



GABANINTHA VANADIUM PROJECT

EP ACT S38 REFERRAL: SUPPORTING
INFORMATION

Part B: Appendices

REV C
INTEGRATE SUSTAINABILITY PTY LTD



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TERRA ROSA
CONSULTING

Report on an archaeological and ethnographic work area clearance survey of the Gabanintha Project Area, with Yugunga-Nya Traditional Owners and prepared for The KOP Ventures Pty Ltd

November 2018

Author: Sarah Keiller and Grant Preller

YMAC Ref: YUG684-2

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Coordinate capture

The authors advise that all coordinates quoted in this document were initially obtained with a Garmin hand held GPS and an Apple iPad, using the GDA datum. All grid references are projected in MGA Zone 50, unless otherwise stated. Dependent on external conditions, these units afford an optimal spatial accuracy of ± 5 m.

Heritage project participants and contacts

The contact details of the heritage project stakeholders are provided below. The authors would like to thank everyone that participated in the heritage survey and assisted in organising the fieldwork.

The heritage survey was conducted between 15 and 20 October 2018 (exclusive of travel days).

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|--------------------------------|--|
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| Report authors | Sarah Keiller and Grant Preller |
| Editor | Megan Tehnas |
| Executive sign-off | Scott Chisholm |

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| Field work participants | Andrew Gentle Jnr Darren Wingo Richard Kyanga Bill Shay (present 15, 16, 18 to 20 October 2018) Leroy Shay (present 15 to 19 October 2018) Lesley Shay (present 20 October 2018) Shane Riley (present 20 October 2018) Trevor Shay (present 15 to 19 October 2018) |

| Proponent | The KOP Ventures Pty Ltd |
|--------------------------------|---|
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| Field work participants | Belinda Bastow (Integrated Sustainability Consulting) John McDougall |

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Acronyms and definitions

The following terms and acronyms are utilised throughout the report. Definitions are provided below for reference.

| Term / Abbreviation | Definition |
|-----------------------------------|--|
| ACMC | Aboriginal Cultural Materials Committee |
| AHIS | Aboriginal Heritage Inquiry System |
| DPLH | Department of Planning, Lands and Heritage |
| GIS | Geographic information system |
| GPS | Global positioning system |
| Heritage object | An object to which the Act applies under s6 |
| Isolated artefacts | Cultural material with insufficient density to constitute a site. |
| KOP | The KOP Ventures Pty Ltd |
| MGA | Map grid of Australia |
| NNTT | National Native Title Tribunal |
| Other Heritage Place | Other heritage places are places catalogued by the DPLH but not included on the Register of Aboriginal Sites for one of the following reasons: <ol style="list-style-type: none"> 1. Information about the OHP has been lodged with the DPLH but is pending assessment by the ACMC (status L – lodged; also see definition for ‘potential site’, below); or 2. The ACMC assessed the OHP and considered it not to meet the evaluation criteria for inclusion on the Register of Sites (i.e. not a registered Aboriginal site) (status S – stored / not a site). |
| Registered Aboriginal site | A site which has been determined as meeting criteria under section 5 of the <i>Aboriginal Heritage Act 1972 (WA)</i> , and has been registered by the Registrar of Aboriginal Sites (DPLH status R - registered). |
| Site | Any place which may meet the criteria of an Aboriginal site under s5 of the <i>Aboriginal Heritage Act 1972 (WA)</i> . |
| Terra Rosa | Terra Rosa Consulting |
| Traditional Owners | Yugunga-Nya People native title claimants (NNTT no WC 1999/046) and invited participants. |
| The Act | <i>Aboriginal Heritage Act 1972 (WA)</i> |
| YMAC | Yamatji Marlpa Aboriginal Corporation |

1 Heritage project overview

The KOP Ventures Pty Ltd (KOP) plans to utilise land within the Yugunga-Nya People native title claim (WC 1999/046) to:

- excavate 12 trenches for soil sampling;
- excavate 20 temporary water bore collection dams;
- drill up to 12 water exploration bores with pads;
- clear areas around 13 existing bores, and four pit water locations;
- clear 50 m wide areas around water exploration transect corridors;
- excavate 13 sumps at existing bore sites and 48 sumps at the proposed drill locations; and
- clear for sterilisation drilling within site infrastructure areas.

The project areas are contained within exploration licences E51/1510-1 and E51/1818 as well as prospecting licences P51/2785-1, P51/2930, P51/2943 and P51/2944 (see map 1).

Yamatji Marlpa Aboriginal Corporation (YMAC), as the representative of the Yugunga-Nya Traditional Owners, engaged Terra Rosa Consulting (Terra Rosa) to conduct an archaeological and ethnographic work area clearance heritage survey of proposed exploratory drilling areas at the Gabanintha Project Area, in line with the request submitted by KOP prior to the commencement of the survey. A total of 23 areas were scoped for archaeological and ethnographic survey. These are detailed in table 1, below.

The objective of work area clearance surveys is to establish the existence of any archaeological and ethnographic heritage places within the project area and to address any heritage concerns arising from discussions with the Yugunga-Nya Traditional Owners present.

Table 1: Heritage survey overview

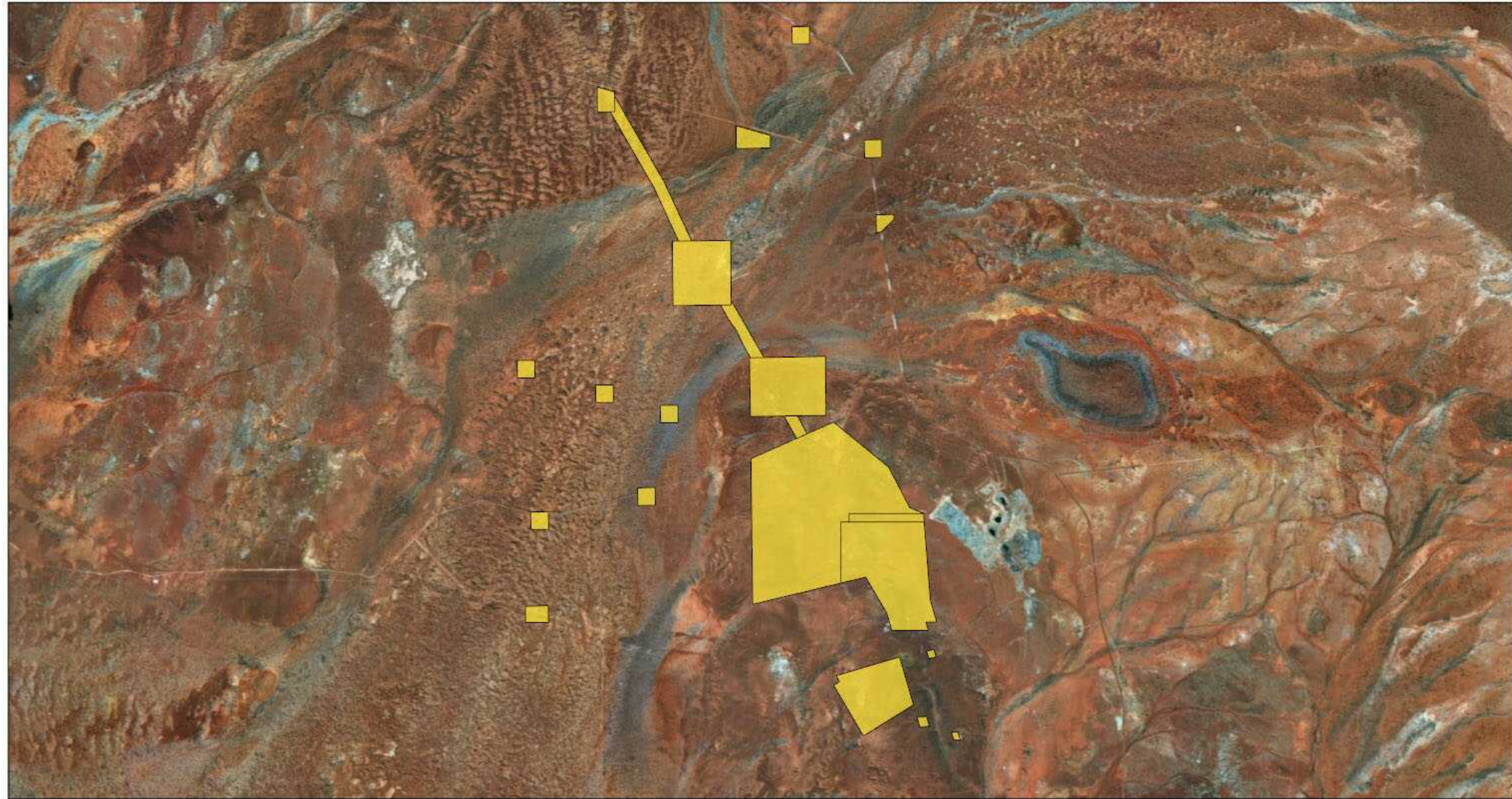
| Survey area | Total area (ha) | Assessment type |
|-------------------------|---------------------------------|--|
| Gabanintha Project Area | 23 polygons totalling 1303.6 ha | Archaeological and ethnographic work area clearance survey |

Plate 1: The heritage team



Map 1: Proposed Gabanintha Project heritage survey areas

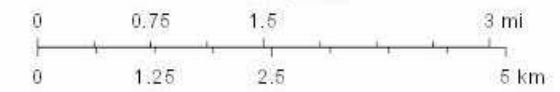
Gabanintha Project Areas



10/29/2018, 8:53:23 AM

20181005_Heritage_Survey_Request_Shapefiles - 20181004_Proposed_Heritage_Survey_Areas_V2

1:72,224



Earthstar Geographics

Terra Rosa Consulting - Internal Use Only

2 Heritage assessment method

The archaeological and ethnographic heritage survey was conducted to a work area clearance standard. The objective of a work area clearance assessment is to establish the existence of any archaeological and ethnographic values within the project areas, to establish avoidance boundaries around sites likely to be impacted by the proposed works, and to address any heritage concerns arising from discussions with the Traditional Owners present.

2.1 Desktop assessment procedure

Prior to field work, a preliminary desktop assessment was undertaken to provide an overview of heritage research undertaken to date within the area. Desktop research focused on the identification of any registered Aboriginal sites, other heritage places (OHPs), and surveys within the area, which need to be considered in the heritage approval process for the project.

Desktop research for heritage values relies largely on the Register of Sites maintained by the Department of Planning, Lands and Heritage (DPLH), which provides an indication as to the presence and nature of any heritage values previously recorded and registered within the area.

The AHIS search is also utilised to determine whether any heritage assessments have previously been conducted within the application area and if any heritage reports containing information relevant to the application area have been registered with the DPLH.

Prior to field work, the survey area boundaries were entered into the DPLH's Aboriginal Heritage Inquiry System (AHIS) to learn whether any registered Aboriginal sites or OHPs have been recorded within the area. Registered Aboriginal sites are those areas that have been assessed by the ACMC as constituting sites under the Act. OHPs include places for which data has been lodged with the DPLH but is pending assessment by the ACMC, and places that have been assessed by the ACMC as not constituting registered Aboriginal sites (listed as stored data / not a site).

2.2 Field assessment method

The method outlined below was approved and endorsed by participating Traditional Owners.

In order to identify any archaeological and ethnographic heritage values within the survey areas, a pedestrian transect method was utilised. This involved the Terra Rosa heritage consultants walking the two outer transects with a handheld Garmin GPS unit and an Apple iPad, with the remainder of the heritage team spaced evenly in between. This spacing ranged between 20 m and 30 m, depending on the terrain and vegetation coverage of each area.

When areas of archaeological or ethnographic heritage value were identified, an avoidance boundary was defined around the extent of the site. These areas were deemed **not clear** for inclusion in the proposed works.

During assessment of the work area, the Yugunga-Nya Traditional Owners were invited to give feedback regarding the project. Any relevant concerns raised were discussed amongst the heritage team and heritage management recommendations were recorded.

Upon conclusion of the field trip a debrief was conducted to offer Traditional Owners the opportunity to discuss and comment upon the field method and the sites identified, including mitigation strategies and recommendations.

A draft report was reviewed by YMAC prior to dissemination of results to KOP. The review process ensures that culturally sensitive information is appropriately indicated, and the recommendations discussed amongst the heritage team are made in accordance with the Traditional Owners' suggestions. This process provides Terra Rosa with feedback which is taken into account during the final editing of the report.

2.3 Limitations to the heritage assessment

The progress of the heritage survey was limited by mobilisation challenges with the survey team, including discussions around which people were to undertake the survey, and the need for some team members to be back in town for appointments.

Plate 2: The heritage team surveying the Gabanintha Project Area



3 Desktop research

Desktop research results, including a search of the DPLH's AHIS, and a review of any relevant, unpublished heritage reports, are presented below.

3.1 AHIS research

The boundaries of the survey areas were searched on the AHIS to establish the presence or absence of registered Aboriginal sites and OHPs previously catalogued by the DPLH. The search revealed **no** registered Aboriginal sites or OHPs within the survey areas.

The AHIS was also searched for reports detailing the results of previous heritage surveys within the survey areas. **No** heritage reports are catalogued as being relevant to the survey areas.

The absence of registered Aboriginal sites and OHPs within the survey areas does not necessarily indicate an absence of heritage places or objects within the area. Any previous heritage assessments undertaken within the area may have lacked the scope to record and register identified heritage places or heritage objects. Alternatively, the lack of registered Aboriginal sites and OHPs may be resultant of the area having not been subjected to heritage assessment.

4 Fieldwork results

The archaeological and ethnographic work area clearance heritage survey for the Gabanintha Project Area is **partially complete** (see map 2).

As a result of the survey:

- Portions of survey areas 04, 09, 10, 12, 20, and 22 were unable to be completed due to time limitations. These have been presented as ‘pending – not surveyed’ areas in map 2, below, and in the accompanying spatial data package;
- Eleven heritage places (YU1804-NC01 to YU1804-NC11) were identified within the surveyed portions of the Gabanintha Project Area and should be avoided in order to avoid breaches of s17 of the Act. These have been presented as ‘not clear’ areas in map 2, below, and in the accompanying spatial data package;
- The boundary for the ‘Ridge Exclusion Zone’ (first delineated during a previous survey of the area) was increased at the request of the Yugunga-Nya Traditional Owners to incorporate the whole breakaway. This area has been relabelled as ‘Breakaway Exclusion Zone’; and
- 274 isolated artefacts were identified within the surveyed area (see table 3 in appendix 2).

Table 2 and map 2, below, further present the results outlined above. A spatial data package containing all results from this work area clearance assessment accompanies this report.

Table 2: Results of the work area clearance survey

| ‘Not clear’ area ID | Survey area | Site type |
|---------------------|-------------|-----------------------------|
| YU1804-NC01 | 02 | Artefacts / Scatter |
| YU1804-NC02 | 02 | Modified Tree |
| YU1804-NC03 | 02 | Quarry, Artefacts / Scatter |
| YU1804-NC04 | 23 | Artefacts / Scatter |
| YU1804-NC05 | 23 | Quarry, Artefacts / Scatter |
| YU1804-NC06 | 07 | Modified Tree |
| YU1804-NC07 | 13 | Artefacts / Scatter |
| YU1804-NC08 | 07 | Artefacts / Scatter |

| 'Not clear' area ID | Survey area | Site type |
|---------------------|-------------|-----------------------------|
| YU1804-NC09 | 07 | Quarry, Artefacts / Scatter |
| YU1804-NC10 | 07 | Quarry, Artefacts / Scatter |
| YU1804-NC11 | 08 | Artefacts / Scatter |

Plate 3: Chert multiple platform core isolated artefact (scale = 10 cm)

