura* x *mulganeura* tall shrubland over occasional *Eremophila galeata* scattered shrubs over *Ptilotus schwartzii* var. *schwartzii* scattered herbs.

###### P10

*Acacia pruinocarpa* low open woodland over *A. ?fuscanneura* and *A. grasbyi* tall shrubs over *A. tetragonophylla* scattered shrubs over *Maireana tomentosa* and *Ptilotus obovatus* scattered low shrubs.

###### P11

*Salsola australis* and *Sclerolaena patentiuspis* scattered low shrubs.

###### P12

*Acacia pteraneura* and *Acacia craspedocarpa* scattered tall shrubs to tall open shrubland sometimes over *Eremophila galeata* open shrubland over *Ptilotus schwartzii* scattered herbs.

###### P13

*Acacia xiphophylla* and *A. grasbyi* tall shrubland over *A. tetragonophylla* scattered shrubs over *Eremophila latrobei* subsp. *latrobei*, *Scaevola spinescens* and *Sclerolaena* spp. scattered low shrubs.

###### P14

*Hakea preissii* and *Acacia tetragonophylla* scattered tall shrubs over *Ptilotus obovatus*, *Eremophila galeata* and *Maireana triptera* scattered low shrubs.

P15

*Acacia xiphophylla* tall open shrubland over *Ptilotus obovatus* and *Maireana triptera* scattered low shrubs.

The project area ranges from poor to very good (EPA, 2016) condition with the majority in very good condition.

**Cue Wondinong 7.1 SLK**

This project area is comprised of six vegetation associations:

Cleared

D3

*Acacia craspedocarpa*, *Acacia tetragonophylla* and/or *Acacia ?incurvaneura* x *mulganeura* tall shrubland to tall open scrub over *Eremophila galeata* or *Eremophila ?forrestii* scattered shrubs over occasional *Ptilotus obovatus* low open shrubland.

P3

*Acacia pteraneura* and *Acacia grasbyi* scattered tall shrubs to tall open shrubland over *Scaevola spinescens* and/or *Eremophila ?phyllopoda* and *E. spathulata* open shrubland sometimes over *Maireana georgei* scattered low shrubs.

P7

*Acacia incurvaneura* and *A. pruinocarpa* open shrubland over *Ptilotus obovatus* low open shrubland.

P8

*Acacia masliniana*, *A. synchronicia* and *A. pteraneura* tall open shrubland over *Maireana triptera*, *Ptilotus obovatus* and *Sclerolaena eriacantha* low open shrubland.

P9

Occasional *Acacia pruinocarpa* low open woodland over *A. incurvaneura*, *A. ramulosa* var. *linophylla* and sometimes *A. ?incurvaneura* x *mulganeura* tall shrubland over occasional *Eremophila galeata* scattered shrubs over *Ptilotus schwartzii* var. *schwartzii* scattered herbs.

The project area ranges from poor to very good (EPA, 2016) condition with the majority in very good condition.

**660 SLK**

This project area is comprised of six vegetation associations:

CC

*Acacia macraneura* and *A. ?fusaneura* tall open shrubland over *Eragrostis xerophila* (*Eriachne flaccida*) tussock grassland on clay plain.

CC1

*Hakea preissii* and *Pittosporum angustifolium* tall open shrubland over *Sclerolaena cuneata* low open shrubland over *Eragrostis australasica* open tussock grassland with *Eleocharis acuta* very open sedgeland on clay plain.

D3



*Acacia craspedocarpa*, *Acacia tetragonophylla* and/or *Acacia ?incurvaneura* x *mulganeura* tall shrubland to tall open scrub over *Eremophila galeata* or *Eremophila ?forrestii* scattered shrubs over occasional *Ptilotus obovatus* low open shrubland.

P5

*Acacia pruinocarpa*, *A. pteraneura* and *Eremophila linearis* tall open shrubland.

P5/P6

*Acacia pruinocarpa*, *A. aptaneura* and *A. pteraneura* tall open shrubland over *Eremophila ?forrestii* scattered shrubs.

P6

*Acacia pruinocarpa*, *A. aptaneura* and *A. incurvaneura* tall open shrubland.

The project area ranges from poor to very good (EPA, 2016) condition with the majority in very good/good condition.

**764 SLK**

This project area is comprised of seven vegetation associations:

D1

*Acacia pteraneura*, *Acacia tetragonophylla* and *Acacia synchronicia* (*Hakea preissii* and *Acacia ayersiana* (narrow phyllode variant)) tall shrubland over *Eremophila ?phyllopoda* scattered shrubs over *Ptilotus obovatus* and *Eremophila galeata* low open shrubland over *Aristida contorta* scattered tussock grasses.

P1

Occasional *Eucalyptus kingsmillii* scattered low trees over *Acacia ?caesaneura* (narrow phyllode variant) and *A. ramulosa* var. *ramulosa* and/or *A. pteraneura* tall shrubland over occasional *Eremophila glutinosa*, *Senna glaucifolia* and *E. ?forrestii* open shrubland over *Eriachne helmsii* and *Eragrostis* sp. very open tussock grassland.

P2

*Acacia incurvaneura* and *A. quadrimarginea* tall open shrubland over *Calytrix uncinata* and *Micromyrtus sulphurea* scattered low shrubs.

P3

*Acacia pteraneura* and *Acacia grasbyi* scattered tall shrubs to tall open shrubland over *Scaevola spinescens* and/or *Eremophila ?phyllopoda* and *E. spathulata* open shrubland sometimes over *Maireana georgei* scattered low shrubs.

P4

*Ptilotus rotundifolius* scattered shrubs over *P. schwartzii* scattered low shrubs.

P16

*Acacia mulganeura* with *A. aneura* and/or *A. ayersiana* (hybrid) tall open shrubland over *Eremophila forrestii* subsp. *forrestii* and *A. ramulosa* var. *ramulosa* or *E. spuria* scattered shrubs over *Eriachne helmsii* scattered tussock grasses.

P17

*Acacia fuscanura* and *A. synchronicia* tall shrubland over *Eremophila spathulata*, *Senna* sp. Meekatharra (E. Bailey 1-26) and *A. tetragonophylla* open shrubland over *Aristida contorta* scattered grasses.

The project area is in good to very good (EPA, 2016) condition with the majority in very good condition.

## 770 SLK

This project area is comprised of five vegetation associations:

### Cleared

#### D1

*Acacia pteraneura*, *Acacia tetragonophylla* and *Acacia synchronicia* (*Hakea preissii* and *Acacia ayersiana* (narrow phyllode variant)) tall shrubland over *Eremophila ?phyllopoda* scattered shrubs over *Ptilotus obovatus* and *Eremophila galeata* low open shrubland over *Aristida contorta* scattered tussock grasses.

#### P1

Occasional *Eucalyptus kingsmillii* scattered low trees over *Acacia ?caesaneura* (narrow phyllode variant) and *A. ramulosa* var. *ramulosa* and/or *A. pteraneura* tall shrubland over occasional *Eremophila glutinosa*, *Senna glaucifolia* and *E. ?forrestii* open shrubland over *Eriachne helmsii* and *Eragrostis* sp. very open tussock grassland.

