



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6937/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: GJ and KJ McLean

1.3. Property details

Property: Mining Lease 70/1342
Local Government Area: Shire of Lake Grace
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
7.64		Mechanical Removal	Gypsum Mining and Access Roads

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 31 March 2016

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Beard vegetation associations have been mapped for the whole of Western Australia. Two Beard vegetation associations are located within the application area (GIS Database):

Beard vegetation association 125: Bare areas; salt lakes;

Beard vegetation association 941: Mosaic: Medium woodland; salmon gum & morrel / Shrublands; mallee scrub, redwood.

Rick (2015a) conducted a flora and vegetation survey over the application in November 2015 and identified six vegetation types:

Open Woodland/Mallee (Ew)

The Woodland association covers higher ground adjacent to the proposed access track on flat to gently sloping terrain of sandy soils over clay. Mallee including *Eucalyptus ?horistes* and trees of *Eucalyptus urna* and *Eucalyptus ?kondininensis* (buds and fruits not found) form a very sparse layer. The understorey consists of a sparse layer of *Melaleuca acuminata*, *Melaleuca thyoides* and *Melaleuca halmaturorum* shrubs over 2 metres in height over a sparse layer of *Darwinia* sp. Karonie, *Conostephium drummondii*, *Olearia muelleri*, *Bossiaea barbarae*, *Pimelea* sp. *Frankenia tetrapetala*, *Chamelaucium ciliatum*, *Rhagodia drummondii* and *Phebalium filifolium* shrubs to 1 metre. Ground covers included a very sparse layer of sedges to 0.5 metres including species of *Lepidosperma* and *Gahnia ancistrophylla*. Annual and perennial herbs form a very sparse layer including *Waitzia suaveolens*, *Podolepis capillaris* and *Lomandra micrantha* subsp. *teretifolia*. Scattered grasses including *Austrostipa elegantissima*, *Austrostipa hemipogon*, *Rytidosperma caespitosum* and *Neurachne alopecuroides* were also recorded. Weed species **Ursinia anthemoides*.

Open Mallee (Em)

The Mallee association covers a deep sandy ridge on the eastern edge of the salt lake. Mallee including *Eucalyptus perangusta* form a sparse layer to 6 metres with scattered trees of *Eucalyptus ?urna*. The understorey consists of a sparse layer of *Melaleuca thyoides*, *Melaleuca halmaturorum* and *Melaleuca brophyi* shrubs over 2 metres in height over a sparse layer of shrubs including *Darwinia* sp. Karonie, *Bossiaea halophila*, *Bossiaea barbarae*, *Conostephium drummondii*, *Seorsus clavifolius* and *Olearia* sp. *Eremicola* and sedges including *Lepidosperma* species and *Gahnia ancistrophylla* to 1 metre. Ground covers form a very sparse layer of shrubs to 0.5 metres including *Enchylaena tomentosa*, *Disphyma crassifolium*, *Calytrix leschenaultii*, *Rhagodia drummondii* and *Bossiaea barbarae*. Scattered grasses to 0.5 metres including *Austrostipa ?trichophylla*, *Austrostipa hemipogon*, *Austrostipa elegantissima*, *Austrostipa juncifolia*, *Rytidosperma caespitosum* and *Neurachne alopecuroides* were also recorded along with scattered annual herbs *Waitzia suaveolens* and scattered rushes *Desmodcladus quiricanus*. Weed species **Ursinia anthemoides*.