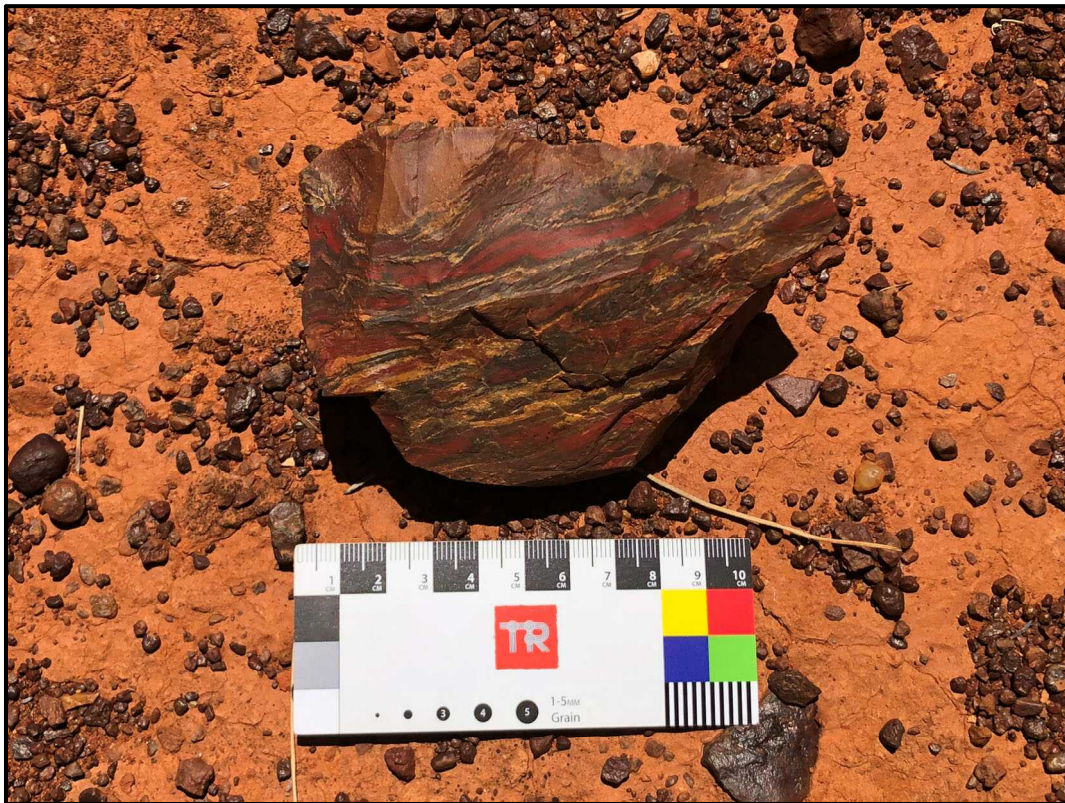


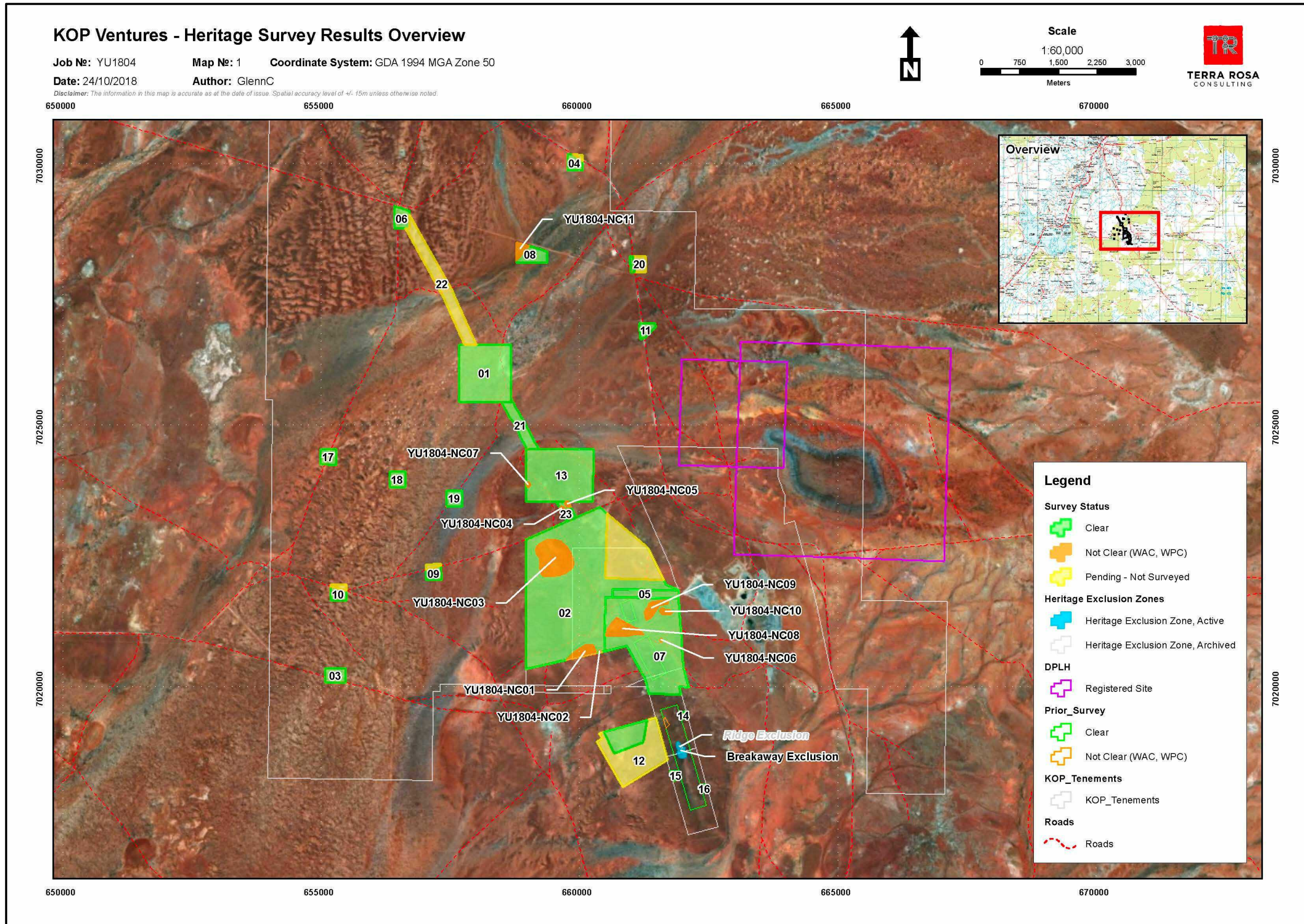
Plate 4: Artefacts within YU1804-NC03 (scale = 10 cm)



Plate 5: Modified tree at YU1804-NC02 (scale = 10 cm)



Map 2: Results of the work area clearance heritage survey of the Gabanintha Project Area



5 Recommendations and conclusions

The following conclusions and recommendations have been approved by the Yugunga-Nya Traditional Owner representatives who were present during the fieldwork:

1 KOP is advised to avoid the eleven heritage places identified within the surveyed portions of the Gabanintha Project Area.

Eleven heritage places (YU1804-NC01 to YU1804-NC11) were identified in the surveyed portions of the Gabanintha Project Area. KOP is advised that YU1804-NC01 to YU1804-NC11 must be avoided during the proposed clearing, drilling and excavation works to avoid breaching s17 of the Act.

If KOP is unable to avoid any of these heritage places, they are advised to liaise with the Yugunga-Nya Traditional Owners through their representative, YMAC.

2 KOP is advised to avoid the Breakaway Exclusion Zone identified during the July 2018 survey and extended during the October 2018 survey.

The Yugunga-Nya Traditional Owners indicated that they would like the breakaway located within the Gabanintha Project Area to be avoided by future works. They requested that the existing 'Ridge Exclusion Zone' be extended to include the whole breakaway. This extended area has been renamed 'Breakaway Exclusion Zone'.

The Yugunga-Nya Traditional Owners assert that they have a cultural obligation to protect breakaways as they are considered to be places where a specific form of spiritual beings reside, colloquially referred to in English as the "little people".

Yugunga-Nya People are also culturally obligated to ensure that impact to these landforms are avoided as they provide a vital habitat for local fauna. As such, it is recommended that these types of geological features are avoided by KOP in their future works.

An existing drill hole is located near the ridge, and the Yugunga-Nya Traditional Owners request that this drill hole is rehabilitated.

3 KOP is advised that the Yugunga-Nya Traditional Owners would like KOP to minimise ground disturbance where possible.

The Yugunga-Nya Traditional Owners expressed concern about KOP causing excessive ground disturbance during their work program based on potential cumulative impacts that ground disturbance may cause to existing landforms. Where possible, KOP are advised to use existing tracks within heritage cleared areas to minimise ground disturbance.

4 It is recommended that KOP work with the Yugunga-Nya Traditional Owners to collaboratively develop a Cultural Heritage Management Plan that will assist KOP to better understand its responsibilities to the heritage values of the Yugunga-Nya Traditional Owners and under the Act.

The Yugunga-Nya Traditional Owners request that KOP Ventures work in consultation with them to develop a Cultural Heritage Management Plan that addresses key outcomes including:

- The development of processes to ensure that appropriate heritage surveys are conducted by KOP Ventures prior to disturbing any previously undisturbed ground;
- The development of processes to ensure that areas 'not cleared' are avoided and not impacted; and

The implementation of appropriate training for project personnel to ensure that relevant aspects of the Cultural Heritage Management Plan are properly implemented.

5 All KOP employees and contractors working within the project area must be made aware of and avoid the heritage places identified and be clearly instructed to restrict access and works to areas that have been surveyed.

KOP must advise all employees and contractors working within the Gabanintha Project Area to avoid impact to the eleven heritage places and the Breakaway Exclusion Zone delineated during the work area clearance survey and restrict their proposed works to the areas that have been surveyed and assessed as clear for works to proceed.

It is an offence to disturb an Aboriginal heritage place without prior written permission to do so under s16 or s18 of the Act. Financial penalties may be applied against individuals or corporations who disturb a heritage place. S18 of the Act details the statutory provisions for applications to be made to the Minister to utilise areas in which Aboriginal heritage places may exist and is subject to evaluation by the ACMC and the conditions of the Act.

6 If KOP proposes to alter the types of works or expand the exploration program, either in size or scale, beyond that cleared during the heritage survey, KOP must undertake further consultation with the Yugunga-Nya Traditional Owners.

KOP is advised that only areas subjected to a heritage assessment are clear for works to proceed. Should the program of works expand in size and scale, or should the proponent wish to conduct a different type of works, the Yugunga-Nya Traditional Owners must be engaged for a further heritage assessment.

6 Bibliography

Australia ICOMOS 2013, *The Burra Charter: The Australia ICOMOS charter for places of cultural significance 2013*, viewed 5 September 2018, <<http://australia.icomos.org/wp-content/uploads/The-Burra-Charter-2013-Adopted-31.10.2013.pdf>>

Commonwealth of Australia 2002, *Australian Natural Heritage Charter 2002*, 2nd edn, viewed 5 September 2018, <<http://www.environment.gov.au/heritage/ahc/publications/commission/books/pubs/australian-natural-heritage-charter.pdf>>

Commonwealth of Australia 2018, *Claimant summary – Yugunga-Nya People*, viewed 5 September 2018, <http://www.nntt.gov.au/searchRegApps/NativeTitleClaims/Pages/details.aspx?NTDA_FileNo=WC1999/046>

Department of Planning, Lands and Heritage 2016, *Aboriginal Heritage Inquiry System*, viewed 5 September 2018, <<http://maps.dia.wa.gov.au/AHIS2/>>

Legislation

Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Commonwealth of Australia), viewed 5 September 2018, <<http://www.comlaw.gov.au/Details/C2010C00807>>

Aboriginal Heritage Act 1972 (Western Australia), viewed 5 September 2018, <http://www.austlii.edu.au/au/legis/wa/consol_act/aha1972164/>

Other relevant reports

Passmore, M 2018, *Report on an archaeological and ethnographic work area clearance survey at KOP Ventures Gabanintha Project Area with Yugunga-Nya Traditional Owners and prepared for Yamatji Marlpa Aboriginal Corporation*

Quartermaine, G. and Shaw, K. 1991, *Report on a Preliminary Investigation for Aboriginal Sites in the Porlell Project Area, South-East of Meekatharra*

Appendix 1 – Relevant sections of the Act

The below sections of the Act are referenced in the current report and included below for easy reference. A full copy of the Act is available online at http://www.austlii.edu.au/au/legis/wa/consol_act/aha1972164/.

s5 Application to places

This Act applies to —

- a) any place of importance and significance where persons of Aboriginal descent have, or appear to have, left any object, natural or artificial, used for, or made or adapted for use for, any purpose connected with the traditional cultural life of the Aboriginal people, past or present;
- b) any sacred, ritual or ceremonial site, which is of importance and special significance to persons of Aboriginal descent;
- c) any place which, in the opinion of the Committee, is or was associated with the Aboriginal people and which is of historical, anthropological, archaeological or ethnographical interest and should be preserved because of its importance and significance to the cultural heritage of the State;
- d) any place where objects to which this Act applies are traditionally stored, or to which, under the provisions of this Act, such objects have been taken or removed.

s6 Application to objects

- 1) Subject to subsection (2a), this Act applies to all objects, whether natural or artificial and irrespective of where found or situated in the State, which are or have been of sacred, ritual or ceremonial significance to persons of Aboriginal descent, or which are or were used for, or made or adapted for use for, any purpose connected with the traditional cultural life of the Aboriginal people past or present.
- 2) Subject to subsection (2a), this Act applies to objects so nearly resembling an object of sacred significance to persons of Aboriginal descent as to be likely to deceive or be capable of being mistaken for such an object.
 - a. This Act does not apply to a collection, held by the Museum under section 9 of the Museum Act 1969, which is under the management and control of the Trustees under that Act.
- 3) The provisions of Part VI do not apply to an object made for the purpose of sale and which —
 - a. is not an object that is or has been of sacred significance to persons of Aboriginal descent, or an object so nearly resembling such an object as to be likely to deceive or be capable of being mistaken for the same; or
 - b. is an object of the kind referred to in paragraph (a) that is disposed of or dealt with by or with the consent of the Minister.

s15 Report of findings

Any person who has knowledge of the existence of any thing in the nature of Aboriginal burial grounds, symbols or objects of sacred, ritual or ceremonial significance, cave or rock paintings or engravings, stone structures or arranged stones, carved trees, or of any other place or thing

to which this Act applies or to which this Act might reasonably be suspected to apply shall report its existence to the Registrar, or to a police officer, unless he has reasonable cause to believe the existence of the thing or place in question to be already known to the Registrar.

s17 Offences relating to Aboriginal sites

A person who –

- a. excavates, destroys, conceals or in any way alters any Aboriginal site; or
- b. in any way alters, damages, removes, destroys, conceals, or who deals with in a manner not sanctioned by relevant custom or assumes the possession, custody or control of any object on or under an Aboriginal site,

commits an offence unless he is acting with the authorisation of the Registrar under section 16 or of the Minister under section 18.

s39 Functions of the Committee

1. The functions of the Committee are —
 - a. to evaluate on behalf of the community the importance of places and objects alleged to be associated with Aboriginal persons;
 - b. where appropriate, to record and preserve the traditional Aboriginal lore related to such places and objects;
 - c. to recommend to the Minister places and objects which, in the opinion of the Committee, are, or have been, of special significance to persons of Aboriginal descent and should be preserved, acquired and managed by the Minister;
2. In evaluating the importance of places and objects the Committee shall have regard to —
 1. any existing use or significance attributed under relevant Aboriginal custom;
 2. any former or reputed use or significance which may be attributed upon the basis of tradition, historical association, or Aboriginal sentiment;
 3. any potential anthropological, archaeological or ethnographical interest; and
 4. aesthetic values.
3. Associated sacred beliefs, and ritual or ceremonial usage, in so far as such matters can be ascertained, shall be regarded as the primary considerations to be taken into account in the evaluation of any place or object for the purposes of this Act.

Appendix 2 – Isolated artefacts

If cultural material was identified but not deemed to constitute a site, it was recorded as isolated artefacts to meet obligations under s6 of the Act.

274 isolated artefacts were identified within the survey areas. Details of isolated artefacts were recorded and are reported below in accordance with s15 of the Act. Artefact recording codes are defined below.

Artefact Type: The following abbreviations for artefact types have been employed in this report.

| | | | | | |
|------------|--------------------------------|-------------|---|-------------|---|
| ADB | <i>Burren adze</i> | FF | <i>Flake fragment</i> | MF | <i>Muller fragment</i> |
| ADT | <i>Tula adze</i> | GM | <i>Geometric microlith</i> | RUP | <i>Re-touched/Utilised piece</i> |
| AF | <i>Angular fragment</i> | HS | <i>Hammer stone</i> | SRF | <i>Scraper fragment</i> |
| BL | <i>Blade</i> | LBFL | <i>Longitudinally broken flake – left</i> | SPC | <i>Single platform core</i> |
| BGF | <i>Basal grinding fragment</i> | LBFM | <i>Longitudinally broken flake – medial</i> | SR | <i>Scraper</i> |
| BGS | <i>Basal grindstone</i> | LBFR | <i>Longitudinally broken flake – right</i> | TBFD | <i>Transversely broken flake – distal</i> |
| CF | <i>Core fragment</i> | LTBF | <i>Longitudinally / transversely broken flake</i> | TBFM | <i>Transversely broken flake – medial</i> |
| CT | <i>Core tool</i> | MPC | <i>Multi-platform core</i> | TBFP | <i>Transversely broken flake – proximal</i> |
| F | <i>Complete flake</i> | MU | <i>Muller</i> | NA | <i>Not applicable/not present</i> |

Lithology: This describes the material from which the artefact was manufactured. The following abbreviations have been employed in this report.

| | | | | | |
|------------|-----------------------------------|------------|------------------|------------|----------------------------|
| B | <i>Bone</i> | DOL | <i>Dolerite</i> | LT | <i>Laterite</i> |
| BS | <i>Basalt</i> | GL | <i>Glass</i> | MUD | <i>Mudstone</i> |
| BIF | <i>Banded ironstone formation</i> | GR | <i>Granite</i> | SIL | <i>Silcrete</i> |
| CA | <i>Canga</i> | IS | <i>Ironstone</i> | SL | <i>Siliceous limestone</i> |
| CH | <i>Chert</i> | JS | <i>Jasper</i> | QI | <i>Quartzite</i> |
| CQ | <i>Crystal quartz</i> | KAL | <i>Kaolinite</i> | QZ | <i>Quartz</i> |
| CY | <i>Chalcedony</i> | LM | <i>Limestone</i> | | |

Retouch and Usewear: This describes the visible signs used to identify tools and tool use, specifically the working of materials to form a tool or refine an existing tool and perforations and other wear resulting from tool use.