#### P4

*Ptilotus rotundifolius* scattered shrubs over *P. schwartzii* scattered low shrubs.

#### P17

*Acacia fuscanera* and *A. synchronicia* tall shrubland over *Eremophila spathulata*, *Senna* sp. Meekatharra (E. Bailey 1-26) and *A. tetragonophylla* open shrubland over *Aristida contorta* scattered grasses.

The project area is in good to very good condition (EPA, 2016) condition with the majority in very good condition.

Pre-European Vegetation Association(s)	Clearing Description	Comments
Vegetation Association 18 described as Low woodland; mulga ( <i>Acacia aneura</i> ) Vegetation Association 29 described as Sparse low woodland; mulga, discontinuous in scattered groups Vegetation Association 40 described as Shrublands; acacia scrub, various species Vegetation Association 107 described as Hummock grasslands, shrub steppe; mulga and <i>Eucalyptus kingsmillii</i> over hard spinifex Vegetation Association 313 described as Succulent steppe with open scrub; scattered <i>Acacia sclerosperma</i> & <i>A. victoriae</i> over bluebush (Government of Western Australia, 2018)	Clearing of up to 390 ha for material investigation and stockpiling on GNH, Mt Magnet, Cue and Meekatharra.	Vegetation description and condition determined from Astron Biological Survey 2018.

Table 5. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
<b>Veg Assoc No. 18</b>	<b>Statewide</b>	19,892,306.48	19,843,729.06	99.76	6.64
	<b>IBRA Bioregion</b> Murchison	12,403,172.32	12,363,252.50	99.68	4.97
	<b>IBRA Sub-region</b> East Murchison	10,269,896.44	10,234,838.22	99.66	5.14
	<b>Local Government Authority</b> Shire of Meekatharra	3,117,900.46	3,111,264.68	99.79	11.11
	<b>Local Government Authority</b> Shire of Cue	881,735.81	878,817.47	99.67	1.72
	<b>Local Government Authority</b> Shire of Mount Magnet	831,227.15	830,347.07	99.89	-
<b>Veg Assoc No. 29</b>	<b>Statewide</b>	7,903,991.46	7,900,200.42	99.95	6.28
	<b>IBRA Bioregion</b> Murchison	2,956,382.06	2,955,695.34	99.98	3.15
	<b>IBRA Sub-region</b> Western Murchison	2,160,146.80	2,159,669.31	99.98	0.43
	<b>Local Government Authority</b> Shire of Meekatharra	2,854,683.44	2,851,596.18	99.89	4.99
<b>Veg Assoc No. 40</b>	<b>Statewide</b>	369,056.37	351,139.98	95.15	6.37
	<b>IBRA Bioregion</b> Murchison	58,959.88	58,832.28	99.78	14.50
	<b>IBRA Sub-region</b> East Murchison	58,847.57	58,719.97	99.78	14.53
	<b>Local Government Authority</b> Shire of Mount Magnet	13,347.06	13,347.06	100.00	-
<b>Veg Assoc No. 107</b>	<b>Statewide</b>	2,815,387.34	2,813,995.92	99.95	11.55
	<b>IBRA Bioregion</b> Murchison	2,792,383.45	2,790,992.02	99.95	11.61
	<b>IBRA Sub-region</b> East Murchison	2,785,303.02	2,783,911.59	99.95	11.58
	<b>Local Government Authority</b> Shire of Meekatharra	287,358.58	287,358.58	100.00	44.74
<b>Veg Assoc No. 313</b>	<b>Statewide</b>	68,843.52	65,261.44	94.80	0.00
	<b>IBRA Bioregion</b> Murchison	68,843.52	65,261.44	94.80	0.00
	<b>IBRA Sub-region</b> East Murchison	68,843.52	65,261.44	94.80	0.00
	<b>Local Government Authority</b> Shire of Mount Magnet	28,036.94	27,282.36	97.31	-
	<b>Local Government Authority</b> Shire of Cue	40,806.58	37,979.08	93.07	0.00



### 3.1.3 Assessment against the Ten Clearing Principles

In assessing whether the project's proposed clearing is likely to have a significant impact on the environment, the project was assessed against the Ten Clearing Principles (EP Act, Schedule 5).

The proposed clearing is:

- At variance to Principle (f)
- Not likely to be at variance with the remaining Principles.

#### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments	Proposed clearing is not likely to be at variance to this Principle
	<p>This project requires the removal of up to 390ha of vegetation within a 781ha area over the next few years to source materials. This clearing will be progressively rehabilitated once the material pit is exhausted.</p> <p>A description of the vegetation is discussed above in Section 5.2.2.</p> <p>Priority flora was identified within the project area, however no Declared Rare Flora was recorded within the project areas during the biological survey. Therefore this project is not likely to impact any DRF species. There are six locations of P3 species <i>Drummondia miniata</i> identified within the project area with 68 individuals recorded. Only two of these locations will be removed for this project and that will include 11 individuals. This will mean approximately 16% of the species in the immediate area will be removed. The vegetation type that this species was found in extends beyond the survey area and it is likely that this species is found elsewhere in the surrounding landscape. Therefore it is unlikely that this project will cause a significant impact to this species.</p> <p>The fauna habitat available in the project area is widespread within the local area. As such the temporary removal of the vegetation for this project is unlikely to impact any fauna species as they can easily locate to similar appropriate habitat in the surrounding area.</p> <p>Two known priority ecological community (PEC) buffers intersect the project area. These are "Lake Austin vegetation complexes (banded iron formation)-P1" and "Trillbar Land System-P3". Vegetation representing this P3 PEC was not identified within the buffer area that intersects the project area. One mapped vegetation association was dominated by snakewood and mulga but this lacked the samphire and gilgaied drainage foci that represents this habitat. Therefore this P3 PEC is unlikely to be impacted by the project activities as it does not occur within the project area. The P1 PEC has very limited information which makes it difficult to assess the presence or impact of this PEC in the project area. There were some banded iron formations identified within the project area that could potentially represent this PEC however the vegetation composition did not change significantly from the surrounding landscape so this project is unlikely to significantly impact any potential PEC present. It was identified that none of the vegetation units are representative of any state or federally listed TECs. Therefore it is unlikely that any TECs will be impacted by the project activities.</p> <p>Given the above this project clearing is not likely to be at variance to this Principle.</p>
Methodology	<p>Astron 2018</p> <p>DBCA shapefiles</p> <p>Main Roads GIS Shapefiles</p>