Melaleuca Scrub/Thicket (Me)

Melaleuca Scrub/Thicket covers higher ground on the edge of the lake shore on sandy ridges and gently sloping terrain on sandy soils over clay. Species recorded include *Melaleuca thyoides*, *Melaleuca brophyi*, *Melaleuca halmaturorum* and *Melaleuca hamulosa*. Occasional shrubs of *Santalum acuminatum*, *Leptospermum erubescens*, *Exocarpos aphyllus* and *Alyxia buxifolia* were also present. Shrubs to 1 metre form a sparse to very sparse understorey including *Darwinia* sp. Karonie, *Conostephium drummondii*, *Leucopogon* sp. Kau Rock, *Gunniopsis intermedia*, *Rhagodia drummondii*, *Olearia* sp. *Eremicola*, *Bossiaea*

barbarae, *Bossiaea halophila*, *Chamelaucium ciliatum* and *Disphyma crassifolium*. Ground covers form a very sparse stratum to 0.5m at some locations. Species recorded include *Frankenia tetrapetala*, *Enchylaena tomentosa*, *Disphyma crassifolium*, *Didymanthus roei*, *Calytrix leschenaultia*, *Rhagodia drummondii* and *Tecticornia syncarpa*. Grasses form a very sparse understorey in places, including *Rytidosperma caespitosum*, *Austrostipa elegantissima*, *Neurachne alopecuroides*, *Austrostipa trichophylla*, *Austrostipa pycnostachya* and *Austrostipa hemipogon*. Weed species **Ursinia anthemoides* and **Pentameris airoides* were also recorded.

Mixed Heath (Hm)

Mixed Heath covers small areas on low gypsum ridges on the lake bed. These areas are richer in plant species compared to the *Tecticornia* Scrub /Heath which occurs on the lower areas of the lake bed subject to inundation. *Tecticornia* species are prominent. Shrubs usually to 0.5 metres form a sparse to mid dense layer including *Tecticornia pergranulata*, *Tecticornia halocnemoides*, *Tecticornia moniliformis*, *Tecticornia syncarpa*, *Tecticornia loriae*, *Lawrencia squamata*, *Maireana oppositifolia*, *Frankenia* sp. southern gypsum and *Disphyma crassifolium*. Scattered herbs recorded include *Calandrinia* ?sp. Meckering, *Hydrocotyle medicaginoides* and *Triglochin nana*. The grass *Austrostipa pycnostachya* was also occasional in the vegetation type. Weed species **Parapholis incurva* and **Spergularia marina* were also recorded.

Frankenia/Tecticornia Heath (Fr)

Frankenia/Tecticornia Heath covers flat terrain on the lake bed on gypsiferous soils. Shrubs under 0.5 metres form a mid-dense stratum with *Frankenia* sp. southern gypsum and *Tecticornia* species (samphire) prominent. Species of samphire recorded include *Tecticornia loriae*, *Tecticornia syncarpa*, *Tecticornia pergranulata*, *Tecticornia halocnemoides* and *Tecticornia undulata*. Other species recorded include *Calandrinia* ?sp. Meckering, *Maireana oppositifolia*, *Frankenia tetrapetala* and *Lawrencia squamata*. Weed species **Parapholis incurva*, **Sonchus oleraceus* and **Spergularia marina* were also recorded.

Tecticornia (samphire) Scrub/Heath (Te)

Tecticornia Scrub/Heath occurs over large areas of the lake bed on gypsum over clay. Shrubs to 0.5 metres form a sparse stratum occasionally to mid dense. *Tecticornia* species are dominant including *Tecticornia halocnemoides*, *Tecticornia pergranulata*, *Tecticornia peltata*, *Tecticornia loriae* and *Tecticornia syncarpa*. Scattered shrubs of *Maireana oppositifolia*, *Frankenia* sp. southern gypsum and the annual herb *Caladenia* ?sp. Meckering are occasional in the association. Some areas on the edge of the lake are not typical with soils containing more sand and more species than other areas on the lake. Weed species **Parapholis incurva*, **Mesembryanthemum nodiflorum* and **Spergularia marina* were also recorded.

Clearing Description	GJ and KJ McLean propose to clear up to 7.64 hectares of native vegetation within a total boundary of approximately 16.2 hectares, for the purpose of gypsum mining and access roads. The project is located approximately 14 kilometres south of Lake King in the Shire of Lake Grace.
Vegetation Condition	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).
Comment	The condition of the vegetation under application was determined via a flora and vegetation survey conducted over the application area by Rick (2015a).