Table 3: Isolated artefacts within the survey areas

| Typology | Lithology | Retouch / Utilisation | Easting (mE) | Northing (mN) |
|----------|-----------|-----------------------|--------------|---------------|
| SPC | BS | - | 659030 | 7022765 |
| F | BS | - | 659245 | 7021901 |
| F | BS | - | 659247 | 7021883 |
| SPC | BS | - | 659247 | 7021883 |
| F | BS | - | 659449 | 7020715 |
| BGS | DOL | - | 659445 | 7020755 |
| F | CH | - | 659292 | 7024560 |
| F | CH | - | 659292 | 7024560 |
| F | CH | - | 659292 | 7024560 |
| SPC | DOL | - | 659336 | 7024571 |
| MPC | BS | - | 659336 | 7024571 |
| MU | DOL | - | 659503 | 7024551 |
| MU | DOL | - | 659819 | 7024555 |
| MPC | CH | - | 660315 | 7024537 |
| MU | DOL | - | 659891 | 7024363 |
| MPC | BS | - | 659745 | 7024331 |
| MPC | BS | - | 659692 | 7024355 |
| F | BS | - | 659131 | 7024366 |
| F | BS | - | 659004 | 7024385 |
| F | QZ | - | 660052 | 7021127 |
| F | BS | - | 660303 | 7020751 |
| F | BS | - | 660301 | 7020965 |
| MPC | CH | - | 660311 | 7021314 |
| MPC | CH | - | 660313 | 7021333 |
| F | CH | - | 660306 | 7021510 |
| MU | DOL | - | 660332 | 7023375 |
| MU | GR | - | 659498 | 7024099 |
| MPC | BS | - | 659570 | 7024151 |
| F | CH | - | 659587 | 7023949 |
| F | CH | - | 659518 | 7023949 |

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| Typology | Lithology | Retouch / Utilisation | Easting (mE) | Northing (mN) |
|----------|-----------|-----------------------|--------------|---------------|
| F | QZ | - | 659163 | 7023945 |
| F | CH | - | 659193 | 7023657 |
| F | BS | - | 658750 | 7025248 |
| F | BIF | - | 658675 | 7025386 |
| F | CH | - | 658606 | 7025498 |
| F | CY | - | 658624 | 7025519 |
| F | CH | - | 658689 | 7025416 |
| MPC | CH | - | 658966 | 7024927 |
| F | DOL | - | 658967 | 7024921 |
| F | B | - | 659163 | 7024597 |
| F | BAS | - | 660029 | 7030083 |
| F | BAS | - | 659802 | 7030108 |
| F | DOL | - | 659876 | 7030108 |
| F | DOL | - | 659876 | 7030108 |
| F | DOL | - | 659896 | 7030073 |
| F | DOL | - | 659908 | 7030079 |
| MPC | CY | - | 659926 | 7030091 |
| MPC | DOL | - | 660050 | 7030096 |
| F | CH | - | 661666 | 7021606 |
| SPC | CY | - | 661665 | 7021603 |
| SPC | CY | - | 661665 | 7021597 |
| F | CY | - | 661661 | 7021591 |
| F | BS | - | 661696 | 7021157 |
| F | CH | - | 661359 | 7021630 |
| F | CH | - | 661360 | 7021577 |
| F | CH | - | 660691 | 7020847 |
| F | DL | - | 660857 | 7021934 |
| F | CH | - | 660997 | 7021936 |
| F | QZ | - | 661305 | 7021939 |
| F | CH | - | 660830 | 7022120 |
| F | QZ | - | 660397 | 7022187 |

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| Typology | Lithology | Retouch / Utilisation | Easting (mE) | Northing (mN) |
|----------|-----------|-----------------------|--------------|---------------|
| F | QZ | - | 660398 | 7022196 |
| F | DOL | - | 659294 | 7024562 |
| F | CH | - | 659302 | 7024560 |
| F | DOL | - | 659307 | 7024560 |
| F | CH | - | 659311 | 7024566 |
| F | DOL | - | 659336 | 7024563 |
| F | CH | - | 656650 | 7029097 |
| F | BS | - | 658285 | 7026564 |
| F | CH | - | 657986 | 7026556 |
| F | BS | - | 657981 | 7026554 |
| F | BS | - | 657848 | 7026563 |
| F | BS | - | 657734 | 7026563 |
| F | CH | - | 657702 | 7026374 |
| F | BIF | - | 657715 | 7026361 |
| MPC | CH | - | 658224 | 7026352 |
| F | CH | - | 657911 | 7025629 |
| F | CH | - | 657952 | 7025617 |
| F | CH | - | 658266 | 7025619 |
| MPC | CH | - | 658664 | 7025797 |
| F | CH | - | 661162 | 7019201 |
| F | CH | - | 661609 | 7020966 |
| F | DOL | - | 655310 | 7021782 |
| MPC | GR | - | 655155 | 7020323 |
| MPC | DOL | - | 657651 | 7023619 |
| TBFP | DOL | - | 659215 | 7020949 |
| F | DOL | - | 659221 | 7021007 |
| F | DOL | - | 659231 | 7021844 |
| MPC | BS | - | 659231 | 7021851 |
| MPC | BS | - | 659231 | 7022017 |
| F | CH | - | 659421 | 7021419 |
| F | BS | - | 659429 | 7021357 |

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| Typology | Lithology | Retouch / Utilisation | Easting (mE) | Northing (mN) |
|----------|-----------|-----------------------|--------------|---------------|
| F | DOL | - | 659418 | 7020862 |
| F | BS | - | 659427 | 7020728 |
| SPC | QI | - | 659434 | 7020717 |
| F | BS | - | 659430 | 7020708 |
| F | CH | - | 659462 | 7020697 |
| MPC | BS | - | 659466 | 7020699 |
| F | BS | - | 659479 | 7020702 |
| F | DOL | - | 659492 | 7020709 |
| F | BS | - | 659504 | 7020720 |
| F | BS | - | 659520 | 7020732 |
| F | CH | - | 659521 | 7020732 |
| F | BS | - | 659573 | 7020777 |
| F | DOL | - | 659583 | 7020784 |
| F | BS | - | 659632 | 7020845 |
| F | CH | - | 659633 | 7020854 |
| F | BS | - | 659649 | 7020860 |
| F | DOL | - | 659647 | 7020860 |
| F | BS | - | 659648 | 7020885 |
| F | DOL | - | 659643 | 7020927 |
| F | QI | - | 659652 | 7021034 |
| F | BS | - | 659656 | 7021034 |
| SPC | CH | - | 659624 | 7021474 |
| TBFP | BS | - | 659625 | 7021490 |
| F | BS | - | 659636 | 7022995 |
| F | DOL | - | 659283 | 7024388 |
| F | BS | - | 659308 | 7024394 |
| F | DOL | - | 660296 | 7024368 |
| F | CH | - | 659459 | 7024171 |
| F | BS | - | 659458 | 7024170 |
| F | BS | - | 659004 | 7024465 |
| F | BS | - | 659002 | 7024488 |

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| Typology | Lithology | Retouch / Utilisation | Easting (mE) | Northing (mN) |
|----------|-----------|-----------------------|--------------|---------------|
| F | BS | - | 659065 | 7024566 |
| F | BS | - | 659086 | 7024563 |
| F | CH | - | 659088 | 7024557 |
| SPC | BS | - | 659095 | 7024557 |
| TBFP | DOL | - | 659860 | 7023200 |
| TBFP | DOL | - | 659867 | 7023187 |
| F | DOL | - | 660060 | 7021585 |
| MPC | GL | - | 660059 | 7021590 |
| SPC | QI | - | 660053 | 7021850 |
| F | BS | - | 660064 | 7021892 |
| F | BS | - | 660064 | 7021892 |
| F | BS | - | 660064 | 7021892 |
| F | BS | - | 660064 | 7021892 |
| F | BS | - | 660064 | 7021892 |
| F | IS | - | 660306 | 7023104 |
| F | IS | - | 660306 | 7023101 |
| F | DOL | - | 660276 | 7021654 |
| MPC | DOL | - | 660281 | 7021603 |
| F | QZ | - | 660247 | 7021183 |
| F | DOL | - | 660245 | 7021161 |
| F | DOL | - | 660247 | 7021157 |
| F | DOL | - | 660243 | 7021155 |
| TBFP | BS | - | 660251 | 7021098 |
| F | BS | - | 660246 | 7021071 |
| F | BS | - | 660250 | 7021066 |
| F | BS | - | 660250 | 7021066 |
| F | BS | - | 660245 | 7021026 |
| F | CH | - | 660228 | 7021029 |
| F | BS | - | 660254 | 7021014 |
| F | BS | - | 660254 | 7021014 |
| F | BS | - | 660254 | 7021014 |

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| Typology | Lithology | Retouch / Utilisation | Easting (mE) | Northing (mN) |
|----------|-----------|-----------------------|--------------|---------------|
| F | DOL | - | 660273 | 7020976 |
| F | BS | - | 660273 | 7020978 |
| SPC | BS | - | 660260 | 7020791 |
| F | QI | - | 660479 | 7020809 |
| F | BS | - | 660482 | 7021275 |
| TBFP | CH | - | 660483 | 7021278 |
| F | DOL | - | 660481 | 7021298 |
| F | DOL | - | 660480 | 7021297 |
| F | BS | - | 660507 | 7021710 |
| F | BS | - | 660445 | 7022025 |
| F | DOL | - | 660445 | 7022026 |
| F | BS | - | 660447 | 7022024 |
| F | BS | - | 660472 | 7022875 |
| F | BS | - | 660471 | 7022967 |
| F | BS | - | 659346 | 7020583 |
| F | DOL | - | 660126 | 7023977 |
| F | BS | - | 659432 | 7023755 |
| MPC | BS | - | 659332 | 7023784 |
| SPC | DOL | - | 659195 | 7024155 |
| F | BS | - | 659858 | 7023251 |
| SPC | BS | - | 659827 | 7023259 |
| F | BS | - | 659731 | 7023354 |
| F | BS | - | 659738 | 7023372 |
| F | BIF | - | 659025 | 7024621 |
| F | IS | - | 659005 | 7024635 |
| F | CH | - | 658969 | 7024683 |
| F | BS | - | 658876 | 7024877 |
| F | QI | - | 658876 | 7024899 |
| SPC | BS | - | 658631 | 7025278 |
| F | IS | - | 658628 | 7025517 |
| F | CH | - | 658626 | 7025518 |

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| Typology | Lithology | Retouch / Utilisation | Easting (mE) | Northing (mN) |
|----------|-----------|-----------------------|--------------|---------------|
| F | CH | - | 658627 | 7025520 |
| F | CH | - | 658667 | 7025538 |
| F | CH | - | 658789 | 7025422 |
| F | DOL | - | 658802 | 7025397 |
| SPC | BS | - | 658807 | 7025365 |
| SPC | BS | - | 658804 | 7025359 |
| SPC | DOL | - | 659014 | 7025031 |
| F | DOL | - | 659070 | 7024936 |
| F | BS | - | 659073 | 7024934 |
| F | BS | - | 659074 | 7024935 |
| BL | BS | - | 659073 | 7024932 |
| F | CH | - | 659076 | 7024931 |
| BS | LBFR | - | 659076 | 7024929 |
| F | DOL | - | 659078 | 7024927 |
| F | DOL | - | 659077 | 7024929 |
| F | DOL | - | 659078 | 7024925 |
| F | DOL | - | 659080 | 7024924 |
| F | CH | - | 659077 | 7024922 |
| F | DOL | - | 659077 | 7024924 |
| TBFP | DOL | - | 659093 | 7024866 |
| F | CH | - | 659093 | 7024863 |
| GM | CH | - | 659089 | 7024860 |
| SR | BS | - | 659191 | 7024707 |
| F | DOL | - | 659216 | 7024659 |
| F | BS | - | 659145 | 7024630 |
| SPC | DOL | - | 659144 | 7024627 |
| F | BIF | - | 659965 | 7029970 |
| F | DOL | - | 659793 | 7030027 |
| ADB | BS | - | 662094 | 7020291 |
| F | CH | - | 662029 | 7020325 |
| F | CH | - | 662029 | 7020325 |

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| Typology | Lithology | Retouch / Utilisation | Easting (mE) | Northing (mN) |
|----------|-----------|-----------------------|--------------|---------------|
| F | CH | - | 662029 | 7020325 |
| F | QI | - | 661907 | 7020305 |
| BL | IS | - | 661375 | 7020931 |
| F | IS | - | 661471 | 7020967 |
| F | BS | - | 661600 | 7020955 |
| F | BS | - | 661600 | 7020955 |
| MPC | CH | - | 661605 | 7021520 |
| MU | DOL | - | 661669 | 7020901 |
| F | BS | - | 661442 | 7021122 |
| F | BS | - | 661419 | 7021260 |
| BGSF | SIL | - | 661387 | 7021696 |
| BGSF | SIL | - | 661387 | 7021696 |
| F | BS | - | 661233 | 7021877 |
| F | BS | - | 661162 | 7021867 |
| F | CH | - | 661163 | 7021863 |
| MPC | CH | - | 661208 | 7021332 |
| F | CY | - | 661205 | 7021302 |
| BGSF | BS | - | 661948 | 7018388 |
| F | CH | - | 662409 | 7018150 |
| F | CH | - | 662410 | 7018153 |
| F | QZ | - | 662404 | 7018166 |
| LTBF | CH | - | 662412 | 7018149 |
| SPC | QI | - | 657174 | 7022119 |
| F | BS | - | 660850 | 7020967 |
| F | BS | - | 660851 | 7020966 |
| F | BS | - | 660850 | 7020965 |
| F | QZ | - | 660851 | 7020964 |
| F | BS | - | 660852 | 7020966 |
| F | BS | - | 660852 | 7020966 |
| F | BS | - | 660854 | 7020959 |
| F | BS | - | 660858 | 7020959 |

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| Typology | Lithology | Retouch / Utilisation | Easting (mE) | Northing (mN) |
|----------|-----------|-----------------------|--------------|---------------|
| F | CH | - | 660665 | 7021335 |
| SPC | BS | - | 660540 | 7021049 |
| MPC | BS | - | 660551 | 7021036 |
| F | DOL | - | 660776 | 7022103 |
| F | CH | - | 660993 | 7022079 |
| F | CH | - | 661049 | 7022077 |
| F | BS | - | 661261 | 7022079 |
| F | CH | - | 661268 | 7022035 |
| F | CH | - | 661269 | 7022032 |
| F | BS | - | 661613 | 7022184 |
| F | BS | - | 661614 | 7022184 |
| F | BS | - | 661614 | 7022184 |
| SPC | BS | - | 661613 | 7022183 |
| F | BS | - | 661613 | 7022184 |
| F | BS | - | 661613 | 7022185 |
| F | CH | - | 661590 | 7022208 |
| MPC | BS | - | 661325 | 7022258 |
| F | CH | - | 660755 | 7022254 |
| F | DOL | - | 661640 | 7021263 |
| SPC | BS | - | 656632 | 7028863 |
| F | BS | - | 657885 | 7026405 |
| TBFD | CH | - | 657880 | 7026407 |
| F | BS | - | 657701 | 7026361 |
| F | BS | - | 657701 | 7026361 |
| F | DOL | - | 657841 | 7026186 |
| F | BS | - | 658289 | 7026183 |
| TBFD | BS | - | 658694 | 7026389 |

Appendix 3 – ‘Not clear’ area boundary co-ordinates

Table 4: YU1804-NC01 boundary co-ordinates

| Easting | Northing |
|---------|----------|
| 659794 | 7020567 |
| 659803 | 7020577 |
| 659889 | 7020673 |
| 659996 | 7020757 |
| 660146 | 7020851 |
| 660294 | 7020854 |
| 660327 | 7020767 |
| 660354 | 7020694 |
| 660344 | 7020691 |
| 660319 | 7020686 |
| 660309 | 7020683 |
| 660289 | 7020679 |
| 660276 | 7020676 |
| 660263 | 7020673 |
| 660254 | 7020671 |
| 660241 | 7020668 |
| 660236 | 7020667 |
| 660230 | 7020666 |
| 660224 | 7020664 |
| 660197 | 7020658 |
| 660193 | 7020657 |
| 660172 | 7020653 |

| Easting | Northing |
|---------|----------|
| 660152 | 7020648 |
| 660110 | 7020639 |
| 660109 | 7020638 |
| 660062 | 7020628 |
| 660037 | 7020622 |
| 659999 | 7020614 |
| 659890 | 7020589 |
| 659868 | 7020584 |
| 659794 | 7020567 |

Table 5: YU1804-NC02 boundary co-ordinates

| Easting | Northing |
|---------|----------|
| 660434 | 7020738 |
| 660437 | 7020737 |
| 660441 | 7020736 |
| 660444 | 7020735 |
| 660447 | 7020733 |
| 660449 | 7020730 |
| 660451 | 7020728 |
| 660453 | 7020724 |
| 660454 | 7020721 |
| 660454 | 7020718 |
| 660454 | 7020714 |
| 660453 | 7020711 |
| 660451 | 7020708 |

| Easting | Northing |
|---------|----------|
| 660449 | 7020705 |
| 660447 | 7020702 |
| 660444 | 7020700 |
| 660441 | 7020699 |
| 660437 | 7020698 |
| 660434 | 7020698 |
| 660430 | 7020698 |
| 660427 | 7020699 |
| 660424 | 7020700 |
| 660421 | 7020702 |
| 660419 | 7020705 |
| 660417 | 7020708 |
| 660415 | 7020711 |
| 660414 | 7020714 |
| 660414 | 7020718 |
| 660414 | 7020721 |
| 660415 | 7020724 |
| 660417 | 7020728 |
| 660419 | 7020730 |
| 660421 | 7020733 |
| 660424 | 7020735 |
| 660427 | 7020736 |
| 660430 | 7020737 |
| 660434 | 7020738 |

Table 6: YU1804-NC03 boundary co-ordinates

| Easting | Northing |
|----------------|-----------------|
| 659857 | 7022590 |
| 659897 | 7022489 |
| 659905 | 7022410 |
| 659887 | 7022321 |
| 659754 | 7022240 |
| 659644 | 7022196 |
| 659474 | 7022168 |
| 659331 | 7022174 |
| 659281 | 7022255 |
| 659266 | 7022384 |
| 659269 | 7022514 |
| 659216 | 7022571 |
| 659189 | 7022645 |
| 659203 | 7022722 |
| 659266 | 7022781 |
| 659410 | 7022855 |
| 659547 | 7022858 |
| 659659 | 7022825 |
| 659765 | 7022740 |
| 659857 | 7022590 |

Table 7: YU1804-NC04 boundary co-ordinates

| Easting | Northing |
|----------------|-----------------|
| 659650 | 7023467 |
| 659656 | 7023470 |
| 659669 | 7023483 |
| 659681 | 7023490 |
| 659699 | 7023493 |
| 659715 | 7023484 |
| 659736 | 7023462 |
| 659704 | 7023433 |
| 659685 | 7023402 |
| 659671 | 7023427 |
| 659650 | 7023467 |

Table 8: YU1804-NC05 boundary co-ordinates

| Easting | Northing |
|----------------|-----------------|
| 659761 | 7023555 |
| 659762 | 7023578 |
| 659765 | 7023597 |
| 659782 | 7023597 |
| 659806 | 7023597 |
| 659815 | 7023581 |
| 659846 | 7023525 |
| 659847 | 7023524 |
| 659848 | 7023522 |
| 659863 | 7023493 |

| Easting | Northing |
|---------|----------|
| 659827 | 7023491 |
| 659791 | 7023492 |
| 659761 | 7023555 |

Table 9: YU1804-NC06 boundary co-ordinates

| Easting | Northing |
|---------|----------|
| 661620 | 7020964 |
| 661623 | 7020964 |
| 661627 | 7020963 |
| 661630 | 7020961 |
| 661633 | 7020959 |
| 661635 | 7020957 |
| 661637 | 7020954 |
| 661639 | 7020951 |
| 661640 | 7020947 |
| 661640 | 7020944 |
| 661640 | 7020940 |
| 661639 | 7020937 |
| 661637 | 7020934 |
| 661635 | 7020931 |
| 661633 | 7020929 |
| 661630 | 7020927 |
| 661627 | 7020925 |
| 661623 | 7020924 |
| 661620 | 7020924 |

| Easting | Northing |
|----------------|-----------------|
| 661616 | 7020924 |
| 661613 | 7020925 |
| 661610 | 7020927 |
| 661607 | 7020929 |
| 661605 | 7020931 |
| 661603 | 7020934 |
| 661601 | 7020937 |
| 661600 | 7020940 |
| 661600 | 7020944 |
| 661600 | 7020947 |
| 661601 | 7020951 |
| 661603 | 7020954 |
| 661605 | 7020957 |
| 661607 | 7020959 |
| 661610 | 7020961 |
| 661613 | 7020963 |
| 661616 | 7020964 |
| 661620 | 7020964 |