**(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 indigenous to Western Australia.**

Comments	Proposed clearing is not likely to be at variance to this Principle
	<p>Within the study area there are known records of sixteen protected fauna species. These are:</p> <ul style="list-style-type: none"> <li>• <i>Calidris ferruginea</i> (Curlew Sandpiper)- Vulnerable</li> <li>• <i>Leipoa ocellata</i> (Malleefowl)-Vulnerable</li> <li>• <i>Macrotis lagotis</i> (Bilby) –Vulnerable</li> <li>• <i>Lerista eupoda</i> (West Coast Mulga Slider)-P1</li> <li>• <i>Amytornis textilis textilis</i> (Western Grasswren)-P4</li> <li>• <i>Oxyura australis</i> (Blue-billed Duck)-P4</li> <li>• <i>Sminthopsis longicaudata</i> (Long-tailed Dunnart)-P4</li> <li>• <i>Thinornis rubricollis</i> (Hooded Plover)-P4</li> <li>• <i>Falco peregrinus</i> (Peregrine Falcon)-Other Specially Protected</li> <li>• <i>Calidris acuminata</i> (Sharp-tailed Sandpiper)-Protected under International Agreement</li> <li>• <i>Calidris ruficollis</i> (Red-necked Stint)-Protected under International Agreement</li> <li>• <i>Chlidonias leucopterus</i> (White-winged Black Tern)-Protected under International Agreement</li> <li>• <i>Plegadis falcinellus</i> (Glossy Ibis)-Protected under International Agreement</li> <li>• <i>Tringa glareola</i> (Wood Sandpiper)-Protected under International Agreement</li> <li>• <i>Tringa nebularia</i> (Common Greenshank)-Protected under International Agreement</li> <li>• <i>Tringa stagnatilis</i> (Marsh Sandpiper)-Protected under International Agreement</li> </ul> <p>The Malleefowl inhabits mallee dominated woodlands. This species has the potential to occur within the “Mulga Woodland on Sandy Plains” and “Minor Drainage Line with Mulga” habitat. No evidence of individuals or nest mounds were identified within the survey. As such though there is potential for this species to be present it is unlikely that the temporary clearing of the project will represent significant habitat or impact this species.</p> <p>The West Coast Mulga Slider prefers open mulga on red loams and sandy loam plains. This species has the potential to occur within the “Mulga Woodland on Sandy Plains” and “Samphire Plain” habitat. No evidence of this species was identified during the survey. Given that this species was not identified within the project area and the large amount of similar habitat in the surrounding area it is unlikely that this clearing will significantly impact this species.</p> <p>The Blue-billed Duck inhabits freshwater lakes and swamps. The Hooded Plover inhabits beaches and saltlakes. The Bilby inhabits mulga scrub and hummock grasslands. As these habitats are not present these species are unlikely to be impacted by the project activities.</p> <p>The Long-tailed Dunnart inhabits rocky scree and plateau areas. The Western Grasswren inhabits spinifex on sandy or loamy plains. There is potential for these species to be found within the project area however it is not likely to be significant habitat for these species.</p> <p>The Peregrine Falcon nests on rocky ledges on cliff faces and in tall trees near drainage lines. As this habitat is not present it is unlikely this species will occur in the project area. This species may visit the area to hunt, however it is unlikely that this mobile species will be reliant on this area.</p> <p>The White-winged Black Tern and Glossy Ibis inhabits wetlands. As this habitat is not found within the project area it is unlikely that these species will be impacted by the project activities.</p> <p>The Curlew Sandpiper, Sharp-tailed Sandpiper, Red-necked Stint, Wood Sandpiper, Common Greenshank and Marsh Sandpiper inhabits water sources. These species may inhabit the project area as there are watercourses within the project area. However this</p>

	<p>habitat is well represented in the surrounding area and it is unlikely that these highly mobile species are dependent on the project area.</p> <p>The fauna habitat available in the project area is widespread within the local area. As such the staged temporary removal required for the project is unlikely to impact any fauna species as they can easily locate to similar appropriate habitat in the surrounding area.</p> <p>Given the study area is almost 100% vegetated and the habitat types present within the project area are widespread within the local and regional area it is unlikely that the project area represents significant habitat to any fauna species. Therefore this project clearing is not likely to be at variance to this Principle.</p>
<b>Methodology</b>	<p>DBCA Shapefiles</p> <p>DBCA website</p> <p>Astron 2018</p>

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

<b>Comments</b>	<b>Proposal is not likely to be at variance to this Principle</b>
	<p>Within the study area there is one known record of declared rare flora (DRF), <i>Eremophila rostrata</i> subsp. <i>rostrata</i>. The nearest record is located over 2.9km to the west of the project area. During the survey no DRF was identified within the project areas.</p> <p>Given the above it is unlikely that this project will directly or indirectly impact upon any DRF species. Therefore this project clearing is not likely to be at variance to this Principle.</p>
<b>Methodology</b>	<p>DBCA shapefiles</p> <p>Astron, 2018</p>

**(d) 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.**

<b>Comments</b>	<b>Proposed clearing is not likely to be at variance to this Principle</b>
	<p>Within the study area there are no known records of Threatened Ecological Communities (TECs). The nearest TEC occurs over 46.7km to the west of the project. During the biological survey no TECs were identified. Given the distance to the nearest known TEC and the minor nature of the works it is unlikely that this project clearing will impact any TECs.</p> <p>Therefore this project clearing is not likely to be at variance to this Principle.</p>
<b>Methodology</b>	<p>DBCA shapefiles</p> <p>Astron 2018</p>

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

Comments	Proposed clearing is not likely to be at variance to this Principle					
	The vegetation association and condition is discussed in Section 5.2.2.1 above.					
	Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves



	<b>Veg Assoc No. 18</b>	<b>Statewide</b>	19,892,30 6.48	19,843,72 9.06	99.76	6.64
		<b>IBRA Bioregion Murchison</b>	12,403,17 2.32	12,363,25 2.50	99.68	4.97
		<b>IBRA Sub-region East Murchison</b>	10,269,89 6.44	10,234,83 8.22	99.66	5.14
		<b>Local Government Authority Shire of Meekatharra</b>	3,117,900. 46	3,111,264. 68	99.79	11.11
		<b>Local Government Authority Shire of Cue</b>	881,735.8 1	878,817.4 7	99.67	1.72
		<b>Local Government Authority Shire of Mount Magnet</b>	831,227.1 5	830,347.0 7	99.89	-
	<b>Veg Assoc No. 29</b>	<b>Statewide</b>	7,903,991. 46	7,900,200. 42	99.95	6.28
		<b>IBRA Bioregion Murchison</b>	2,956,382. 06	2,955,695. 34	99.98	3.15
		<b>IBRA Sub-region Western Murchison</b>	2,160,146. 80	2,159,669. 31	99.98	0.43
		<b>Local Government Authority Shire of Meekatharra</b>	2,854,683. 44	2,851,596. 18	99.89	4.99
	<b>Veg Assoc No. 40</b>	<b>Statewide</b>	369,056.3 7	351,139.9 8	95.15	6.37
		<b>IBRA Bioregion Murchison</b>	58,959.88	58,832.28	99.78	14.50
		<b>IBRA Sub-region East Murchison</b>	58,847.57	58,719.97	99.78	14.53
		<b>Local Government Authority Shire of Mount Magnet</b>	13,347.06	13,347.06	100.00	-
	<b>Veg Assoc No. 107</b>	<b>Statewide</b>	2,815,387. 34	2,813,995. 92	99.95	11.55
		<b>IBRA Bioregion Murchison</b>	2,792,383. 45	2,790,992. 02	99.95	11.61
		<b>IBRA Sub-region East Murchison</b>	2,785,303. 02	2,783,911. 59	99.95	11.58
		<b>Local Government Authority Shire of Meekatharra</b>	287,358.5 8	287,358.5 8	100.00	44.74
	<b>Veg Assoc No. 313</b>	<b>Statewide</b>	68,843.52	65,261.44	94.80	0.00
		<b>IBRA Bioregion Murchison</b>	68,843.52	65,261.44	94.80	0.00