3. Assessment of application against Clearing Principles

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

Comments	<p>Proposal is not likely to be at variance to this Principle</p> <p>The application area is located within the Western Mallee subregion of the Mallee Interim Biogeographic Regionalisation for Australia bioregion (GIS Database). The Western Mallee subregion is dominated by mallee over myrtaceous-proteaceous heaths on duplex (sand over clay) soils. Melaleuca shrublands characterise alluvia, and <i>Halosarcia</i> low shrublands occur on saline alluvium, while a mosaic of mixed eucalypt woodlands and mallee occur on calcareous earth and sandplains in the east. Farmland and crops fragment the landscape (CALM, 2002).</p> <p>A flora and vegetation survey over the application area was conducted on 1 November 2015. The survey recorded 74 plant species, including six introduced (weed) species. A total of six vegetation types were identified within the application area, all of which are common and extensive throughout the region (Rick, 2015a). The application area is comprised predominantly of the <i>Tecticornia</i> (samphire) Scrub/Heath (Te) and <i>Frankenia/Tecticornia</i> Heath (Fr) vegetation types. Bare areas are also prominent throughout. There are small areas of Mixed Heath, Open Mallee, Open Woodland/Mallee and Melaleuca Scrub/Thicket (Rick, 2015a).</p> <p>Three Priority flora species were recorded within the vicinity of the application area; <i>Seorsus clavifolius</i> (P2), <i>Frankenia drummondii</i> (P3) and <i>Stylidium pulviniforme</i> (P3). <i>Frankenia</i> sp. southern gypsum (P3) was recorded within the application area (Rick, 2015a). DPaW (2016) have advised that the proposed clearing will likely have a minor impact on the conservation status of <i>Frankenia</i> sp. southern gypsum and that <i>Frankenia drummondii</i> and <i>Stylidium pulviniforme</i> are well represented in the local area and are unlikely to be significantly impacted by the proposed clearing. <i>Seorsus clavifolius</i> is known to persist in conservation areas and the proposed clearing appears to leave a sufficient buffer area, reducing potential impacts (DPaW, 2016).</p> <p>Due to the timing and seasonal constraints of the flora survey, herbaceous flora species (including additional Priority flora species) may not have been recorded but could persist within the application area (Rick, 2015a). However, DPaW (2016) have advised that Priority flora species with the potential to occur within the application area are mostly annual, and if the application area is appropriately rehabilitated, impacts are unlikely to be significant. Potential impacts to Priority flora as a result of the proposed clearing may be minimised by the implementation of a rehabilitation condition.</p>
-----------------	--

No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) are known within the application area (GIS Database) and none of the six vegetation types identified within the application area were noted as resembling a TEC or PEC during the flora and vegetation survey.

The fauna habitats found within the application area are common to the local area and the majority of species potentially impacted by the proposed clearing are migratory bird species that are able to leave the area during clearing activities. Large areas of native vegetation (over 80,000 hectares) are situated nearby, including several nature reserves that have extensive salt lake vegetation (Rick, 2015b; GIS Database). Therefore local fauna species, including species of conservation significance, are unlikely to be significantly impacted by the proposed clearing of 7.64 hectares of native vegetation.

As weed species have been identified within the application area, there is potential for further weed invasion and/or spread. Weeds (and weed invasion) have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology CALM (2002)
DPaW (2016)
Rick (2016a)

GIS Database:
- DPaW Tenure
- IBRA Australia
- Imagery
- Pre-European vegetation
- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments Proposal is not likely to be at variance to this Principle

Rick (2015b) conducted a Level 1 fauna survey over the application area. Ten bird species and seven mammal species of conservation significance were identified as potentially occurring within the application or are known from the local area.