Table 10: YU1804-NC07 boundary co-ordinates

| Easting | Northing |
|----------------|-----------------|
| 659021 | 7023955 |
| 659042 | 7023955 |
| 659056 | 7023949 |
| 659067 | 7023929 |

| Easting | Northing |
|---------|----------|
| 659078 | 7023895 |
| 659046 | 7023868 |
| 659020 | 7023898 |
| 659012 | 7023935 |
| 659021 | 7023955 |

Table 11: YU1804-NC08 boundary co-ordinates

| Easting | Northing |
|---------|----------|
| 660552 | 7021036 |
| 660591 | 7021166 |
| 660659 | 7021256 |
| 660740 | 7021367 |
| 660861 | 7021303 |
| 660938 | 7021262 |
| 661109 | 7021170 |
| 661162 | 7021164 |
| 661259 | 7021058 |
| 661116 | 7021054 |
| 660955 | 7021031 |
| 660552 | 7021036 |

Table 12: YU1804-NC09 boundary co-ordinates

| Easting | Northing |
|---------|----------|
| 661685 | 7021695 |
| 661721 | 7021692 |

| Easting | Northing |
|----------------|-----------------|
| 661742 | 7021680 |
| 661745 | 7021662 |
| 661732 | 7021644 |
| 661691 | 7021640 |
| 661643 | 7021631 |
| 661593 | 7021618 |
| 661508 | 7021525 |
| 661413 | 7021378 |
| 661334 | 7021341 |
| 661301 | 7021469 |
| 661321 | 7021535 |
| 661366 | 7021597 |
| 661389 | 7021635 |
| 661414 | 7021662 |
| 661453 | 7021665 |
| 661497 | 7021673 |
| 661564 | 7021684 |
| 661599 | 7021686 |
| 661685 | 7021695 |

Table 13: YU1804-NC10 boundary co-ordinates

| Easting | Northing |
|----------------|-----------------|
| 661782 | 7021446 |
| 661723 | 7021444 |
| 661647 | 7021439 |

| Easting | Northing |
|----------------|-----------------|
| 661590 | 7021496 |
| 661631 | 7021551 |
| 661693 | 7021523 |
| 661750 | 7021516 |
| 661789 | 7021515 |
| 661823 | 7021473 |
| 661782 | 7021446 |

Table 14: YU1804-NC11 boundary co-ordinates

| Easting | Northing |
|----------------|-----------------|
| 658819 | 7028551 |
| 659042 | 7028487 |
| 658818 | 7028212 |
| 658819 | 7028551 |

Table 15: Breakaway Exclusion Zone boundary co-ordinates

| Easting | Northing |
|----------------|-----------------|
| 661976 | 7018964 |
| 661980 | 7018956 |
| 661984 | 7018950 |
| 661989 | 7018943 |
| 661995 | 7018937 |
| 662001 | 7018933 |
| 662008 | 7018928 |
| 662014 | 7018923 |

| Easting | Northing |
|---------|----------|
| 662019 | 7018917 |
| 662026 | 7018913 |
| 662032 | 7018909 |
| 662040 | 7018906 |
| 662047 | 7018904 |
| 662054 | 7018901 |
| 662061 | 7018899 |
| 662069 | 7018898 |
| 662077 | 7018893 |
| 662081 | 7018887 |
| 662081 | 7018879 |
| 662076 | 7018874 |
| 662072 | 7018866 |
| 662071 | 7018859 |
| 662070 | 7018851 |
| 662070 | 7018843 |
| 662070 | 7018835 |
| 662070 | 7018828 |
| 662072 | 7018821 |
| 662074 | 7018813 |
| 662078 | 7018807 |
| 662083 | 7018802 |
| 662089 | 7018796 |
| 662093 | 7018790 |
| 662096 | 7018783 |

| Easting | Northing |
|---------|----------|
| 662096 | 7018775 |
| 662097 | 7018768 |
| 662097 | 7018761 |
| 662099 | 7018754 |
| 662100 | 7018747 |
| 662101 | 7018739 |
| 662101 | 7018731 |
| 662101 | 7018724 |
| 662101 | 7018716 |
| 662101 | 7018708 |
| 662099 | 7018702 |
| 662091 | 7018698 |
| 662081 | 7018696 |
| 662073 | 7018694 |
| 662066 | 7018692 |
| 662059 | 7018689 |
| 662051 | 7018688 |
| 662043 | 7018686 |
| 662035 | 7018684 |
| 662027 | 7018684 |
| 662020 | 7018682 |
| 662013 | 7018680 |
| 662004 | 7018678 |
| 661997 | 7018678 |
| 661989 | 7018680 |

| Easting | Northing |
|---------|----------|
| 661981 | 7018684 |
| 661975 | 7018688 |
| 661968 | 7018693 |
| 661962 | 7018698 |
| 661958 | 7018703 |
| 661954 | 7018710 |
| 661950 | 7018717 |
| 661945 | 7018723 |
| 661941 | 7018729 |
| 661939 | 7018737 |
| 661936 | 7018745 |
| 661933 | 7018752 |
| 661929 | 7018758 |
| 661925 | 7018764 |
| 661922 | 7018771 |
| 661921 | 7018778 |
| 661921 | 7018787 |
| 661921 | 7018794 |
| 661921 | 7018801 |
| 661922 | 7018808 |
| 661925 | 7018816 |
| 661928 | 7018822 |
| 661930 | 7018829 |
| 661931 | 7018836 |
| 661931 | 7018842 |

| Easting | Northing |
|---------|----------|
| 661929 | 7018847 |
| 661925 | 7018854 |
| 661922 | 7018861 |
| 661919 | 7018867 |
| 661915 | 7018874 |
| 661911 | 7018880 |
| 661907 | 7018887 |
| 661904 | 7018894 |
| 661900 | 7018901 |
| 661899 | 7018909 |
| 661899 | 7018917 |
| 661899 | 7018924 |
| 661899 | 7018931 |
| 661899 | 7018938 |
| 661899 | 7018946 |
| 661899 | 7018953 |
| 661900 | 7018960 |
| 661900 | 7018967 |
| 661903 | 7018974 |
| 661906 | 7018980 |
| 661912 | 7018986 |
| 661918 | 7018991 |
| 661923 | 7018996 |
| 661929 | 7019003 |
| 661936 | 7019005 |

| Easting | Northing |
|---------|----------|
| 661944 | 7019005 |
| 661951 | 7019003 |
| 661956 | 7018997 |
| 661960 | 7018991 |
| 661965 | 7018984 |
| 661968 | 7018978 |
| 661973 | 7018971 |
| 661976 | 7018964 |



Appendix B-10: Air Emissions Information for Referral Memorandum

1051: Gabanintha Vanadium Project

Air Emissions Information for Environmental Referral Memorandum

Date: 21 November 2018

This memorandum presents preliminary information on air emissions from the Gabanintha Vanadium Project (the Project) in support of the referral of the proposal under s38 of the *Environmental Protection Act 1986* (EP Act), noting that the air emissions desktop assessment to characterise potential atmospheric emissions for the Project is not yet complete.

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1 Air Emissions

Emissions to air from the Project will be generated from open pit mining, processing of vanadium, and from onsite power generation.

Open pit mining is a source of dust emissions, comprised of PM₁₀ (particulate matter with an aerodynamic diameter of less than 10 microns) and PM_{2.5} (particulate matter with an aerodynamic diameter of less than 2.5 microns). Leading industry dust management practices and control measures will be implemented at the mine site to mitigate dust impacts, including minimising the area of disturbance as far as practicable, regular watering of haul roads, stockpiles and other exposed areas susceptible to windblown dust, applying vehicle speed limits to reduce wheel-generated dust, and progressive rehabilitation of disturbed areas where possible. A Dust Management Plan will also be developed to provide a comprehensive framework for the implementation, monitoring and periodic review of dust control for open pit mining operations.

The Project will apply conventional vanadium processing, which involves sodium salt roast, leach and precipitation technology to produce vanadium pentoxide (V₂O₅) flake produce. Atmospheric emissions are generated during the various stages of processing, with the most significant atmospheric emissions generated in the roasting and de-ammoniation processes. Wet scrubber air pollution control equipment will be incorporated into the plant design to minimise the emissions from these process areas.

The roasting process involves the addition of sodium salts, including a blend of sodium sulphate (Na₂SO₄) and sodium carbonate (Na₂CO₃). The addition of Na₂SO₄ in the roasting process results in the generation of sulphur dioxide (SO₂) emissions. Test work will determine the optimum dosing rates of Na₂SO₄ and Na₂CO₃, and will be incorporated into the design of the wet scrubber used to treat emissions from the roasting process.

The de-ammoniation process involves treatment of the ammonium metavanadate (NH₄VO₃) precipitate in a kiln, generating emission of ammonia (NH₃). SO₂ is also generated in the de-ammoniation process from residual ammonium sulphate ([NH₄]₂SO₄) used as a precipitation reagent.

The key pollutants of potential concern are presented in Table 1-1.

Table 1-1 Key Air Pollutants – Vanadium Processing

| Key Pollutants | Processing Stage | | | | | |
|--------------------|------------------|-------------------------|----------|----------------|-----------|-----------|
| | Crushing | Dry Magnetic Separation | Roasting | De-ammoniation | Calcining | Packaging |
| Sulphur Dioxide | | | ● | | | |
| Oxides of Nitrogen | | | ● | ● | ● | |
| PM ₁₀ | ● | ● | | | | |
| PM _{2.5} | ● | ● | | | | |

| Key Pollutants | Processing Stage | | | | | |
|--------------------|------------------|-------------------------|----------|----------------|-----------|-----------|
| | Crushing | Dry Magnetic Separation | Roasting | De-ammoniation | Calcining | Packaging |
| Ammonia | | | | ● | | |
| Vanadium Pentoxide | | | | | ● | ● |

There is the potential for fugitive wind-blown dust emissions to be generated from open stockpiles, conveyors and the Tailings Storage Facility (TSF) at the vanadium processing plant. Various controls will be incorporated into the plant design to minimise the potential for fugitive dust emissions, including use of water sprays, tarpaulins and semi-enclosed storage sheds as appropriate. Fugitive emissions from the processing circuits will be negligible as the vessels and associated equipment are fully enclosed.

Power will be provided from a 21 MW gas-fired power station to be located at the Project site. Atmospheric emission generated from the power station will contain oxides of nitrogen (NO_x), and other products of natural gas combustion.

Indicative annual emission estimates for SO₂, NH₃ and NO_x have been derived from preliminary process design information available for the for roasting and de-ammoniation processes, and using National Pollutant Inventory (NPI) emission factors (DoE, 2012) for the power station (Figure 1-1), noting that emissions information for the other key pollutants of interest were not available for inclusion in this referral.

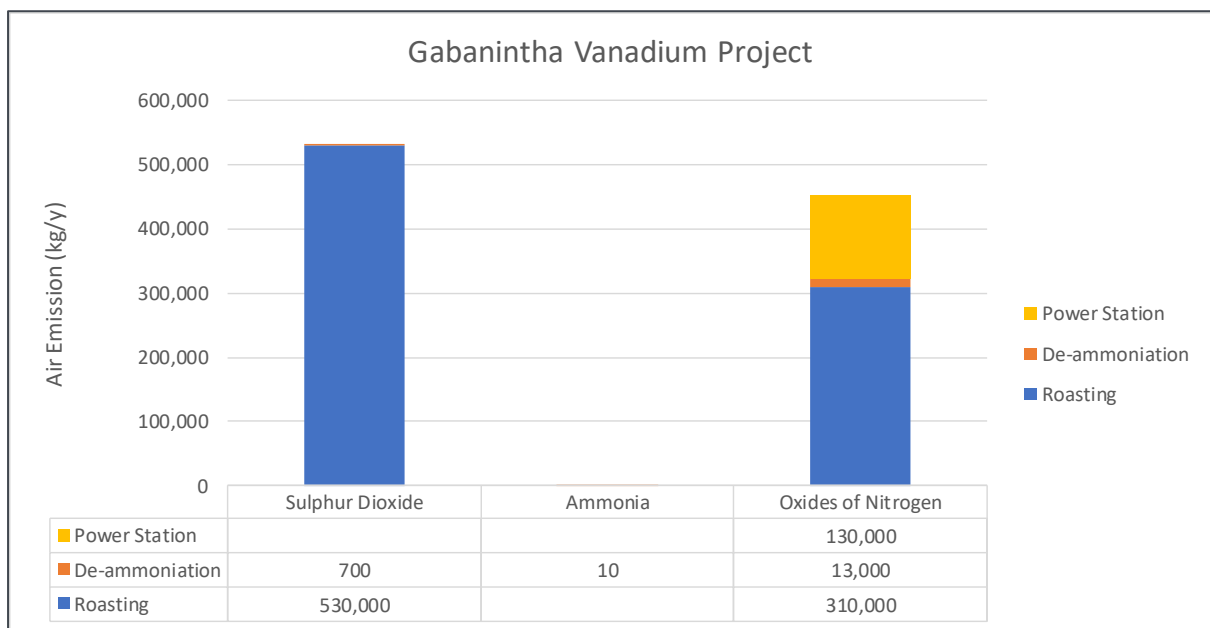


Figure 1-1 Annual Air Emission Estimates

The EPA objective for air quality is “to maintain air quality and minimise emissions so that environmental values are protected”. In the context of this factor and objective, the EPA’s primary focus is maintaining air quality and minimising emissions for human health and amenity (EPA, 2016).

As the Project is remote and there are no sensitive receptors nearby, and as the design incorporates appropriate air pollution control equipment to reduce the most significant emissions generated in the roasting and de-ammoniation processes, the air emissions from the Project can be adequately managed through standard practices to ensure the EPA objective for air quality is met.

1.1 Other vanadium project emissions

The indicative annual emission estimates derived for the Project, from the roasting and de-ammoniation processes and from the power station only, have been compared with publicly available emission information for other Western Australian vanadium projects (Figure 1-2). Conventional vanadium processing technology is also applied for these projects.

Various assumptions have been made to provide equivalent annual emission estimates for comparison purposes. The Barrambie Vanadium Project emission estimates have been derived from information supporting the approval under the EP Act (SKM, 2009), and assuming continuous process plant operations. The Windimurra Vanadium Project emission estimates have been obtained from the National Pollutant Inventory (NPI) database for the reporting period considered most representative, as there is considerable variation in annual emissions evident over the period data is available (1999 to 2003, and 2010 to 2016). No adjustment has been made for processing plant throughput, as the scale of the plants is comparable; Gabanintha Vanadium Project (2.3 Mtpa), Barrambie Vanadium Project (3.2 Mtpa), Windimurra Vanadium Project (3.9 Mtpa).

The comparison of indicative annual emission estimates for the Project to the other Western Australian vanadium projects indicates the following:

- SO₂ emissions are very low compared to that derived for the Barrambie Vanadium Project, although higher than that reported for the Windimurra Vanadium Project;
- NH₃ emissions are very low compared to that derived for the Barrambie Vanadium Project and that reported for the Windimurra Vanadium Project; and
- NO_x emissions are higher compared to that derived for the Barrambie Vanadium Project primarily driven by higher roasting emissions, and are also higher than that reported for the Windimurra Vanadium Project.

These comparisons were made to verify the annual emission estimates for the Project presented in Figure 1-1. It is not intended for these comparisons to be included in the referral to the EPA, particularly as the emissions estimates for the Windimurra Vanadium Project are subject to a high degree of variability which casts some doubt over the quality of the data. It may however be appropriate to reference the relatively low SO₂ emissions estimated for the Project compared with the Barrambie Vanadium Project.

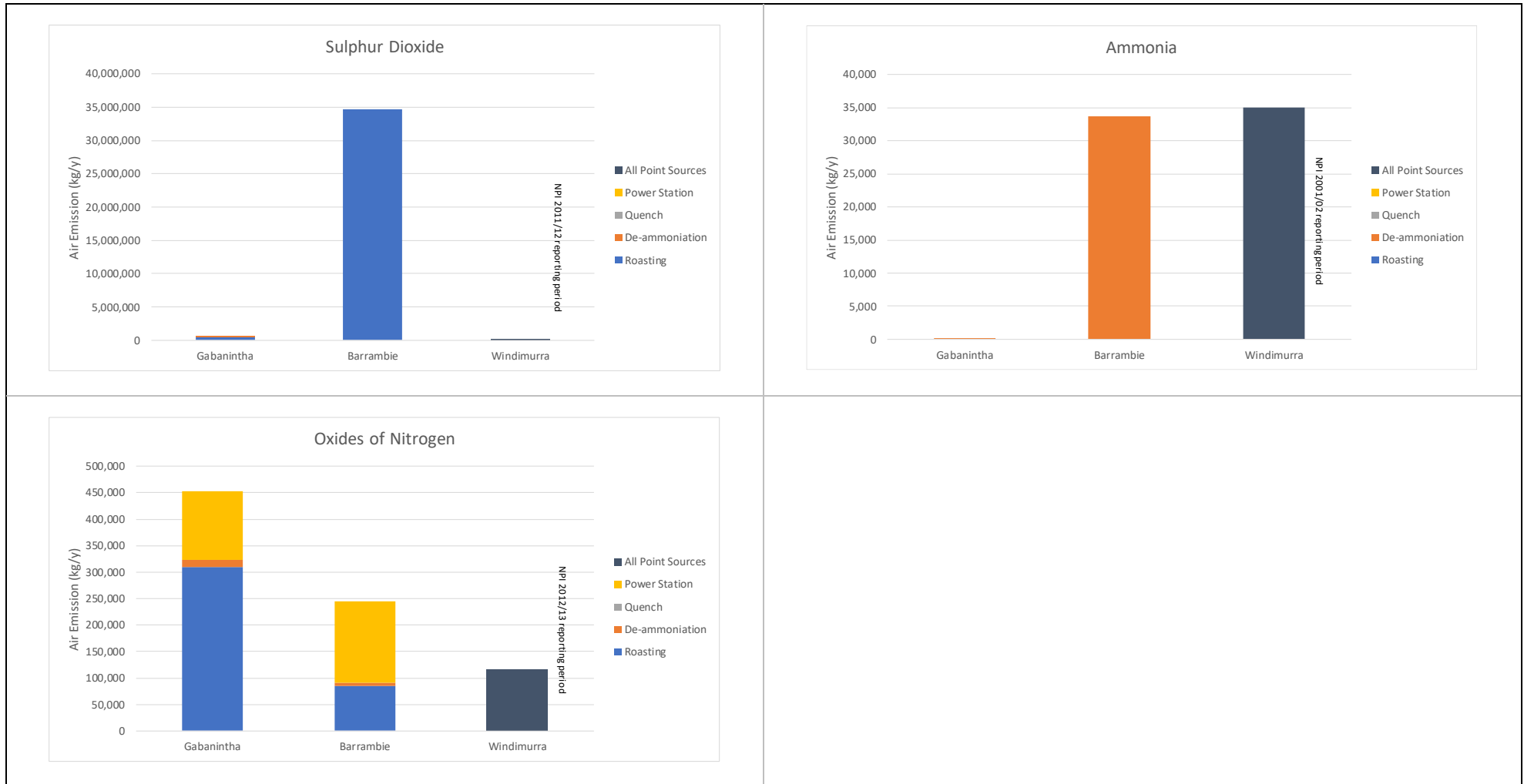


Figure 1-2 Comparison to Other Vanadium Processing Plants

2 Recommendations

- As there are notable differences in the indicative annual emission estimates for the Project compared to the other Western Australian vanadium projects, it is recommended that further review is undertaken to confirm the emission estimates presented for SO₂, NH₃ and NO_x are adequate for referral to the EPA.
- Emissions information for PM₁₀, PM_{2.5} and V₂O₅ are not currently available for inclusion in the referral to the EPA, and publicly available emission information for other Western Australian vanadium projects is not considered a reliable basis upon which to derive emission estimates for the Project. As PM₁₀, PM_{2.5} and V₂O₅ are considered to be key pollutants of interest, it is recommended that further process design information is obtained to enable these emissions to be estimated for the vanadium processing plant.