	<b>IBRA Sub-region</b> East Murchison	68,843.52	65,261.44	94.80	0.00
	<b>Local Government Authority</b> Shire of Mount Magnet	28,036.94	27,282.36	97.31	-
	<b>Local Government Authority</b> Shire of Cue	40,806.58	37,979.08	93.07	0.00
<p>It is evident from the table above that these vegetation associations are well represented in the local area with over 94% of vegetation remaining.</p> <p>This vegetation is not significant as a remnant. The surrounding landscape is highly vegetated with nearly 100% of the study area vegetated. Since this vegetation will only be temporarily cleared within a highly vegetated area it is unlikely that the removal of this vegetation will reduce the ecological functioning or is in an area that provides essential linkages.</p> <p>Given the above this project clearing is not likely to be at variance to this Principle as the clearing does not represent an area that is significant as a remnant nor is it in an extensively cleared landscape.</p>					
<b>Methodology</b>	Government of Western Australia (2018) Aerial photography				

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

<b>Comments</b>	<b>Proposed clearing is at variance to this Principle</b>
	<p>There are no lakes within the study area. The nearest lake occurs 3.4km from the project area. Within the study area there are multiple major and minor non-perennial watercourses. Several of these minor non-perennial watercourses cross the project area. 523 SLK, 660 SLK, 764 SLK, 770 SLK have watercourses that intersect the pit or access tracks.</p> <p>There are three vegetation associations mapped from the biological survey as being associated with drainage lines. This vegetation totals 86.92ha however suitable material for the road construction is not associated with waterbodies. Therefore the only vegetation associated with watercourses that will be impacted will occur within the access tracks. As such only 10.13ha of riparian vegetation will be impacted by the project activities.</p> <p>As up to 10.13ha of vegetation associated with a watercourse will be removed, this projects clearing is at variance to this Principle.</p>
<b>Methodology</b>	DWER and DBCA shapefiles Astron, 2018

**(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**

<b>Comments</b>	<b>Proposed clearing is not likely to be at variance to this Principle</b>
	<p>The project area is in an area of low rainfall (Mount Magnet receives 239.1mm, Cue receives 233.9mm and Meekatharra receives 238.2 mm of annual average rainfall BOM, 2018). Since the rainfall in the area is low it is unlikely that water erosion or waterlogging will be significantly increased as a result of this clearing. As the area is surrounded by vegetation the likelihood of wind erosion is reduced. As there is no excavation below the water table required for this project it is unlikely that acid sulfate soils will be an issue. The</p>

	<p>soil in the project area is a gravel and as such will have a high infiltration rate which will reduce the chances of waterlogging and water erosion.</p> <p>Given the soil properties, amount of vegetation remaining in the area and that this clearing will be temporary it is unlikely that the clearing will increase land degradation. Therefore this project clearing is not likely to be at variance to this Principle.</p>
<b>Methodology</b>	Astron, 2018 BOM, 2018

**(h) 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.**

<b>Comments</b>	<b>Proposed clearing is not likely to be at variance to this Principle</b>
	<p>There are no reserves or conservation areas within the study area. The nearest reserve is located over 160km to the south west of the project area. Given the impacts caused by this temporary clearing will be localised it is unlikely that any reserves or conservation areas will be impacted by the project activities.</p> <p>Therefore this project clearing is not likely to be at variance to this Principle.</p>
<b>Methodology</b>	DBCA shapefiles

**(i) 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.**

<b>Comments</b>	<b>Proposed clearing is not likely to be at variance to this Principle</b>
	<p>The 7.1 SLK project area occurs within the P1 Public Drinking Water Source Area, Cue Water Reserve. All the project areas occur within the East Murchison Groundwater Area. There are no Proclaimed Surface Water Areas overlying the project areas. The nearest lake occurs 3.4km from the project area. Within the study area there are multiple major and minor non-perennial watercourse. Several of these minor non-perennial watercourses cross the project area. 523 SLK, 660 SLK, 764 SLK, 770 SLK have watercourses that intersect the pit or access tracks.</p> <p>As no surface or groundwater will be taken for this project it is unlikely that there will be a significant impact on the water quality of these areas. Therefore no impact to groundwater level or quality is expected.</p> <p>Therefore this project clearing is not likely to be at variance to this Principle.</p>
<b>Methodology</b>	DWER and DBCA shapefiles

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

<b>Comments</b>	<b>Proposed clearing is not likely to be at variance to this Principle</b>
	<p>The project area is in a low rainfall area (Mount Magnet receives 239.1mm, Cue receives 233.9mm and Meekatharra receives 238.2 mm of annual average rainfall, BOM, 2018) which will minimise the chance of flooding in the area. This area will have a high infiltration rate as the project area is composed of gravel soils. As there is approximately 100% of vegetation remaining within the local area, it is unlikely that the clearing required for this project will cause or increase the chance of flooding.</p> <p>Given the above this project clearing is not likely to be at variance to this Principle.</p>
<b>Methodology</b>	Astron, 2018 BOM, 2018



## 4 ADDITIONAL ACTION REQUIRED

Table 1. Summary of Further Assessment or Approval(s) Required summarises what further assessment and management is required in relation to the project.

**Table 1. Summary of Further Assessment or Approval(s) Required**

Aspect	Permit, Approval or Licence
Land	Project Manager to gain all the relevant land approvals.
Aboriginal Heritage	A heritage survey will be completed for these works