The fauna habitats to be impacted by the proposed clearing are the Scrub/Heath areas covering the lake bed where samphire species are prominent, as are bare areas of the salt lake (Rick, 2015b; GIS Database). These areas are subject to inundation and some sections were underwater at the time of survey. None of the mammals identified within the local area are reliant on these habitat types (Rick, 2015b). The fauna species most likely to utilise the habitats within the application area are wader/migratory bird species such as the Curlew sandpiper (*Calidris ferruginea* - Vulnerable), Red Necked Stint (*Calidris ruficollis* - IA Migratory), Common Greenshank (*Tringa nebularia* – IA Migratory) and Hooded plover (*Charadrius rubricollis* – P4). These species were not recorded during the fauna survey.

The fauna habitats found within the application area are common to the local area and species potentially impacted by the proposed clearing are migratory birds that are able to leave the area during clearing activities. Large areas of native vegetation (over 80,000 ha) are situated nearby, including several nature reserves that have extensive salt lake vegetation (Rick, 2015b; GIS Database). Therefore local fauna species (including species of conservation significance), are unlikely to be significantly impacted by the proposed clearing of 7.64 hectares of native vegetation.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Rick (2015b)

GIS Database:
- DPaW Tenure
- Imagery
- Pre-European vegetation

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

Comments Proposal is not likely to be at variance to this Principle

According to available information, no Threatened flora species have been recorded within the application area (DPaW, 2016b) and none were recorded during the flora and vegetation survey. However, due to the timing and seasonal constraints of the flora survey, herbaceous flora species (including Threatened flora species) may not have been recorded but could persist within the application area (Rick, 2015a). DPaW (2016) advised

that the Threatened flora species *Goodenia integerrima* has the potential to occur within the application area, however as this species is an annual, as long as the application area is appropriately rehabilitated, impacts resulting from the proposed clearing are unlikely to be significant. Potential impacts to Threatened flora species as a result of the proposed clearing may be minimised by the implementation of a rehabilitation condition.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology DPaW (2016)
Rick (2015a)

GIS Database
- Threatened and Priority Flora

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments Proposal is not likely to be at variance to this Principle

According to available databases, there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database) and no TECs were identified during a flora and vegetation survey of the application area (Rick, 2015a). The closest TEC is located more than 50 kilometres south west.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Rick (2015a)

GIS Database:
- Threatened and Priority Ecological Communities Boundaries
- Threatened and Priority Ecological Communities Buffers

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

Comments Proposal may be at variance to this Principle

The application area occurs within the Mallee Interim Biogeographic Regionalisation of Australia bioregion, in which approximately 56.5% of the pre-European vegetation remains (see table below) (Government of Western Australia, 2014; GIS Database). Two Beard vegetation associations have been mapped within the application area (GIS Database). As the below table indicates, Beard vegetation association 125 is well represented within the state and bioregion but is considered 'Depleted' within the subregion and local Shire. However, Beard vegetation association 125 retains levels above the recommended 30% of pre-European settlement levels of native vegetation (Commonwealth of Australia, 2001) within both the subregion and local Shire.

Beard vegetation association 941 retains more than 50% of pre-European levels of native vegetation within the state but is considered 'Vulnerable' within the bioregion, subregion and local Shire. Beard vegetation association 941 retains less than the recommended 30% of pre-European settlement levels of native vegetation (Government of Western Australia, 2014), below which species decline appears to accelerate exponentially at an ecosystems level (Commonwealth of Australia, 2001).

Beard vegetation associations are identified using broad scale mapping at scale of 1:125,000 over the entire state. A flora and vegetation survey of the application area has shown that the vegetation consists predominantly of Tecticornia (sapphire) Scrub/health and Frankenia/Tecticornia health, neither of which closely resembles Beard vegetation association 941. However some mallee and woodland vegetation is present within the application area.