3 References

Australian Department of the Environment (DoE). 2012. *National Pollutant Inventory Emission estimation technique manual for Fossil Fuel Electric Power Generation*. Version 3.0. January 2012.

Environmental Protection Authority (EPA). (2016). *Environmental Factor Guideline: Air Quality*. December 2016.

National Pollutant Inventory (NPI) database. <http://www.npi.gov.au/home>. Accessed November 2018.

Sinclair Knight Merz (SKM). (2009). *Barrambie Vanadium Project Air Quality Assessment*. Final. 16 March 2009.



Appendix B-11: IBSA Data package

(Electronic version only)





APPENDIX C – DATABASE SEARCH RESULTS

NatureMap Species Report

Created By Sophie Monaco on 15/11/2018

Current Names Only Yes

Core Datasets Only Yes

Method 'By Circle'

Centre 118° 37' 57" E, 26° 56' 38" S

Buffer 40km

| Name ID | Species Name | Naturalised | Conservation Code | ¹ Endemic To Query Area |
|---------|---|-------------|-------------------|------------------------------------|
| 1. | 4901 <i>Abutilon otocarpum</i> (Desert Chinese Lantern) | | | |
| 2. | 3217 <i>Acacia aneura</i> (Mulga, Wanari) | | | |
| 3. | 37260 <i>Acacia aptaneura</i> | | | |
| 4. | 3248 <i>Acacia burkittii</i> (Sandhill Wattle) | | | |
| 5. | 36417 <i>Acacia caesaneura</i> | | | |
| 6. | 3273 <i>Acacia craspedocarpa</i> (Hop Mulga) | | | |
| 7. | 15279 <i>Acacia cuthbertsonii</i> subsp. <i>linearis</i> | | | |
| 8. | 3330 <i>Acacia exocarpoides</i> | | | |
| 9. | 36781 <i>Acacia fuscaneura</i> | | | |
| 10. | 3355 <i>Acacia grasbyi</i> (Miniritchie) | | | |
| 11. | 36418 <i>Acacia incurvaneura</i> | | | |
| 12. | 3452 <i>Acacia murrayana</i> (Sandplain Wattle) | | | |
| 13. | 3473 <i>Acacia oswaldii</i> (Miljee, Nelia) | | | |
| 14. | 3500 <i>Acacia pruinocarpa</i> (Gidgee) | | | |
| 15. | 36800 <i>Acacia pteraneura</i> | | | |
| 16. | 3507 <i>Acacia quadrimarginea</i> | | | |
| 17. | 19483 <i>Acacia ramulosa</i> var. <i>linophylla</i> | | | |
| 18. | 19499 <i>Acacia ramulosa</i> var. <i>ramulosa</i> | | | |
| 19. | 13077 <i>Acacia sclerosperma</i> subsp. <i>glaucescens</i> | | P3 | |
| 20. | 13078 <i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i> | | | |
| 21. | 3544 <i>Acacia sibilans</i> | | | |
| 22. | 14615 <i>Acacia speckii</i> | | P4 | |
| 23. | 13070 <i>Acacia synchronicia</i> | | | |
| 24. | 3577 <i>Acacia tetragonophylla</i> (Kurara, Wakalpuka) | | | |
| 25. | 3586 <i>Acacia tysonii</i> | | | |
| 26. | 31071 <i>Acacia umbraculiformis</i> | | | |
| 27. | 3595 <i>Acacia victoriae</i> (Bramble Wattle, Ngatunpa) | | | |
| 28. | 31511 <i>Acacia victoriae</i> subsp. <i>victoriae</i> | | | |
| 29. | 15295 <i>Acacia xanthocarpa</i> | | | |
| 30. | 24559 <i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater) | | | |
| 31. | 24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill) | | | |
| 32. | 24265 <i>Acanthiza uropygialis</i> (Chestnut-rumped Thornbill) | | | |
| 33. | 27574 <i>Acarospora citrina</i> | | | |
| 34. | 25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk) | | | |
| 35. | 25536 <i>Accipiter fasciatus</i> (Brown Goshawk) | | | |
| 36. | 19901 <i>Actinobole oldfieldianum</i> | | | |
| 37. | 25544 <i>Aegotheles cristatus</i> (Australian Owlet-nightjar) | | | |
| 38. | 3680 <i>Aeschynomene indica</i> (Budda Pea) | | | |
| 39. | 2379 <i>Amyema microphylla</i> | | | |
| 40. | 2382 <i>Amyema nestor</i> | | | |
| 41. | <i>Aname mainae</i> | | | |
| 42. | 24312 <i>Anas gracilis</i> (Grey Teal) | | | |
| 43. | 24315 <i>Anas rhynchotis</i> (Australasian Shoveler) | | | |
| 44. | 24316 <i>Anas superciliosa</i> (Pacific Black Duck) | | | |
| 45. | 40910 <i>Androcalva luteiflora</i> (Yellow-flowered Rulingia) | | | |
| 46. | 7832 <i>Angianthus milnei</i> (Cone-spike Angianthus) | | | |
| 47. | 7836 <i>Angianthus tomentosus</i> (Camel-grass) | | | |
| 48. | 25241 <i>Antaresia stimsoni</i> subsp. <i>stimsoni</i> (Stimson's Python) | | | |
| 49. | 24087 <i>Antechinomys laniger</i> (Kultarr) | | | |
| 50. | 25528 <i>Aphelocephala leucopsis</i> (Southern Whiteface) | | | |
| 51. | 24268 <i>Aphelocephala nigrincta</i> (Banded Whiteface) | | | |
| 52. | 24285 <i>Aquila audax</i> (Wedge-tailed Eagle) | | | |
| 53. | 41324 <i>Ardea modesta</i> (great egret, white egret) | | | |

| Name ID | Species Name | Naturalised | Conservation Code | Endemic To Query Area |
|---------|--|-------------|-------------------|-----------------------|
| 54. | 24341 <i>Ardea pacifica</i> (White-necked Heron) | | | |
| 55. | 24610 <i>Ardeotis australis</i> (Australian Bustard) | | | |
| 56. | 207 <i>Aristida contorta</i> (Bunched Kerosene Grass) | | | |
| 57. | 12063 <i>Aristida holathera</i> var. <i>holathera</i> | | | |
| 58. | 25566 <i>Artamus cinereus</i> (Black-faced Woodswallow) | | | |
| 59. | 24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow) | | | |
| 60. | 24356 <i>Artamus personatus</i> (Masked Woodswallow) | | | |
| 61. | 1364 <i>Asphodelus fistulosus</i> (Onion Weed) | Y | | |
| 62. | 7847 <i>Asteridea chaetopoda</i> | | | |
| 63. | 2450 <i>Atriplex amnicola</i> (Swamp Saltbush) | | | |
| 64. | 2451 <i>Atriplex bunburyana</i> (Silver Saltbush) | | | |
| 65. | 2453 <i>Atriplex codonocarpa</i> (Flat-topped Saltbush) | | | |
| 66. | 2461 <i>Atriplex hymenotheca</i> | | | |
| 67. | 2468 <i>Atriplex nana</i> | | | |
| 68. | 2476 <i>Atriplex semilunaris</i> (Annual Saltbush) | | | |
| 69. | 2478 <i>Atriplex spongiosa</i> (Pop Saltbush) | | | |
| 70. | 2481 <i>Atriplex vesicaria</i> (Bladder Saltbush) | | | |
| 71. | 17237 <i>Austrostipa elegantissima</i> | | | |
| 72. | 17246 <i>Austrostipa nitida</i> | | | |
| 73. | 24318 <i>Aythya australis</i> (Hardhead) | | | |
| 74. | <i>Barnardius zonarius</i> | | | |
| 75. | 24161 <i>Bettongia lesueur</i> subsp. <i>graii</i> (Boodie (inland), Burrowing Bettong (inland)) | | X | |
| 76. | 24319 <i>Biziura lobata</i> (Musk Duck) | | | |
| 77. | 2774 <i>Boerhavia reptata</i> | | | |
| 78. | 7871 <i>Brachyscome ciliaris</i> | | | |
| 79. | 45035 <i>Brachyscome simulans</i> | | | |
| 80. | 33935 <i>Branchinella simplex</i> (fairly shrimp (inland WA)) | | P1 | |
| 81. | 25716 <i>Cacatua sanguinea</i> (Little Corella) | | | |
| 82. | 42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo) | | | |
| 83. | 19455 <i>Calandrinia</i> sp. <i>Bungalbin</i> (G.J. Keighery & N. Gibson 1656) | | | |
| 84. | 24786 <i>Calidris melanotos</i> (Pectoral Sandpiper) | | IA | |
| 85. | 7895 <i>Calocephalus multiflorus</i> (Yellow-top) | | | |
| 86. | 7905 <i>Calotis multicaulis</i> (Many-stemmed Burr-daisy) | | | |
| 87. | 7906 <i>Calotis plumulifera</i> | | | |
| 88. | 5438 <i>Calytrix amethystina</i> | | | |
| 89. | 5451 <i>Calytrix desolata</i> | | | |
| 90. | 5456 <i>Calytrix erosipetala</i> | | | |
| 91. | 5486 <i>Calytrix verruculosa</i> | | P3 | |
| 92. | 7922 <i>Cephalopterus drummondii</i> (Pompom Head) | | | |
| 93. | 24564 <i>Certhionyx variegatus</i> (Pied Honeyeater) | | | |
| 94. | 24377 <i>Charadrius ruficapillus</i> (Red-capped Plover) | | | |
| 95. | 25339 <i>Chelodina steindachneri</i> (Flat-shelled Turtle) | | | |
| 96. | 24321 <i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck) | | | |
| 97. | 2489 <i>Chenopodium gaudichaudianum</i> (Cottony Saltbush) | | | |
| 98. | 47909 <i>Cheramoeca leucosterna</i> (White-backed Swallow) | | | |
| 99. | <i>Chroicocephalus novaehollandiae</i> | | | |
| 100. | 33516 <i>Chrysocephalum gilesii</i> | | | |
| 101. | 13138 <i>Chrysocephalum puteale</i> | | | |
| 102. | 25580 <i>Cinlosoma castaneothorax</i> (Chestnut-breasted Quail-thrush) | | | |
| 103. | 24288 <i>Circus approximans</i> (Swamp Harrier) | | | |
| 104. | 24289 <i>Circus assimilis</i> (Spotted Harrier) | | | |
| 105. | 24774 <i>Cladorhynchus leucocephalus</i> (Banded Stilt) | | | |
| 106. | 2778 <i>Codonocarpus cotinifolius</i> (Native Poplar, Kundurangu) | | | |
| 107. | 25675 <i>Colluricincla harmonica</i> (Grey Shrike-thrush) | | | |
| 108. | 25568 <i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike) | | | |
| 109. | 24362 <i>Coracina novaehollandiae</i> subsp. <i>novaehollandiae</i> (Black-faced Cuckoo-shrike) | | | |
| 110. | 24416 <i>Corvus bennetti</i> (Little Crow) | | | |
| 111. | 25593 <i>Corvus orru</i> (Torresian Crow) | | | |
| 112. | 24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird) | | | |
| 113. | 25595 <i>Cracticus tibicen</i> (Australian Magpie) | | | |
| 114. | 25596 <i>Cracticus torquatus</i> (Grey Butcherbird) | | | |
| 115. | 7951 <i>Cratystylis subspinescens</i> (Australian Sage, Spiny Grey Bush) | | | |
| 116. | 32342 <i>Crossidium geheebii</i> | | | |
| 117. | 24865 <i>Ctenophorus caudicinctus</i> subsp. <i>caudicinctus</i> (Ring-tailed Dragon) | | | |
| 118. | 24869 <i>Ctenophorus caudicinctus</i> subsp. <i>mensarum</i> (Ring-tailed Dragon) | | | |
| 119. | 24882 <i>Ctenophorus nuchalis</i> (Central Netted Dragon) | | | |
| 120. | 24886 <i>Ctenophorus reticulatus</i> (Western Netted Dragon) | | | |
| 121. | 24888 <i>Ctenophorus salinarum</i> (Salt Pan Dragon) | | | |
| 122. | 25052 <i>Ctenotus leonhardii</i> | | | |
| 123. | 11021 <i>Cuscuta planiflora</i> | Y | | |

| Name ID | Species Name | Naturalised | Conservation Code | ¹ Endemic To Query Area |
|---------|---|-------------|-------------------|------------------------------------|
| 124. | 25375 <i>Cyclorana maini</i> (Sheep Frog) | | | |
| 125. | 25376 <i>Cyclorana platycephala</i> (Water-holding Frog) | | | |
| 126. | 24322 <i>Cygnus atratus</i> (Black Swan) | | | |
| 127. | 279 <i>Cymbopogon ambiguus</i> (Scentgrass) | | | |
| 128. | 6584 <i>Cynanchum floribundum</i> (Dumara Bush, Tjija) | | | |
| 129. | 25607 <i>Dicaeum hirundinaceum</i> (Mistletoebird) | | | |
| 130. | 13741 <i>Dichanthium sericeum</i> subsp. <i>humilius</i> | | | |
| 131. | 6774 <i>Dicrystylis sessilifolia</i> | | | |
| 132. | 2498 <i>Didymanthus roei</i> | | | |
| 133. | 32346 <i>Didymodon torquatus</i> | | | |
| 134. | 12721 <i>Dielitzia tysonii</i> | | | |
| 135. | 310 <i>Digitaria brownii</i> (Cotton Panic Grass) | | | |
| 136. | 2499 <i>Dissocarpus paradoxus</i> (Curious Saltbush) | | | |
| 137. | 12034 <i>Dodonaea microzyga</i> var. <i>acrolobata</i> | | | |
| 138. | 4772 <i>Dodonaea pachyneura</i> | | | |
| 139. | 4773 <i>Dodonaea petiolaris</i> | | | |
| 140. | 11247 <i>Dodonaea viscosa</i> subsp. <i>angustissima</i> | | | |
| 141. | 24470 <i>Dromaius novaehollandiae</i> (Emu) | | | |
| 142. | 14298 <i>Drosera macrantha</i> subsp. <i>macrantha</i> | | | |
| 143. | 4460 <i>Drummondita miniata</i> | | P3 | |
| 144. | 31274 <i>Duperreya commixta</i> | | | |
| 145. | 33501 <i>Dysphania cristata</i> (Crested Goosefoot) | | | |
| 146. | 2502 <i>Dysphania kalpari</i> (Rat's Tail, Kalpari) | | | |
| 147. | 2504 <i>Dysphania plantaginella</i> | | | |
| 148. | 2507 <i>Dysphania simulans</i> | | | |
| 149. | 25092 <i>Egernia depressa</i> (Southern Pygmy Spiny-tailed Skink) | | | |
| 150. | <i>Egretta novaehollandiae</i> | | | |
| 151. | <i>Elanus axillaris</i> | | | |
| 152. | 828 <i>Eleocharis pallens</i> (Pale Spikerush) | | | |
| 153. | 47937 <i>Elseyaornis melanops</i> (Black-fronted Dotterel) | | | |
| 154. | 19846 <i>Enekbatus eremaeus</i> | | | |
| 155. | 357 <i>Enneapogon caeruleus</i> (Limestone Grass) | | | |
| 156. | <i>Eolophus roseicapillus</i> | | | |
| 157. | 24568 <i>Epthianura aurifrons</i> (Orange Chat) | | | |
| 158. | 24570 <i>Epthianura tricolor</i> (Crimson Chat) | | | |
| 159. | 378 <i>Eragrostis dielsii</i> (Mallee Lovegrass) | | | |
| 160. | 380 <i>Eragrostis eriopoda</i> (Woollybutt Grass, Wangurnu) | | | |
| 161. | 381 <i>Eragrostis falcata</i> (Sickle Lovegrass) | | | |
| 162. | 388 <i>Eragrostis leptocarpa</i> (Drooping Lovegrass) | | | |
| 163. | 393 <i>Eragrostis setifolia</i> (Neverfail Grass) | | | |
| 164. | 31541 <i>Eragrostis</i> sp. <i>Erect spikelets</i> (P.K. Latz 2122) | | | |
| 165. | 399 <i>Eragrostis xerophila</i> (Knotty-butt Neverfail) | | | |
| 166. | 25109 <i>Eremiascincus richardsonii</i> (Broad-banded Sand Swimmer) | | | |
| 167. | 2513 <i>Eremophea spinosa</i> | | | |
| 168. | 7180 <i>Eremophila alternifolia</i> (Poverty Bush) | | | |
| 169. | 15154 <i>Eremophila arachnoides</i> subsp. <i>arachnoides</i> | | P3 | |
| 170. | 7189 <i>Eremophila clarkei</i> (Turpentine Bush) | | | |
| 171. | 17155 <i>Eremophila compacta</i> subsp. <i>fecunda</i> | | | |
| 172. | 7198 <i>Eremophila deserti</i> | | | |
| 173. | 7205 <i>Eremophila exillifolia</i> | | | |
| 174. | 14510 <i>Eremophila fasciata</i> | | P3 | |
| 175. | 16792 <i>Eremophila flabellata</i> | | | |
| 176. | 7207 <i>Eremophila foliosissima</i> | | | |
| 177. | 7208 <i>Eremophila forrestii</i> (Wilcox Bush) | | | |
| 178. | 15052 <i>Eremophila forrestii</i> subsp. <i>forrestii</i> | | | |
| 179. | 17152 <i>Eremophila forrestii</i> subsp. <i>hastieana</i> (Grey Poverty Bush) | | | |
| 180. | 16696 <i>Eremophila fraseri</i> subsp. <i>fraseri</i> | | | |
| 181. | 29532 <i>Eremophila galeata</i> | | | |
| 182. | 17176 <i>Eremophila gilesii</i> subsp. <i>variabilis</i> | | | |
| 183. | 14340 <i>Eremophila glabra</i> subsp. <i>glabra</i> | | | |
| 184. | 14191 <i>Eremophila glabra</i> subsp. <i>tomentosa</i> | | | |
| 185. | 7216 <i>Eremophila glutinosa</i> | | | |
| 186. | 7219 <i>Eremophila granitica</i> (Thin-leaved Poverty Bush) | | | |
| 187. | 7226 <i>Eremophila ionantha</i> (Violet-flowered Eremophila) | | | |
| 188. | 17171 <i>Eremophila jucunda</i> subsp. <i>jucunda</i> | | | |
| 189. | 7228 <i>Eremophila lachnocalyx</i> (Woolly-calyxed Eremophila) | | | |
| 190. | 7230 <i>Eremophila latrobei</i> (Warty Fuchsia Bush, Mintjingka) | | | |
| 191. | 17576 <i>Eremophila latrobei</i> subsp. <i>latrobei</i> | | | |
| 192. | 7233 <i>Eremophila linearis</i> (Harlequin Fuchsia Bush) | | | |
| 193. | 7234 <i>Eremophila longifolia</i> (Berrigan, Tulypurpa) | | | |