## 5 CONSTRAINTS MAPPING

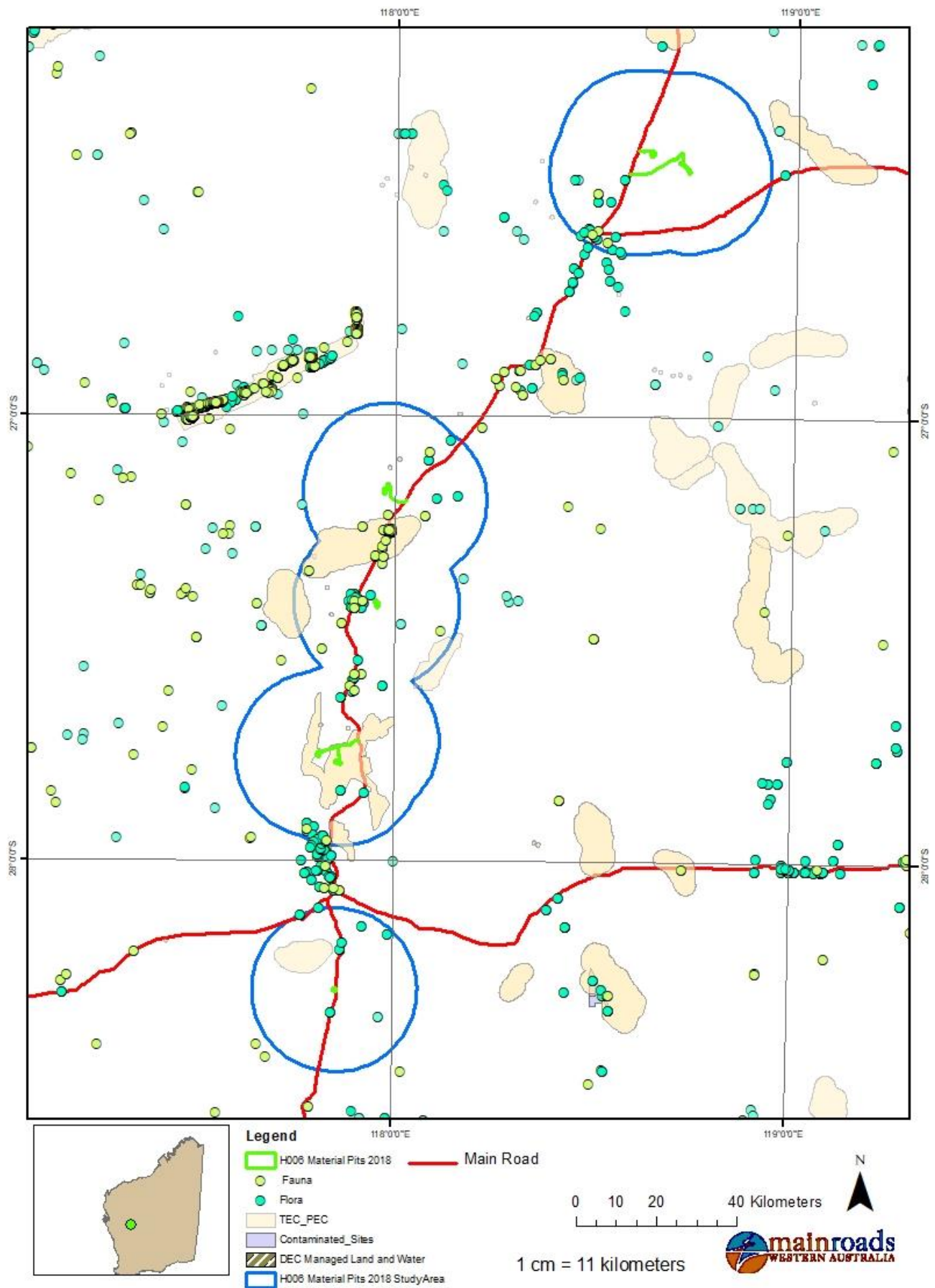


Figure 2. Environmental Constraints Associated with the Project Area



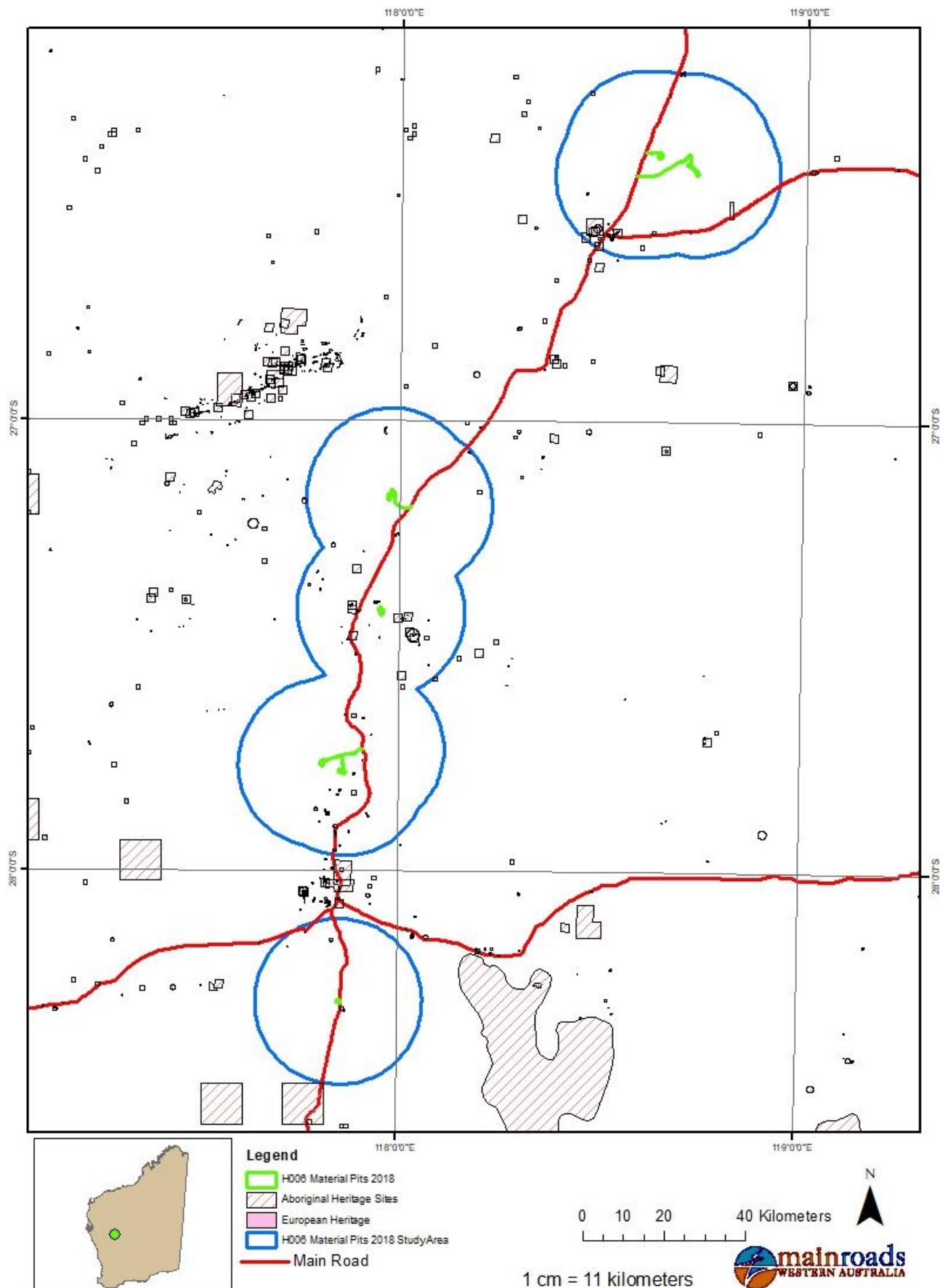


Figure 3. Heritage Constraints Associated with the Project Area