The application area is sparsely vegetated and includes areas devoid of vegetation and large amounts of intact native vegetation remains to the west of the application area (GIS Database), therefore the vegetation proposed to be cleared is not considered to represent a significant remnant within an extensively cleared area.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW Lands (and pos clearing %)
IBRA Bioregion - Mallee	7,395,894	4,181,381	~ 56.5	Least concern	~ 18.0 (30.8)
IBRA Subregion – Western Mallee	3,981,718	1,471,491	36.96	Depleted	~ 10.0 (24.7)
Local Government – Shire of Lake Grace	1,188,460	456,529	38.4	Depleted	~ 16.7 (39.3)
Beard veg assoc. - State					
125	3,485,787	3,146,498	~ 90.3	Least concern	~ 9.0 (8.1)

941	34,248	17,290	~ 50.5	Least concern	~ 8.3 (15.1)
Beard veg assoc. - Bioregion					
125	160,327	107,845	~ 67.3	Least concern	~ 28.8 (23.2)
941	23,425	6,489	~ 27.7	Vulnerable	~ 12.1 (40.3)
Beard veg assoc. – Subregion					
125	81,605	31,802	~ 39.0	Depleted	~ 44.0 (58.0)
941	23,425	6,489	~ 27.7	Vulnerable	~ 12.1 (40.3)
Beard veg assoc. – Local Government					
125	52,535	23,933	~ 45.6	Depleted	~ 49.4 (67.0)
941	23,425	6,489	~ 27.7	Vulnerable	~ 12.1 (40.3)

* Government of Western Australia (2014)

** Department of Natural Resources and Environment (2002)

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology Commonwealth of Australia (2001)
Department of Natural Resources and Environment (2002)
Government of Western Australia (2014)
Rick (2015a)

GIS Database:

- IBRA WA (regions - subregions)
- Imagery
- Pre-European Vegetation

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

Comments Proposal is at variance to this Principle

The application area is partly situated within a non-perennial lake (GIS Database). The majority of the application area lies within the area immediately adjacent, which is mapped as an area subject to inundation (GIS Database). There is no vegetation within the mapped lake itself, with all fringing vegetation occurring within the areas mapped as being subject to inundation.

The lake was inundated at the time of the flora and vegetation survey (Rick, 2015b). As such, the vegetation under application is considered to be growing in association with a wetland. A number of Priority flora were recorded within the fringing vegetation of the salt lake (Rick, 2015a). While mining may not be able to totally avoid wetland or riparian vegetation, clearing within these areas should be limited where possible. Potential impacts to fringing vegetation as a result of the proposed clearing may be minimised by the implementation of a watercourse management condition.

There are many similar lakes and areas subject to inundation in the local area (GIS Database) and the vegetation proposed to be cleared is sparse throughout the application area. Large areas of native vegetation (over 80,000 ha) are situated nearby, including several nature reserves that have extensive salt lake vegetation (Rick, 2015b; GIS Database) and all six vegetation types identified within the application area are considered to be common and extensive throughout the region (Rick, 2015a). Therefore the proposed clearing of 7.64 hectares of vegetation growing in association with a wetland, is unlikely to result in significant adverse environmental impacts at a local or regional scale.

Based on the above, the proposed clearing is at variance to this principle.

Methodology Rick (2015b)

GIS Database:

- Hydrography, linear
- Hydrography, linear (hierarchy)
- Hydrography, Lakes (medium scale 25k GA)

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

Comments Proposal is not likely to be at variance to this Principle

The application area is situated within a non-perennial lake which is subject to inundation. The mapped soils for the application area are described as gently undulating pediments with narrow ironstone gravel ridges; some swamps and lakes: chief soils are hard, and sandy, alkaline yellow and yellow mottled soils. Acidic clayey

materials are common at depths of about three feet (Northcote et al. 1960-68; GIS Database).

Rick (2015a) conducted a flora and vegetation survey over the application area and identified gypsum over clay and sand to be the main soils present. Sandy soils are known to be prone to wind erosion when dry, while areas of hard clay are non-dispersive but may hold water.

Given the location and soil profile of the application area, water erosion issues are unlikely to be of concern. Potential wind erosion impacts as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Rick (2015b)

GIS Database:
- Soils

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments **Proposal is not likely to be at variance to this Principle**

The application area is not located within a conservation area, however Lake King Nature Reserve is located approximately 700 metres west (GIS Database).