| Name ID | Species Name | Naturalised | Conservation Code | ¹ Endemic To Query Area |
|---------|---|-------------|-------------------|------------------------------------|
| 194. | 7236 <i>Eremophila macmilliana</i> (Grey Turpentine Bush) | | | |
| 195. | 16363 <i>Eremophila maculata</i> subsp. <i>brevifolia</i> (Native Fuchsia) | | | |
| 196. | 15157 <i>Eremophila malacoides</i> | | | |
| 197. | 18570 <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i> | | | |
| 198. | 17167 <i>Eremophila phyllopoda</i> subsp. <i>phyllopoda</i> | | | |
| 199. | 7253 <i>Eremophila platycalyx</i> (Granite Poverty Bush) | | | |
| 200. | 15058 <i>Eremophila platycalyx</i> subsp. <i>platycalyx</i> | | | |
| 201. | 15170 <i>Eremophila pterocarpa</i> subsp. <i>pterocarpa</i> | | | |
| 202. | 15027 <i>Eremophila retropila</i> | | P1 | |
| 203. | 7269 <i>Eremophila serrulata</i> (Serrate-leaved Eremophila) | | | |
| 204. | <i>Eremophila</i> sp. | | | |
| 205. | 7270 <i>Eremophila spathulata</i> (Spoon-leaved Eremophila) | | | |
| 206. | 15155 <i>Eremophila youngii</i> subsp. <i>youngii</i> | | | |
| 207. | 408 <i>Eriachne flaccida</i> (Claypan Grass) | | | |
| 208. | 417 <i>Eriachne pulchella</i> (Pretty Wanderrie) | | | |
| 209. | 2514 <i>Eriochiton sclerolaenoides</i> (Woolly Bindii) | | | |
| 210. | 4335 <i>Erodium cygnorum</i> (Blue Heronsbill) | | | |
| 211. | 12718 <i>Erymophyllum compactum</i> | | | |
| 212. | 12739 <i>Erymophyllum ramosum</i> | | | |
| 213. | 24379 <i>Erythronys cinctus</i> (Red-kneed Dotterel) | | | |
| 214. | 35345 <i>Eucalyptus camaldulensis</i> subsp. <i>obtusata</i> (Blunt-budded River Red Gum) | | | |
| 215. | 5684 <i>Eucalyptus kingsmillii</i> (Kingsmill's Mallee) | | | |
| 216. | 13058 <i>Eucalyptus leptopoda</i> subsp. <i>elevata</i> | | | |
| 217. | 5779 <i>Eucalyptus striatocalyx</i> (Cue York Gum) | | | |
| 218. | 29733 <i>Eucalyptus trivalva</i> (Victoria Spring Mallee) | | | |
| 219. | 11011 <i>Eulalia aurea</i> | | | |
| 220. | 24368 <i>Eurostopus argus</i> (Spotted Nightjar) | | | |
| 221. | 10977 <i>Exocarpos aphyllus</i> (Leafless Ballart) | | | |
| 222. | 25621 <i>Falco berigora</i> (Brown Falcon) | | | |
| 223. | 25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel) | | | |
| 224. | 25623 <i>Falco longipennis</i> (Australian Hobby) | | | |
| 225. | 25624 <i>Falco peregrinus</i> (Peregrine Falcon) | | S | |
| 226. | 5191 <i>Frankenia cinerea</i> | | | |
| 227. | 5200 <i>Frankenia fecunda</i> | | | |
| 228. | 5206 <i>Frankenia laxiflora</i> (Loose Flowered Frankenia) | | | |
| 229. | 5212 <i>Frankenia setosa</i> (Bristly Frankenia) | | | |
| 230. | 25727 <i>Fulica atra</i> (Eurasian Coot) | | | |
| 231. | 24959 <i>Gehyra variegata</i> | | | |
| 232. | 47954 <i>Gelochelidon nilotica</i> (Gull-billed Tern) | | IA | |
| 233. | 24401 <i>Geopelia cuneata</i> (Diamond Dove) | | | |
| 234. | 25585 <i>Geopelia striata</i> (Zebra Dove) | | | |
| 235. | 25530 <i>Gerygone fusca</i> (Western Gerygone) | | | |
| 236. | 11008 <i>Gilruthia osbornii</i> | | | |
| 237. | 3938 <i>Glycine canescens</i> (Silky Glycine) | | | |
| 238. | 12624 <i>Gnephosis angianthoides</i> | | | |
| 239. | 8002 <i>Gnephosis tenuissima</i> | | | |
| 240. | 7514 <i>Goodenia havilandii</i> | | | |
| 241. | 7525 <i>Goodenia maideniana</i> | | | |
| 242. | 7527 <i>Goodenia mimuloides</i> | | | |
| 243. | 7556 <i>Goodenia tenuiloba</i> | | | |
| 244. | 24443 <i>Grallina cyanoleuca</i> (Magpie-lark) | | | |
| 245. | 1986 <i>Grevillea deflexa</i> | | | |
| 246. | 2019 <i>Grevillea inconspicua</i> (Cue Grevillea) | | P4 | |
| 247. | 15844 <i>Grevillea juncifolia</i> subsp. <i>temulenta</i> | | | |
| 248. | 19542 <i>Grevillea nematophylla</i> subsp. <i>supraplana</i> | | | |
| 249. | 2808 <i>Gunniopsis rodwayi</i> | | | |
| 250. | 2163 <i>Hakea francisiana</i> (Emu Tree) | | | |
| 251. | 2196 <i>Hakea preissii</i> (Needle Tree, Dandjin) | | | |
| 252. | 29840 <i>Halgania cyanea</i> var. <i>Allambi Stn</i> (B.W. Strong 676) | | | |
| 253. | 24295 <i>Haliastur sphenurus</i> (Whistling Kite) | | | |
| 254. | 24297 <i>Hamirostra melanosternon</i> (Black-breasted Buzzard) | | | |
| 255. | 17325 <i>Harnieria kempeana</i> subsp. <i>muelleri</i> | | | |
| 256. | 17299 <i>Heliotropium ammophilum</i> | | | |
| 257. | 6707 <i>Heliotropium curassavicum</i> (Smooth Heliotrope) | | | |
| 258. | 17307 <i>Heliotropium inexplicitum</i> | | | |
| 259. | 14358 <i>Heliotropium mitchellii</i> | | | |
| 260. | 6713 <i>Heliotropium ovalifolium</i> | | | |
| 261. | 8045 <i>Helipterum craspedioides</i> (Yellow Billy Buttons) | | | |
| 262. | 24961 <i>Heteronotia binoei</i> (Bynoe's Gecko) | | | |
| 263. | 25734 <i>Himantopus himantopus</i> (Black-winged Stilt) | | | |

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|---------|---|-------------|-------------------|------------------------------------|
| 264. | 24775 <i>Himantopus himantopus</i> subsp. <i>leucocephalus</i> (Black-winged Stilt) | | | |
| 265. | 24491 <i>Hirundo neoxena</i> (Welcome Swallow) | | | |
| 266. | 15448 <i>Hyalosperma glutinosum</i> subsp. <i>venustum</i> | | | |
| 267. | 5221 <i>Hybanthus floribundus</i> | | | |
| 268. | 45435 <i>Indigofera chamaeclada</i> subsp. <i>chamaeclada</i> | | | |
| 269. | 3974 <i>Indigofera georgei</i> (Bovine Indigo) | | | |
| 270. | 3982 <i>Indigofera monophylla</i> | | | |
| 271. | 8087 <i>Isoetopsis graminifolia</i> (Cushion Grass) | | | |
| 272. | 911 <i>Isolepis congrua</i> | | | |
| 273. | 7397 <i>Isotoma petraea</i> (Rock Isotome, Tundiwari) | | | |
| 274. | 7118 <i>Josephinia eugeniae</i> (Josephinia Burr) | | | |
| 275. | 8094 <i>Kippistia suaedifolia</i> | | | |
| 276. | 24511 <i>Larus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Silver Gull) | | | |
| 277. | 4953 <i>Lawrencia densiflora</i> | | | |
| 278. | 4956 <i>Lawrencia helmsii</i> (Dunna Dunna) | | | |
| 279. | 24557 <i>Leipoa ocellata</i> (Malleefowl) | | T | |
| 280. | 12628 <i>Lemooria burkittii</i> | | | |
| 281. | 3033 <i>Lepidium oxytrichum</i> | | | |
| 282. | 3037 <i>Lepidium phlebopetalum</i> (Veined Peppergrass) | | | |
| 283. | 3039 <i>Lepidium platypetalum</i> (Slender Peppergrass) | | | |
| 284. | 25125 <i>Lerista bipes</i> | | | |
| 285. | 25134 <i>Lerista eupoda</i> (West Coast mulga slider, Good-legged Lerista) | | P1 | |
| 286. | 25151 <i>Lerista macropisthopus</i> subsp. <i>fusciceps</i> | | | |
| 287. | 42411 <i>Lerista timida</i> | | | |
| 288. | 25661 <i>Lichmera indistincta</i> (Brown Honeyeater) | | | |
| 289. | 6967 <i>Lycium australe</i> (Australian Boxthorn) | | | |
| 290. | 24136 <i>Macropus rufus</i> (Red Kangaroo, Marlu) | | | |
| 291. | 2533 <i>Maireana amoena</i> | | | |
| 292. | 2536 <i>Maireana atkinsiana</i> (Bronze Bluebush) | | | |
| 293. | 2537 <i>Maireana brevifolia</i> (Small Leaf Bluebush) | | | |
| 294. | 2538 <i>Maireana carnosa</i> (Cottony Bluebush) | | | |
| 295. | 2539 <i>Maireana convexa</i> (Mulga Bluebush) | | | |
| 296. | 2544 <i>Maireana georgei</i> (Satiny Bluebush) | | | |
| 297. | 2551 <i>Maireana melanocoma</i> (Pussy Bluebush) | | | |
| 298. | 2555 <i>Maireana pentatropis</i> | | | |
| 299. | 2556 <i>Maireana planifolia</i> (Low Bluebush) | | | |
| 300. | 2560 <i>Maireana pyramidata</i> (Sago Bush) | | | |
| 301. | 2566 <i>Maireana thesioides</i> (Lax Bluebush) | | | |
| 302. | 2569 <i>Maireana triptera</i> (Threewinged Bluebush) | | | |
| 303. | 2571 <i>Maireana villosa</i> | | | |
| 304. | 24326 <i>Malacorhynchus membranaceus</i> (Pink-eared Duck) | | | |
| 305. | 25651 <i>Malurus lamberti</i> (Variegated Fairy-wren) | | | |
| 306. | 25652 <i>Malurus leucopterus</i> (White-winged Fairy-wren) | | | |
| 307. | 25654 <i>Malurus splendens</i> (Splendid Fairy-wren) | | | |
| 308. | 4961 <i>Malva parviflora</i> (Marshmallow) | Y | | |
| 309. | 24583 <i>Manorina flavigula</i> (Yellow-throated Miner) | | | |
| 310. | 12949 <i>Marsdenia australis</i> | | | |
| 311. | 16538 <i>Marsdenia graniticola</i> | | | |
| 312. | 19449 <i>Melaleuca stereophloia</i> | | | |
| 313. | 5991 <i>Melaleuca xerophila</i> | | | |
| 314. | 47997 <i>Melanodryas cucullata</i> (Hooded Robin) | | | |
| 315. | 24736 <i>Melopsittacus undulatus</i> (Budgerigar) | | | |
| 316. | 25184 <i>Menetia greyii</i> | | | |
| 317. | 3053 <i>Menkea sphaerocarpa</i> | | | |
| 318. | 6003 <i>Micromyrtus sulphurea</i> | | | |
| 319. | 12629 <i>Millotia incurva</i> | | | |
| 320. | 12631 <i>Millotia perpusilla</i> | | | |
| 321. | 25542 <i>Milvus migrans</i> (Black Kite) | | | |
| 322. | 8108 <i>Minuria gardneri</i> | | | |
| 323. | 490 <i>Monachather paradoxus</i> | | | |
| 324. | 6490 <i>Muellerolimon salicorniaceum</i> | | | |
| 325. | 14186 <i>Myriocephalus pygmaeus</i> | | | |
| 326. | 24737 <i>Neophema bourkii</i> (Bourke's Parrot) | | | |
| 327. | 6243 <i>Neosciadium glochidiatum</i> | | | |
| 328. | 6972 <i>Nicotiana cavicola</i> (Talara) | | | |
| 329. | 11331 <i>Nicotiana occidentalis</i> subsp. <i>obliqua</i> | | | |
| 330. | 6979 <i>Nicotiana simulans</i> | | | |
| 331. | <i>Nomindra leeuweni</i> | | | |
| 332. | <i>Notsodipus meedo</i> | | | |
| 333. | 24194 <i>Nyctophilus geoffroyi</i> (Lesser Long-eared Bat) | | | |

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|---------|---|-------------|-------------------|------------------------------------|
| 334. | 24742 <i>Nymphicus hollandicus</i> (Cockatiel) | | | |
| 335. | 24407 <i>Ocyphaps lophotes</i> (Crested Pigeon) | | | |
| 336. | 8145 <i>Olearia pimeleoides</i> (Pimelea Daisybush, Burrobunga) | | | |
| 337. | 24618 <i>Oreocia gutturalis</i> (Crested Bellbird) | | | |
| 338. | 25680 <i>Pachycephala rufiventris</i> (Rufous Whistler) | | | |
| 339. | 24627 <i>Pardalotus rubricatus</i> (Red-browed Pardalote) | | | |
| 340. | 25682 <i>Pardalotus striatus</i> (Striated Pardalote) | | | |
| 341. | <i>Pediana tenuis</i> | | | |
| 342. | 24648 <i>Pelecanus conspicillatus</i> (Australian Pelican) | | | |
| 343. | 24380 <i>Peltohyas australis</i> (Inland Dotterel) | | | |
| 344. | 27940 <i>Peltula patellata</i> | | | |
| 345. | 18463 <i>Peplidium</i> sp. C Evol. Fl. Fauna Arid Aust. (N.T. Burbidge & A. Kanis 8158) | | | |
| 346. | 48060 <i>Petrochelidon ariel</i> (Fairy Martin) | | | |
| 347. | 48061 <i>Petrochelidon nigricans</i> (Tree Martin) | | | |
| 348. | 24659 <i>Petroica goodenovii</i> (Red-capped Robin) | | | |
| 349. | 24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant) | | | |
| 350. | 24409 <i>Phaps chalcoptera</i> (Common Bronzewing) | | | |
| 351. | 5245 <i>Pimelea forrestiana</i> | | | |
| 352. | 5250 <i>Pimelea holroydii</i> | | | |
| 353. | 11185 <i>Pimelea microcephala</i> subsp. <i>microcephala</i> | | | |
| 354. | 5271 <i>Pimelea trichostachya</i> (Spiked Riceflower) | | | |
| 355. | 19744 <i>Pittosporum angustifolium</i> | | | |
| 356. | 27984 <i>Placidium squamulosum</i> | | | |
| 357. | 10974 <i>Plagiobothrys plurisepalus</i> | | | |
| 358. | 7300 <i>Plantago drummondii</i> (Sago Weed) | | | |
| 359. | 24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill) | | | |
| 360. | 24751 <i>Platycercus zonarius</i> subsp. <i>zonarius</i> (Port Lincoln Parrot) | | | |
| 361. | 8168 <i>Pluchea rubelliflora</i> | | | |
| 362. | 24679 <i>Podargus strigoides</i> subsp. <i>brachypterus</i> (Tawny Frogmouth) | | | |
| 363. | 8173 <i>Podolepis capillaris</i> (Wiry Podolepis) | | | |
| 364. | 12731 <i>Podotheca wilsonii</i> | | | |
| 365. | 24681 <i>Poliocephalus poliocephalus</i> (Hoary-headed Grebe) | | | |
| 366. | 24683 <i>Pomatostomus superciliosus</i> (White-browed Babbler) | | | |
| 367. | 25706 <i>Pomatostomus temporalis</i> (Grey-crowned Babbler) | | | |
| 368. | 24684 <i>Pomatostomus temporalis</i> subsp. <i>rubeculus</i> (Grey-crowned Babbler) | | | |
| 369. | 6926 <i>Prostanthera wilkieana</i> | | | |
| 370. | 28000 <i>Psora decipiens</i> | | | |
| 371. | 18154 <i>Psyrax latifolia</i> | | | |
| 372. | 18210 <i>Psyrax rigidula</i> | | | |
| 373. | <i>Ptilonorhynchus guttatus</i> | | | |
| 374. | 2708 <i>Ptilotus chamaecladus</i> | | | |
| 375. | 2709 <i>Ptilotus chippendalei</i> | | | |
| 376. | 2717 <i>Ptilotus divaricatus</i> (Climbing Mulla Mulla) | | | |
| 377. | 2727 <i>Ptilotus gaudichaudii</i> | | | |
| 378. | 2731 <i>Ptilotus helipteroides</i> (Hairy Mulla Mulla) | | | |
| 379. | 2739 <i>Ptilotus lazaridis</i> | | P3 | |
| 380. | 35576 <i>Ptilotus luteolus</i> | | P3 | |
| 381. | 2747 <i>Ptilotus obovatus</i> (Cotton Bush) | | | |
| 382. | 2751 <i>Ptilotus polystachyus</i> (Prince of Wales Feather) | | | |
| 383. | 2754 <i>Ptilotus roei</i> | | | |
| 384. | 2755 <i>Ptilotus rotundifolius</i> (Royal Mulla Mulla) | | | |
| 385. | 2757 <i>Ptilotus schwartzii</i> | | | |
| 386. | 42344 <i>Purnella albifrons</i> (White-fronted Honeyeater) | | | |
| 387. | 24278 <i>Pyrrholaemus brunneus</i> (Redthroat) | | | |
| 388. | 24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet) | | | |
| 389. | 2581 <i>Rhagodia drummondii</i> | | | |
| 390. | 2582 <i>Rhagodia eremaea</i> (Thorny Saltbush) | | | |
| 391. | 25614 <i>Rhipidura leucophrys</i> (Willie Wagtail) | | | |
| 392. | 13308 <i>Rhodanthe charsleyae</i> | | | |
| 393. | 13242 <i>Rhodanthe chlorocephala</i> subsp. <i>splendida</i> | | | |
| 394. | 13301 <i>Rhodanthe floribunda</i> | | | |
| 395. | 13246 <i>Rhodanthe humboldtiana</i> | | | |
| 396. | 13238 <i>Rhodanthe maryonii</i> | | | |
| 397. | 13251 <i>Rhodanthe propinqua</i> | | | |
| 398. | 13303 <i>Rhodanthe sterilesens</i> | | | |
| 399. | 11151 <i>Rostraria pumila</i> | Y | | |
| 400. | 2443 <i>Rumex vesicarius</i> (Ruby Dock) | Y | | |
| 401. | 30434 <i>Salsola australis</i> | | | |
| 402. | 7604 <i>Scaevola collaris</i> | | | |
| 403. | 7644 <i>Scaevola spinescens</i> (Currant Bush, Maroon) | | | |