## 6 REFERENCES

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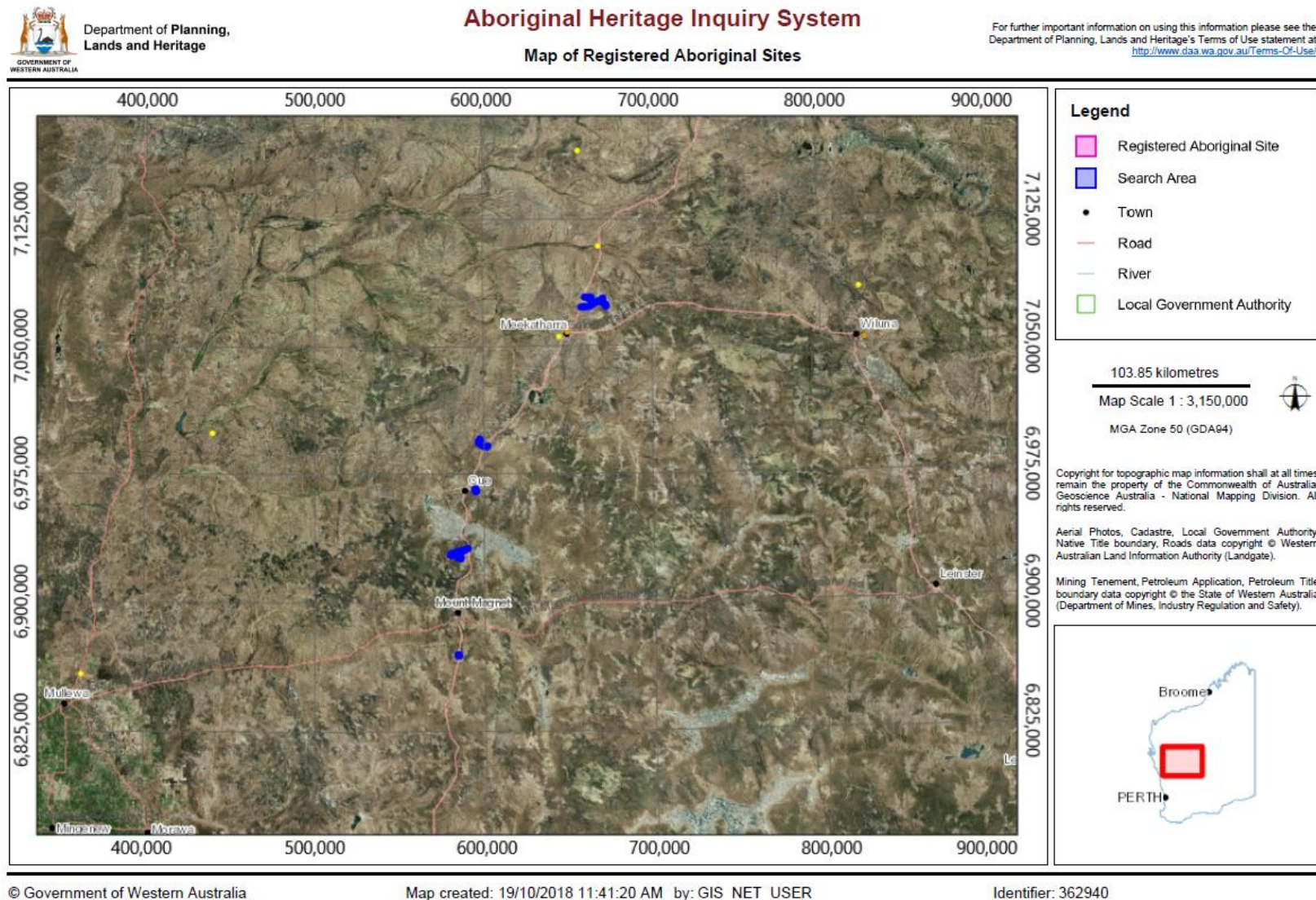
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## 7 APPENDICES

Appendix	Title
<b>Appendix A</b>	Department of Planning, Lands and Heritage AHIS Search
<b>Appendix B</b>	DoEE Protected Matters Database Search