| Name ID | Species Name | Naturalised | Conservation Code | ¹ Endemic To Query Area |
|---------|--|-------------|-------------------|------------------------------------|
| 404. | 7648 <i>Scaevola tomentosa</i> (Raggedleaf Fanflower) | | | |
| 405. | 8200 <i>Schoenia cassiniana</i> (<i>Schoenia</i>) | | | |
| 406. | 13287 <i>Schoenia filifolia</i> subsp. <i>filifolia</i> | | | |
| 407. | 2600 <i>Sclerolaena burbridgeae</i> | | | |
| 408. | 2601 <i>Sclerolaena clelandii</i> | | | |
| 409. | 2606 <i>Sclerolaena cuneata</i> (<i>Yellow Bindii</i>) | | | |
| 410. | 2607 <i>Sclerolaena densiflora</i> | | | |
| 411. | 2609 <i>Sclerolaena diacantha</i> (<i>Grey Copperburr</i>) | | | |
| 412. | 2611 <i>Sclerolaena eriakantha</i> (<i>Tall Bindii</i>) | | | |
| 413. | 2612 <i>Sclerolaena eurotioides</i> (<i>Fluffy Bindii</i>) | | | |
| 414. | 2613 <i>Sclerolaena fimbriolata</i> | | | |
| 415. | 2619 <i>Sclerolaena lanicuspis</i> (<i>Spinach Burr</i>) | | | |
| 416. | 2625 <i>Sclerolaena obliquicuspis</i> (<i>Limestone Bindii</i>) | | | |
| 417. | 2627 <i>Sclerolaena patentiscuspis</i> (<i>Spear-fruit Saltbush</i>) | | | |
| 418. | 2628 <i>Sclerolaena recurvicuspis</i> | | | |
| 419. | 8207 <i>Senecio glossanthus</i> (<i>Slender Groundsel</i>) | | | |
| 420. | 9366 <i>Senecio gregorii</i> (<i>Fleshy Groundsel</i>) | | | |
| 421. | 25881 <i>Senecio lacustrinus</i> | | | |
| 422. | 17645 <i>Senna artemisioides</i> | | | |
| 423. | 12279 <i>Senna artemisioides</i> subsp. <i>helmsii</i> | | | |
| 424. | 12283 <i>Senna artemisioides</i> subsp. <i>x sturtii</i> | | | |
| 425. | 18444 <i>Senna charlesiana</i> | | | |
| 426. | 12305 <i>Senna glutinosa</i> subsp. <i>chatelainiana</i> | | | |
| 427. | 14579 <i>Senna</i> sp. <i>Austin</i> (<i>A. Strid 20210</i>) | | | |
| 428. | 14577 <i>Senna</i> sp. <i>Meekatharra</i> (<i>E. Bailey 1-26</i>) | | | |
| 429. | 16479 <i>Sida ammophila</i> | | | |
| 430. | 31854 <i>Sida</i> sp. <i>Excedentifolia</i> (<i>J.L. Egan 1925</i>) | | | |
| 431. | 25266 <i>Simoselaps bertholdi</i> (<i>Jan's Banded Snake</i>) | | | |
| 432. | 24108 <i>Sminthopsis crassicaudata</i> (<i>Fat-tailed Dunnart</i>) | | | |
| 433. | 42547 <i>Solanum austropiceum</i> | | | |
| 434. | 7018 <i>Solanum lasiophyllum</i> (<i>Flannel Bush, Mindjulu</i>) | | | |
| 435. | 628 <i>Sporobolus actinocladus</i> (<i>Ray Grass, Katoora</i>) | | | |
| 436. | 29813 <i>Stackhousia</i> sp. <i>Mt Keith</i> (<i>G. Cockerton & G. O'Keefe 11017</i>) | | | |
| 437. | 3074 <i>Stenopetalum anfractum</i> | | | |
| 438. | 3079 <i>Stenopetalum pedicellare</i> | | | |
| 439. | 24528 <i>Sterna hybrida</i> subsp. <i>javanica</i> (<i>Whiskered Tern</i>) | | | |
| 440. | 24329 <i>Stictonetta naevosa</i> (<i>Freckled Duck</i>) | | | |
| 441. | 8238 <i>Streptoglossa liatroides</i> | | | |
| 442. | 24949 <i>Strophurus wellingtonae</i> | | | |
| 443. | 7754 <i>Stylidium longibracteatum</i> (<i>Long-bracted Trigger Plant</i>) | | | |
| 444. | 3182 <i>Stylobasium spathulatum</i> (<i>Pebble Bush</i>) | | | |
| 445. | 4230 <i>Swainsona incei</i> | | | |
| 446. | 4238 <i>Swainsona oroboides</i> (<i>Variable Swainsona</i>) | | | |
| 447. | 13581 <i>Swainsona paradoxa</i> | | | |
| 448. | 13586 <i>Swainsona paucifoliolata</i> | | | |
| 449. | 4242 <i>Swainsona pterostylis</i> | | | |
| 450. | 12357 <i>Swainsona purpurea</i> | | | |
| 451. | 25705 <i>Tachybaptus novaehollandiae</i> (<i>Australasian Grebe, Black-throated Grebe</i>) | | | |
| 452. | 24331 <i>Tadorna tadornoides</i> (<i>Australian Shelduck, Mountain Duck</i>) | | | |
| 453. | 30870 <i>Taeniopygia guttata</i> (<i>Zebra Finch</i>) | | | |
| 454. | 30871 <i>Taeniopygia guttata</i> subsp. <i>castanotis</i> (<i>Zebra Finch</i>) | | | |
| 455. | 31844 <i>Tecticornia cymbiformis</i> | | P3 | |
| 456. | 31492 <i>Tecticornia disarticulata</i> | | | |
| 457. | 33236 <i>Tecticornia halocnemoides</i> (<i>Shrubby Samphire</i>) | | | |
| 458. | 33239 <i>Tecticornia halocnemoides</i> subsp. <i>catenulata</i> | | | |
| 459. | 33319 <i>Tecticornia indica</i> subsp. <i>bidens</i> | | | |
| 460. | 33318 <i>Tecticornia indica</i> subsp. <i>leiostachya</i> (<i>Samphire</i>) | | | |
| 461. | 31674 <i>Tecticornia peltata</i> | | | |
| 462. | 33220 <i>Tecticornia pterygosperma</i> subsp. <i>denticulata</i> | | | |
| 463. | 33216 <i>Tecticornia</i> sp. <i>Dennys Crossing</i> (<i>K.A. Shepherd & J. English KS 552</i>) | | | |
| 464. | 2822 <i>Tetragonia eremaea</i> | | | |
| 465. | 16287 <i>Tetragonia moorei</i> | | | |
| 466. | 48603 <i>Teucrium teucriiflorum</i> | | | |
| 467. | 24845 <i>Threskiornis spinicollis</i> (<i>Straw-necked Ibis</i>) | | | |
| 468. | 6054 <i>Thryptomene decussata</i> | | | |
| 469. | 42351 <i>Todiramphus pyrrhopygius</i> (<i>Red-backed Kingfisher</i>) | | | |
| 470. | 25549 <i>Todiramphus sanctus</i> (<i>Sacred Kingfisher</i>) | | | |
| 471. | 28076 <i>Toninia sedifolia</i> | | | |
| 472. | 44241 <i>Trianthema glossostigmum</i> | | | |
| 473. | 48141 <i>Tribonyx ventralis</i> (<i>Black-tailed Native-hen</i>) | | | |

| Name ID | Species Name | Naturalised | Conservation Code | ¹ Endemic To Query Area |
|---------|---|-------------|-------------------|------------------------------------|
| 474. | 4381 <i>Tribulus platypterus</i> (Cork Hopbush) | | | |
| 475. | <i>Trichocycclus nigropunctatus</i> | | | |
| 476. | 145 <i>Triglochin hexagona</i> (Six-point Arrowgrass) | | | |
| 477. | 33276 <i>Triglochin isingiana</i> | | | |
| 478. | 17877 <i>Triodia melvillei</i> | | | |
| 479. | 24851 <i>Turnix velox</i> (Little Button-quail) | | | |
| 480. | <i>Urodacus armatus</i> | | | |
| 481. | <i>Urodacus hoplurus</i> | | | |
| 482. | 25211 <i>Varanus caudolineatus</i> | | | |
| 483. | 25223 <i>Varanus panoptes</i> subsp. <i>rubidus</i> | | | |
| 484. | 7660 <i>Velleia glabrata</i> (Pee the Bed) | | | |
| 485. | 7661 <i>Velleia hispida</i> (Hispid Velleia) | | | |
| 486. | 24205 <i>Vespadelus finlaysoni</i> (Finlayson's Cave Bat) | | | |
| 487. | 13331 <i>Waitzia acuminata</i> var. <i>acuminata</i> | | | |
| 488. | 28167 <i>Xanthoparmelia praegnans</i> | | | |
| 489. | 28186 <i>Xanthoparmelia versicolor</i> | | | |
| 490. | 4386 <i>Zygophyllum aurantiacum</i> (Shrubby Twinleaf) | | | |
| 491. | 4388 <i>Zygophyllum compressum</i> | | | |
| 492. | 18140 <i>Zygophyllum eichleri</i> | | | |
| 493. | 4389 <i>Zygophyllum eremaeum</i> | | | |
| 494. | 4393 <i>Zygophyllum kochii</i> | | | |
| 495. | 4394 <i>Zygophyllum ovatum</i> (Dwarf Twinleaf) | | | |
| 496. | 12359 <i>Zygophyllum simile</i> | | | |
| 497. | 17278 <i>Zygophyllum tetrapterum</i> | | | |

Conservation Codes

- T - Rare or likely to become extinct
- X - Presumed extinct
- IA - Protected under international agreement
- S - Other specially protected fauna
- 1 - Priority 1
- 2 - Priority 2
- 3 - Priority 3
- 4 - Priority 4
- 5 - Priority 5

¹ For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.



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: 15/11/18 12:05:29

[Summary](#)

[Details](#)

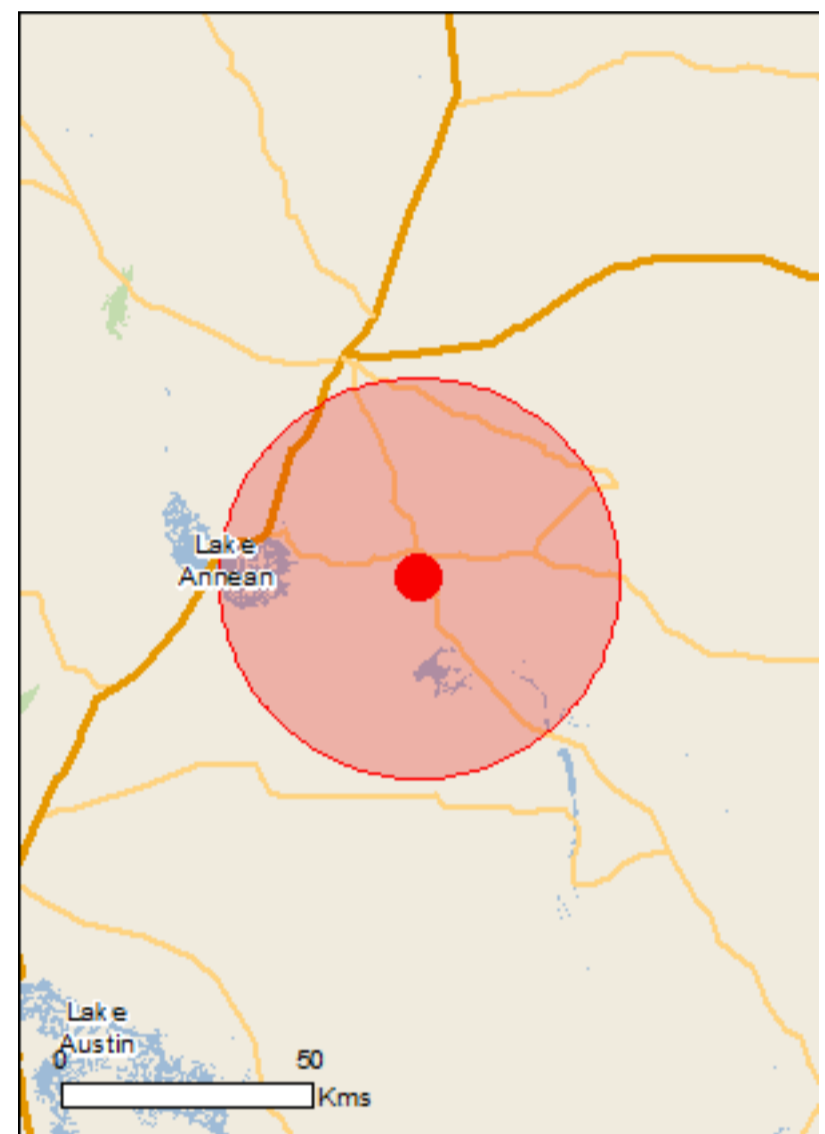
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

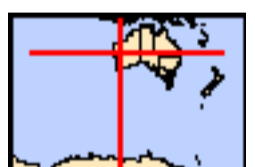
[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 40.0Km



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](#).

| | |
|---|------|
| World Heritage Properties: | None |
| National Heritage Places: | None |
| Wetlands of International Importance: | None |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Area: | None |
| Listed Threatened Ecological Communities: | None |
| Listed Threatened Species: | 5 |
| Listed Migratory Species: | 9 |

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.

| | |
|--|------|
| Commonwealth Land: | None |
| Commonwealth Heritage Places: | None |
| Listed Marine Species: | 12 |
| Whales and Other Cetaceans: | None |
| Critical Habitats: | None |
| Commonwealth Reserves Terrestrial: | None |
| Australian Marine Parks: | None |

Extra Information

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

| | |
|--|------|
| State and Territory Reserves: | None |
| Regional Forest Agreements: | None |
| Invasive Species: | 9 |
| Nationally Important Wetlands: | 1 |
| Key Ecological Features (Marine) | None |

Details

Matters of National Environmental Significance

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

| Name | Status | Type of Presence |
|------|--------|------------------|
|------|--------|------------------|

Birds

| | | |
|---|-----------------------|--|
| Calidris ferruginea Curlew Sandpiper [856] | Critically Endangered | Species or species habitat likely to occur within area |
|---|-----------------------|--|

| | | |
|---|------------|--|
| Leipoa ocellata Malleefowl [934] | Vulnerable | Species or species habitat likely to occur within area |
|---|------------|--|

| | | |
|--|------------|--|
| Pezoporus occidentalis Night Parrot [59350] | Endangered | Species or species habitat may occur within area |
|--|------------|--|

| | | |
|---|------------|--|
| Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758] | Vulnerable | Species or species habitat may occur within area |
|---|------------|--|

Other

| | | |
|--|------------|--|
| Idiosoma nigrum Shield-backed Trapdoor Spider, Black Rugose Trapdoor Spider [66798] | 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 |
|------|------------|------------------|
|------|------------|------------------|

Migratory Marine Birds

| | | |
|---|--|--|
| Apus pacificus Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
|---|--|--|

Migratory Terrestrial Species

| | | |
|---|--|--|
| Motacilla cinerea Grey Wagtail [642] | | Species or species habitat may occur within area |
|---|--|--|

| | | |
|---|--|--|
| Motacilla flava Yellow Wagtail [644] | | Species or species habitat may occur within area |
|---|--|--|

Migratory Wetlands Species

| | | |
|--|--|--|
| Actitis hypoleucos Common Sandpiper [59309] | | Species or species habitat may occur within area |
|--|--|--|

| | | |
|--|--|--|
| Calidris acuminata Sharp-tailed Sandpiper [874] | | Species or species habitat may occur within area |
|--|--|--|

| Name | Threatened | Type of Presence |
|--|-----------------------|--|
| Calidris ferruginea Curlew Sandpiper [856] | Critically Endangered | Species or species habitat likely to occur within area |
| Calidris melanotos Pectoral Sandpiper [858] | | Species or species habitat may occur within area |
| Charadrius veredus Oriental Plover, Oriental Dotterel [882] | | Species or species habitat may occur within area |
| Tringa nebularia Common Greenshank, Greenshank [832] | | Species or species habitat may occur within area |

Other Matters Protected by the EPBC Act

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 |
|--|-----------------------|--|
| Birds | | |
| Actitis hypoleucos Common Sandpiper [59309] | | Species or species habitat may occur within area |
| Apus pacificus Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Ardea alba Great Egret, White Egret [59541] | | Species or species habitat likely to occur within area |
| Calidris acuminata Sharp-tailed Sandpiper [874] | | Species or species habitat may occur within area |
| Calidris ferruginea Curlew Sandpiper [856] | Critically Endangered | Species or species habitat likely to occur within area |
| Calidris melanotos Pectoral Sandpiper [858] | | Species or species habitat may occur within area |
| Charadrius veredus Oriental Plover, Oriental Dotterel [882] | | Species or species habitat may occur within area |
| Chrysococcyx osculans Black-eared Cuckoo [705] | | Species or species habitat known to occur within area |
| Merops ornatus Rainbow Bee-eater [670] | | Species or species habitat may occur within area |
| Motacilla cinerea Grey Wagtail [642] | | Species or species habitat may occur within area |

| Name | Threatened | Type of Presence |
|---|------------|--|
| Motacilla flava Yellow Wagtail [644] | | Species or species habitat may occur within area |
| Tringa nebularia Common Greenshank, Greenshank [832] | | 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 |
|--|--------|--|
| Birds | | |
| Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803] | | Species or species habitat likely to occur within area |
| Mammals | | |
| Camelus dromedarius Dromedary, Camel [7] | | Species or species habitat likely to occur within area |
| Canis lupus familiaris Domestic Dog [82654] | | Species or species habitat likely to occur within area |
| Capra hircus Goat [2] | | Species or species habitat likely to occur within area |
| Felis catus Cat, House Cat, Domestic Cat [19] | | Species or species habitat likely to occur within area |
| Oryctolagus cuniculus Rabbit, European Rabbit [128] | | Species or species habitat likely to occur within area |
| Vulpes vulpes Red Fox, Fox [18] | | Species or species habitat likely to occur within area |
| Plants | | |
| Carrichtera annua Ward's Weed [9511] | | Species or species habitat may occur within area |
| Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213] | | Species or species habitat likely to occur within area |

Nationally Important Wetlands [\[Resource Information \]](#)

Name

State

[Lake Annean \(Lake Nannine\)](#)

WA

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

-26.945 118.63222

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](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
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- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.



HERITAGE COUNCIL
STATE HERITAGE OFFICE

inHERIT

Our heritage places


| Place Number | Place Name(s) | Address | Local Government | |
|-----------------------|----------------------------------|---|------------------|--|
| 4480 | Jack Hills | Nookawarra Station Beringarra | Meekatharra | |
| 25174 | Meekatharra Golf Club | Wiluna Rd East of Meekatharra | Meekatharra | |
| 25177 | Meekatharra Race Club | Wiluna Rd East of Meekatharra | Meekatharra | |
| 25175 | Stock yards & Weighbridge | Wiluna Rd East of Meekatharra | Meekatharra | |
| 8727 | Mountain View Gabanintha Mine | Gabanintha | Meekatharra | |
| 16680 | Gabanintha | Meekatharra - Sandstone Rd Gabanintha | Meekatharra | |
| 18932 | House, 126 Hill Street | 126 Hill St Meekathara | Meekatharra | |
| 18933 | House, 133 Hill Street | 133 Hill St Meekathara | Meekatharra | |
| 16684 | Haveluck Mine | Meekatharra | Meekatharra | |

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|-----------------------|---|--|-------------|--|
| | | | | |
| 16687 | Ingliston Consols (Ingliston South Mine, Ingliston United Mine) | Meekatharra | Meekatharra | |
| 1537 | Miner's Dwelling | Meekatharra | Meekatharra | |
| 16688 | Paddys Flat Group Mine | Meekatharra | Meekatharra | |
| 25150 | Water Tank | Cnr GNH & Meekatharra Wiluna Rd Meekatharra | Meekatharra | |
| 17380 | Meekatharra Police Station & Courthouse | Cnr Main & Savage St Meekatharra | Meekatharra | |
| 25164 | Holy Rosary Convent & Catholic Church | Darlot St Meekatharra | Meekatharra | |
| 25208 | McALeer's Store | Darlot St Meekatharra | Meekatharra | |
| 18934 | House 113 Darlot Street | 113 Darlot St Meekatharra | Meekatharra | |
| 18936 | House 132 Darlot Street | 132 Darlot St Meekatharra | Meekatharra | |
| 1531 | Bundi Club (Courthouse and | 58 Darlot St | Meekatharra | |

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|-----------------------|---|--|-------------|---|
| | Mining Registrar's Office (fmr)  State Registered Place | Meekatharra | |  |
| 1529 | Presbyterian Church, Meekatharra (St Oswald's Anglican Church)  State Registered Place | 75 Darlot St Meekatharra | Meekatharra |  |
| 1530 | Masonic Lodge (fmr), Meekatharra (RAOB Hall, Royal Antediluvian Order of Buffaloes Lodge)  State Registered Place | 80 Darlot St Meekatharra | Meekatharra |  |
| 25173 | Old Meekatharra Cemetery | Great Northern Hwy (south of town) Meekatharra | Meekatharra | |
| 14598 | Meekatharra Fire Station (fmr # 1) | Cnr High & Hill Sts Meekatharra | Meekatharra | |
| 25151 | Haynes Butcher Shop | High St Meekatharra | Meekatharra | |
| 14599 | Meekatharra Fire Station | Hill St Meekatharra | Meekatharra | |
| 1532 | Meekatharra Fire Station (fmr No 2) | 59 Hill St Meekatharra | Meekatharra |  |
| 1534 | Commercial Hotel | Main St Meekatharra | Meekatharra | |



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|-----------------------|---|------------------------|-------------|--|
| | | | | |
| 25157 | Commonwealth Hotel (fmr) (Railway Hotel) | Main St Meekatharra | Meekatharra | |
| 1535 | General Store | Main St Meekatharra | Meekatharra | |
| 25162 | Gerick's Newsagency & Lloyds Store (fmr) | Main St Meekatharra | Meekatharra | |
| 16620 | Haine St Pierre Steam Locomotive 0-4-0T | Main St Meekatharra | Meekatharra | |
| 1533 | Main Street Streetscape | Main St Meekatharra | Meekatharra | |
| 25163 | Meekatharra Bakery | Main St Meekatharra | Meekatharra | |
| 13193 | Meekatharra War Memorial Swimming Pool | Main St Meekatharra | Meekatharra | |
| 25161 | MMA Office (fmr) | Main St Meekatharra | Meekatharra | |
| 25165 | Royal Flying Doctor Service (RFDS) base | Main St Meekatharra | Meekatharra | |


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|-----------------------|-------------------------------|--|-------------|---|
| 25154 | Meekatharra Picture Gardens | 42 Main St Meekatharra | Meekatharra | |
| 1536 | Royal Mail Hotel | 53 Main St Meekatharra | Meekatharra |  |
| 3974 | Darrigans House | Lot 388 Main St Meekatharra | Meekatharra | |
| 25149 | Rinaldi's Buildings | Main St (ne cnr High St) Meekatharra | Meekatharra | |
| 25155 | Meekatharra Hotel | Main St (nw cnr High St) Meekatharra | Meekatharra | |
| 4619 | Meekatharra Post Office | Main St, cnr High St Meekatharra | Meekatharra | |
| 18935 | House Lot 489 McCleary street | McCleary St Meekatharra | Meekatharra | |
| 25159 | War Memorial | 9 McCleary St Meekatharra | Meekatharra | |
| 25207 | 25 Mile Well | Meekatharra Meekatharra | Meekatharra | |
| 25213 | Abbotts Town | Meekatharra | Meekatharra | |

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|-----------------------|-----------------------------------|----------------------------|-------------|--|
| | | Meekatharra | | |
| 25176 | Annean Station Shearing Shed | Meekatharra Meekatharra | Meekatharra | |
| 25200 | AWA Hall | Meekatharra Meekatharra | Meekatharra | |
| 25169 | Bryah Station Shearing Shed | Meekatharra Meekatharra | Meekatharra | |
| 25185 | Campbell's Boarding House | Meekatharra Meekatharra | Meekatharra | |
| 25192 | Campbell's Garage | Meekatharra Meekatharra | Meekatharra | |
| 25198 | Coodardy Station | Meekatharra Meekatharra | Meekatharra | |
| 25181 | Crystal Well | Meekatharra Meekatharra | Meekatharra | |
| 25201 | Doolgunna Station & Shearing Shed | Meekatharra Meekatharra | Meekatharra | |
| 25205 | Eves & Co General Store | Meekatharra Meekatharra | Meekatharra | |
| 25204 | Fenian Mine | Meekatharra | Meekatharra | |

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|-----------------------|---------------------|----------------------------|-------------|--|
| | | Meekatharra | | |
| 25188 | Garden Gully | Meekatharra Meekatharra | Meekatharra | |
| 25212 | Government School | Meekatharra Meekatharra | Meekatharra | |
| 25187 | Keep it Dark Mine | Meekatharra Meekatharra | Meekatharra | |
| 25211 | Nannine Town | Meekatharra Meekatharra | Meekatharra | |
| 25203 | Newspaper buildings | Meekatharra Meekatharra | Meekatharra | |
| 25189 | Nookawarra Station | Meekatharra Meekatharra | Meekatharra | |
| 25209 | Norie Station | Meekatharra Meekatharra | Meekatharra | |
| 25184 | Old Hospital | Meekatharra Meekatharra | Meekatharra | |
| 25202 | Paddy's Flat | Meekatharra Meekatharra | Meekatharra | |
| 25206 | Paroo Station | Meekatharra Meekatharra | Meekatharra | |

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|-----------------------|---|----------------------------|-------------|--|
| | | | | |
| 25199 | Peace Gorge | Meekatharra Meekatharra | Meekatharra | |
| 25196 | Peak Hill | Meekatharra Meekatharra | Meekatharra | |
| 25178 | Polelle Station Shearing Shed | Meekatharra Meekatharra | Meekatharra | |
| 25191 | Rinaldi Kiln | Meekatharra Meekatharra | Meekatharra | |
| 25194 | Roads Board Office | Meekatharra Meekatharra | Meekatharra | |
| 25186 | Royal Hall | Meekatharra Meekatharra | Meekatharra | |
| 25195 | Royal Mail Hotel (site) | Meekatharra Meekatharra | Meekatharra | |
| 25167 | SITE of RAAF A1 Government Aerodrome #872 (Meekatharra Airport) | Meekatharra Meekatharra | Meekatharra | |
| 25190 | Stock Route well | Meekatharra Meekatharra | Meekatharra | |
| 25168 | Three Rivers Station Shearing Shed | Meekatharra Meekatharra | Meekatharra | |

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|-----------------------|--|--|-------------|--|
| | | | | |
| 25210 | Twelve-Mile settlement (Yaloginda) | Meekatharra Meekatharra | Meekatharra | |
| 25183 | Yoothapina Station | Meekatharra Meekatharra | Meekatharra | |
| 16689 | Tumblegum Mine | Off Meekatharra Sandstone Rd Meekatharra | Meekatharra | |
| 25158 | Railway buildings ((sites of water tank and barracks), Railway Station & Goods shed) | Oliver St Meekatharra | Meekatharra | |
| 25153 | Railway: Stationmasters house | Oliver St Meekatharra | Meekatharra | |
| 18937 | House 44 Queen Rd | 44 Queen Rd Meekatharra | Meekatharra | |
| 25160 | Meekatharra District High School | Savage St Meekatharra | Meekatharra | |
| 25166 | Meekatharra District Hospital | Savage St Meekatharra | Meekatharra | |
| 25156 | Meekatharra Shire Hall | Savage St Meekatharra | Meekatharra | |
| 25152 | Town Entry (Battery) | South entry off Great Northern | Meekatharra | |

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|-----------------------|---|---|-------------|---|
| | | Hwy Meekatharra | | |
| 25171 | Railway Dam (south) | South of Meekatharra Meekatharra | Meekatharra | |
| 25193 | Aerated Waters Factory | Spencer St Meekatharra | Meekatharra | |
| 1538 | State Battery | Wiluna Rd Meekatharra | Meekatharra |  |
| 25182 | State Battery (ruins) | Wiluna Rd Meekatharra | Meekatharra | |
| 25170 | Meekatharra Cemetery | Lot 72 Wiluna Rd Meekatharra | Meekatharra | |
| 1539 | Old Mount Gould Police Station Group | Berongarra-Mt Gould Rd Mount Gould | Meekatharra | |
| 25197 | Hillside Station | Meekatharra Nannine | Meekatharra | |
| 25172 | Karalundi Aboriginal Education Community Inc (Karalundi Native Mission) | Great Northern Hwy North of Meekatharra | Meekatharra | |
| 16703 | Horseshoe Lights Mine | Peak Hill | Meekatharra | |
| 8883 | Ilgarari Main Mine | Peak Hill | Meekatharra | |

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|-----------------------|---------------------------------------|----------------------------|-------------|--|
| | | | | |
| 16702 | Ilgarari Northeast Mine | Peak Hill | Meekatharra | |
| 1540 | Palace Hotel | Enright St Peak Hill | Meekatharra | |
| 16704 | Keep it Dark Mine (Bulloo Downs Mine) | Peak Hill Goldfield | Meekatharra | |
| 5253 | Rabbit Proof Fence No 1 | Pt Hedland to Ravensthorpe | Cue | |
| 16679 | Chunderloo Mine | Robinson ranges | Meekatharra | |
| 3360 | Pioneer Mine | Yule River | Meekatharra | |



Mountain View Gabanintha Mine

AUTHOR Heritage Council

PLACE NUMBER 08727

LOCATION

Gabanintha

LOCATION DETAILS

LOCAL GOVERNMENT Meekatharra

REGION

Midwest

CONSTRUCTION DATE

DEMOLITION YEAR

N/A

Statutory Heritage Listings

| TYPE | STATUS | DATE | DOCUMENTS |
|---------------|--------|------|-----------|
| (no listings) | | | |

Other Heritage Listings and Surveys

| TYPE | STATUS | DATE | GRADING/MANAGEMENT CATEGORY |
|-----------------------|---------|-------------|--------------------------------|
| Mining Heritage Study | Adopted | 30 Jun 1999 | |

Creation Date 15 Jan 2003

Last Update 01 Jan 2017 **Publish place record online (inHerit):** Approved

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Polelle Station Shearing Shed

AUTHOR Shire of Meekatharra

PLACE NUMBER 25178

LOCATION

Meekatharra Meekatharra

LOCATION DETAILS

LOCAL GOVERNMENT Meekatharra

REGION

Midwest

CONSTRUCTION DATE

Constructed from 1946

DEMOLITION YEAR

N/A

Statutory Heritage Listings

| TYPE | STATUS | DATE | DOCUMENTS |
|---------------|--------|------|-----------|
| (no listings) | | | |

Other Heritage Listings and Surveys

| TYPE | STATUS | DATE | GRADING/MANAGEMENT CATEGORY |
|---------------------|---------|-------------|--------------------------------|
| Municipal Inventory | Adopted | 21 Sep 2013 | Category B |

Statement of Significance

Polelle Station Shearing shed, constructed from various other buildings in the region, is a tribute to the ingenuity of the pastoral development in the region.

History

Polelle Station was established in the 1890s by the Darlot brothers. The existing shearing shed was built in the late 1940s to replace the original low-roofed building. The engine room of the Consols Mine (east of Meekatharra) was dismantled and re-erected at the station to form the basis of the shearing shed. Corrugated iron was sourced from several of the Reedys Mine houses and the windows for the shed came from the Mine's betting shop. The roof peak is 35-feet high and fitted with skylights. In 1948, another addition was made on the south side to provide more undercover space for the stock. The shed can house 450 sheep. Polelle station carried up to 9,000 sheep in the 1940s and employed a team of five shearers for three to four weeks each year. The shearing shed continues to be used, although the number of sheep carried has been reduced.

Other Reference Numbers

| REF NUMBER | DESCRIPTION |
|------------|---------------------|
| 12 | Municipal Inventory |

Creation Date 03 Jun 2002

Last Update 01 Jan 2017 **Publish place record online (inHerit):** Approved

Disclaimer

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Gabanintha

AUTHOR Shire of Meekatharra

PLACE NUMBER 16680

LOCATION

Meekatharra - Sandstone Rd Gabanintha

LOCATION DETAILS

LOCAL GOVERNMENT Meekatharra

REGION

Midwest

CONSTRUCTION DATE

Constructed from 1898

DEMOLITION YEAR

N/A

Statutory Heritage Listings

| TYPE | STATUS | DATE | DOCUMENTS |
|---------------|--------|------|-----------|
| (no listings) | | | |

Other Heritage Listings and Surveys

| TYPE | STATUS | DATE | GRADING/MANAGEMENT CATEGORY |
|-----------------------|---------|-------------|-----------------------------|
| Municipal Inventory | Adopted | 21 Sep 2013 | Sites |
| Mining Heritage Study | Adopted | 30 Jun 1999 | |

Statement of Significance

The site of Gabanintha Town represents a thriving town established in 1898 that had disappeared by 1930.

History

In the 1890s the Gabanintha line of reef was discovered and the Sovereign Mine was established. A small town site was gazetted in November 1898, and several businesses were opened including a hotel by storekeeper William Snell and a butcher shop by J. Meehan & Co, both of Nannine. In 1910, the town and associated Star of the East Mine boasted three hotels, a butcher, baker, storekeeper, boot maker and teamster as well as several mine managers and pastoralists. By 1930, there were no listings in the town, although the mine continued to operate until 1944. The Gabanintha town site has become part of the open-cut workings east of Meekatharra. The pool in Gabanintha was the venue for social events including children's foot races. In the 1960s there was a water ski club. The billabong was sometimes referred to as Talval Pool.

Condition

Site

Other Reference Numbers

| REF NUMBER | DESCRIPTION |
|------------|---------------------|
| Site 19 | Municipal Inventory |

Other Keywords

Opencut mine workings east of Meekatharra

Creation Date 16 Jan 2003

Last Update 01 Jan 2017 **Publish place record online (inHerit):** Approved

Disclaimer