## Appendix A: Department of Planning, Lands and Heritage AHIS Search





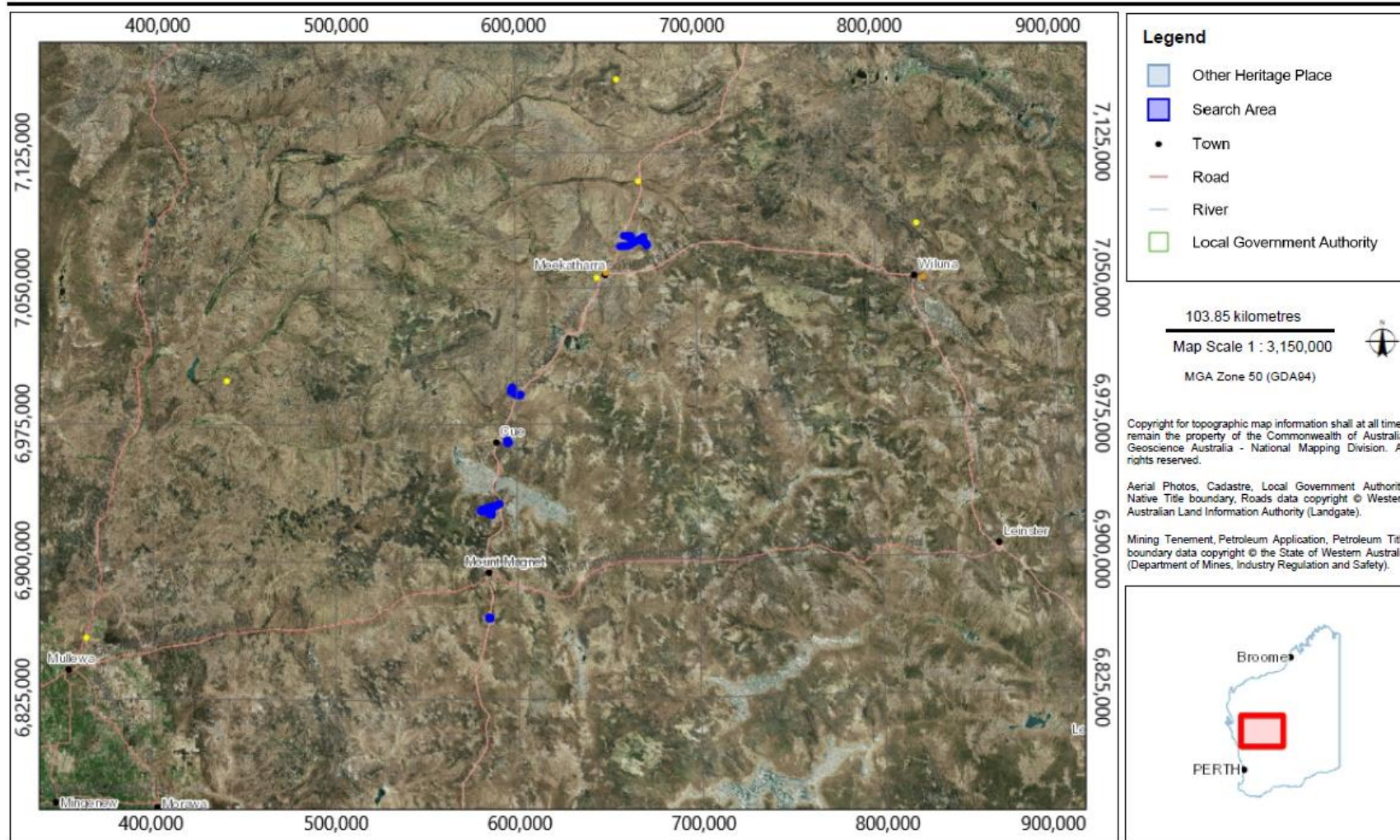


Department of Planning,  
Lands and Heritage

## Aboriginal Heritage Inquiry System

### Map of Other Heritage Places

For further important information on using this information please see the  
Department of Planning, Lands and Heritage's Terms of Use statement at  
<http://www.dpa.wa.gov.au/Terms-Of-Use/>



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Map created: 19/10/2018 11:43:12 AM by: GIS\_NET\_USER

Identifier: 362941



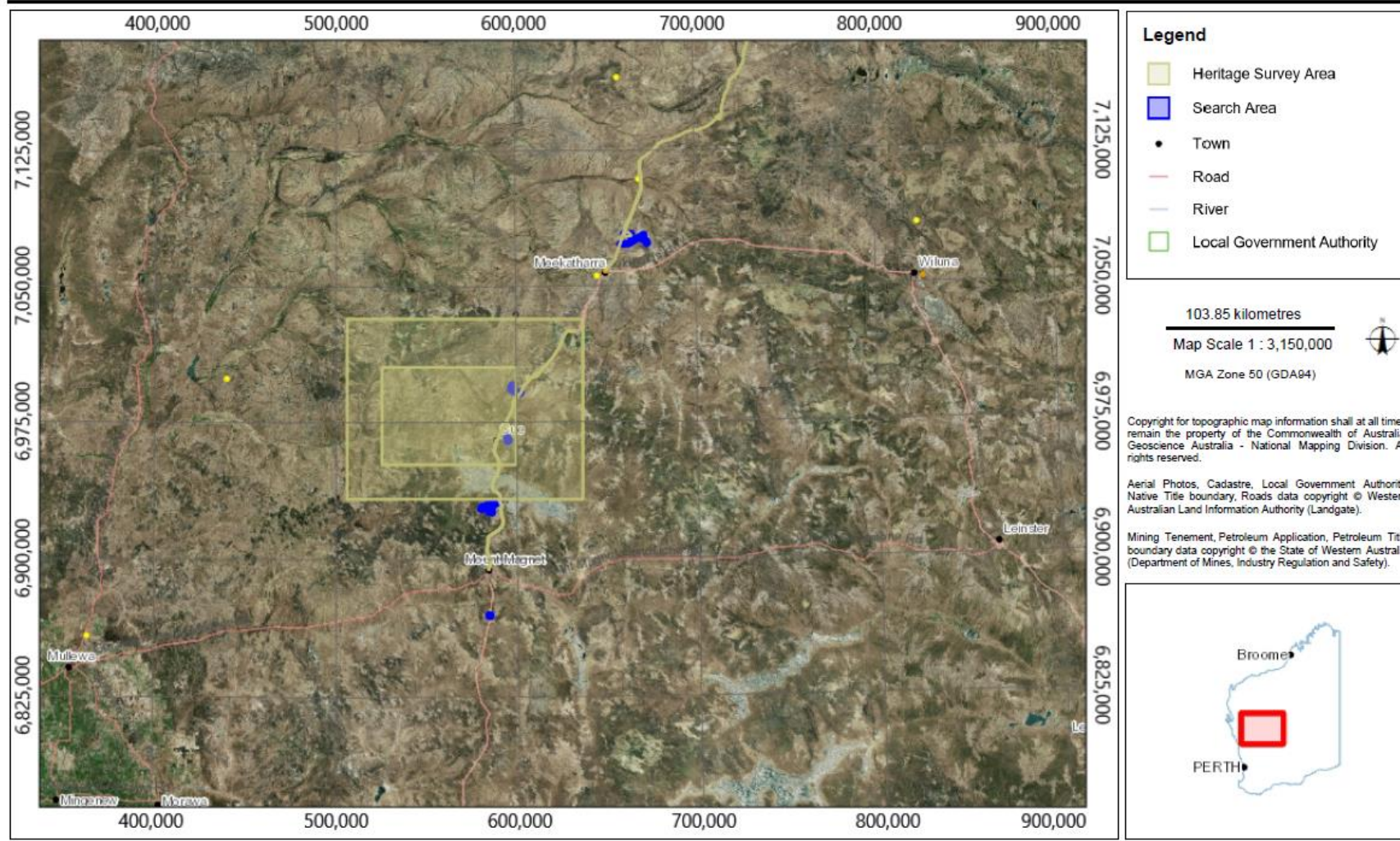


Department of Planning,  
Lands and Heritage

## Aboriginal Heritage Inquiry System

### Map of Heritage Survey Areas

For further important information on using this information please see the  
Department of Planning, Lands and Heritage's Terms of Use statement at  
<http://www.daa.wa.gov.au/Terms-Of-Use/>





## Appendix B: DoEE Protected Matters Database Search



Australian Government  
Department of the Environment and Energy

### EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 19/10/18 15:45:56

[Summary](#)

[Details](#)

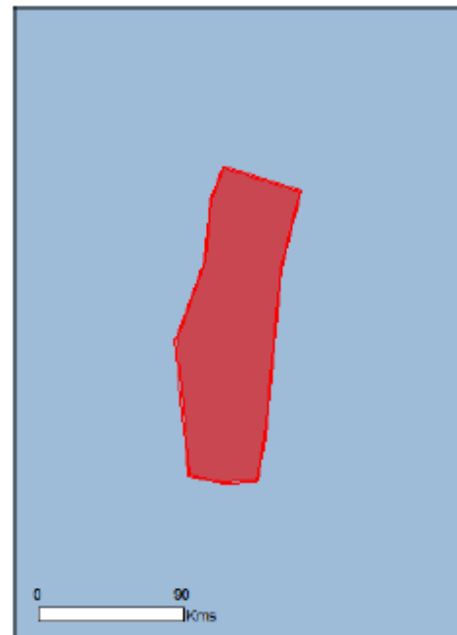
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are  
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[Coordinates](#)

Buffer: 1.0Km



## Summary

### Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	None
<a href="#">Listed Threatened Species:</a>	8
<a href="#">Listed Migratory Species:</a>	8

### Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

<a href="#">Commonwealth Land:</a>	1
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	12
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

### Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

<a href="#">State and Territory Reserves:</a>	1
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	9
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine)</a>	None

## Details

### Matters of National Environmental Significance

Listed Threatened Species		[ Resource Information ]
Name	Status	Type of Presence
<b>Birds</b>		
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pezoporus occidentalis</a> Night Parrot [50350]	Endangered	Species or species habitat may occur within area
<b>Mammals</b>		
<a href="#">Dasyurus geoffroyi</a> Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area
<b>Other</b>		
<a href="#">Idiosoma nigrum</a> Shield-backed Trapdoor Spider, Black Rugose Trapdoor Spider [66798]	Vulnerable	Species or species habitat likely to occur within area
<b>Plants</b>		
<a href="#">Eremophila rostrata</a> Beaked Eremophila [65124]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Minuria tridens</a> Minnie Daisy [13753]	Vulnerable	Species or species habitat may occur within area
<b>Reptiles</b>		
<a href="#">Egernia stokesii badia</a> Western Spiny-tailed Skink, Baudin Island Spiny-tailed Skink [64483]	Endangered	Species or species habitat known to occur within area
Listed Migratory Species		[ Resource Information ]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
<b>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within



Name	Threatened	Type of Presence area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

#### Other Matters Protected by the EPBC Act

##### Commonwealth Land

[ Resource Information ]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

##### Name

Commonwealth Land -

##### Listed Marine Species

[ Resource Information ]

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
<b>Birds</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Chrysocolaptes osculans</a> Black-eared Cuckoo [705]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area
<a href="#">Thinornis rubricollis</a> Hooded Plover [59510]		Species or species habitat known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

### Extra Information

State and Territory Reserves	[ Resource Information ]
Name	State
Lakeside Pastoral Lease	WA

Invasive Species	[ Resource Information ]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.	

Name	Status	Type of Presence
<b>Birds</b>		
<i>Columba livia</i> Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
<i>Streptopelia senegalensis</i> Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
<b>Mammals</b>		
<i>Canis lupus familiaris</i> Domestic Dog [82654]		Species or species habitat likely to occur within area
<i>Capra hircus</i> Goat [2]		Species or species habitat likely to occur within area
<i>Felis catus</i> Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
<i>Oryctolagus cuniculus</i> Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
<i>Vulpes vulpes</i> Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
<i>Carthagenia annua</i> Ward's Weed [9511]		Species or species habitat may occur within area
<i>Cenchrus ciliaris</i> Buffel-grass, Black Buffel-grass [20213]		Species or species habitat likely to occur within area



## Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

## Coordinates

-26.9355 117.8551,-27.0546 118.2828,-27.4348 118.1667,-28.2744 118.0746,-28.4807 118.0327,-28.4879 117.8537,-28.4502 117.6575,-27.7818 117.5897,-27.3988 117.7516,-27.0911 117.7828,-26.9355 117.8551

## Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
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Australian Government  
Department of the Environment and Energy

## EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 19/10/18 15:42:56

[Summary](#)

[Details](#)

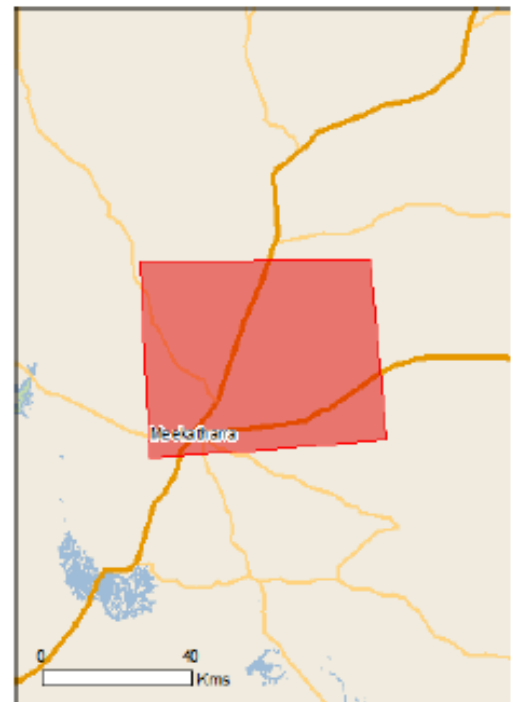
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

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## Summary

### Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	None
<a href="#">Listed Threatened Species:</a>	5
<a href="#">Listed Migratory Species:</a>	7

### Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

<a href="#">Commonwealth Land:</a>	1
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	10
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

### Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

<a href="#">State and Territory Reserves:</a>	None
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	10
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine)</a>	None



## Details

### Matters of National Environmental Significance

Listed Threatened Species		[ Resource Information ]
Name	Status	Type of Presence
<b>Birds</b>		
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [858]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Pezoporus occidentalis</a> Night Parrot [59350]	Endangered	Species or species habitat may occur within area
<a href="#">Polytelis alexandrae</a> Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area
<b>Plants</b>		
<a href="#">Pityrodia augustensis</a> Mt Augustus Foxglove [4962]	Vulnerable	Species or species habitat likely to occur within area
Listed Migratory Species		[ Resource Information ]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
<b>Migratory Terrestrial Species</b>		
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [858]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species

Name	Threatened	Type of Presence
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]		habitat may occur within area  Species or species habitat may occur within area

## Other Matters Protected by the EPBC Act

Commonwealth Land [\[ Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

## Name

Commonwealth Land -

Listed Marine Species [\[ Resource Information \]](#)

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
<b>Birds</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
<a href="#">Chrysocolaptes ocellatus</a> Black-eared Cuckoo [705]		Species or species habitat known to occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within

Name	Threatened	Type of Presence area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area

## Extra Information

### Invasive Species

### [ Resource Information ]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
<b>Birds</b>		
<i>Columba livia</i> Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
<b>Mammals</b>		
<i>Camelus dromedarius</i> Dromedary, Camel [7]		Species or species habitat likely to occur within area
<i>Canis lupus familiaris</i> Domestic Dog [82654]		Species or species habitat likely to occur within area
<i>Capra hircus</i> Goat [2]		Species or species habitat likely to occur within area
<i>Equus asinus</i> Donkey, Ass [4]		Species or species habitat likely to occur within area
<i>Felis catus</i> Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
<i>Oryctolagus cuniculus</i> Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
<i>Vulpes vulpes</i> Red Fox, Fox [18]		Species or species habitat likely to occur within area
<b>Plants</b>		
<i>Carrichtera annua</i> Ward's Weed [9511]		Species or species habitat may occur within area
<i>Cenchrus ciliaris</i> Buffel-grass, Black Buffel-grass [20213]		Species or species habitat likely to occur

## Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

## Coordinates

-26.2268 118.3663,-26.2205 118.919,-26.608 118.9586,-26.6476 118.3912,-26.2268 118.3663



## Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [Office of Environment and Heritage, New South Wales](#)
- [Department of Environment and Primary Industries, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment, Water and Natural Resources, South Australia](#)
- [Department of Land and Resource Management, Northern Territory](#)
- [Department of Environmental and Heritage Protection, Queensland](#)
- [Department of Parks and Wildlife, Western Australia](#)
- [Environment and Planning Directorate, ACT](#)
- [Birdlife Australia](#)
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