The application area is bordered by cleared paddocks on all sides but three conservation areas occur within 5 kilometres; Dunn Rock, Pallarup and Lake King Nature Reserve (GIS Database). Lake King and Dunn Rock Nature Reserves are comprised of large amounts of intact vegetation, with a combined extent of over 67,444 hectares (GIS Database).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Database:
- DPaW Tenure
- Imagery

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments **Proposal is not likely to be at variance to this Principle**

The application area is not located within a Public Drinking Water Source Area (PDWSA) (GIS Database). The application area is partly situated within a non-perennial lake (GIS Database). The majority of the application area lies within the area immediately adjacent, which is mapped as an area subject to inundation (GIS Database). There is no vegetation within the mapped lake itself, with all fringing vegetation occurring within the areas mapped as being subject to inundation.

The lake was inundated at the time of the flora and vegetation survey (Rick, 2015b). Clearing activities have the potential to increase sedimentation levels within surface water bodies. In order to reduce the potential for impacts to surface water quality, the proponent has committed to surface water management measures which include the establishment of a three metre buffer at the edge of the lake, limiting activities to avoid potential inundation events and progressively rehabilitating areas. Potential impacts to surface water quality as a result of the proposed clearing may be further minimised by the implementation of a watercourse management condition.

The groundwater salinity of the application area is considered saline (14,000 to 35,000) milligrams/Litre Total Dissolved solids) (GIS Database). The proposed clearing of 7.64 hectares of native vegetation is unlikely to result in any further deterioration in the quality of groundwater.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Rick (2015a)

GIS Database:
- Groundwater Salinity, Satewide
- Hydrography, linear
- Public Drinking Water Source Areas (PDWSAs)
- RIWI Act, Groundwater Areas

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

Comments **Proposal is not likely to be at variance to this Principle**

The application area is situated within a non-perennial lake which is subject to inundation (GIS Database) and based on climate data is most likely to contain water during the winter months (BoM, 2016). However the

application area was inundated during the November flora survey (Rick, 2015a).

Given that the application area is subject to inundation, the proposed clearing of 7.64 hectares of sparse vegetation is unlikely to result in an increase in the incidence or intensity of flooding.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Rick (2015a)

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments

There are two native title claims over the application area (WC2003/006 & WC2000/007) (DAA, 2016). However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no Sites of Aboriginal Significance located in the area applied to clear (DAA, 2016). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation, the Department of Parks and Wildlife and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 22 February 2016 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received.

Methodology DAA (2016)

4. References

- BoM (2016) Climate Statistics for Australian Locations. A Search for Climate Statistics, Australian Government Bureau of Meteorology. <<http://www.bom.gov.au>> (Accessed 16 March 2016).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Department of Conservation and Land Management.
- Commonwealth of Australia (2001) National Targets and Objectives for Biodiversity Conservation 2001-2005, AGPS, Canberra
- DAA (2016) Aboriginal Heritage Inquiry System, Department of Aboriginal Affairs, Perth, Western Australia < <http://maps.dia.wa.gov.au>> (Accessed 16 February 2016).
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- DPaW (2016) Advice received in relation to Clearing Permit Application CPS 6937/1. Species and Communities Branch, Department of Parks and Wildlife, Western Australia, March 2016.
- Government of Western Australia (2014) 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of June 2014. WA Department of Environment and Conservation, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68): 'Atlas of Australian Soils, Sheets 1 to 10, with explanatory data'. CSIRO and Melbourne University Press: Melbourne.
- Rick (2015a) Proposed Gypsum Mine M70/1342 Vegetation and Flora Survey. Unpublished report prepared for Shane McLean, by Anne Rick, 2015.
- Rick (2015b) Proposed Gypsum Mine M70/1342 Fauna Survey. Unpublished report prepared for Shane McLean, by Anne Rick, 2015.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DPaW and DER)
DER	Department of Environment Regulation, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DRF	Declared Rare Flora
DotE	Department of the Environment, Australian Government
DoW	Department of Water, Western Australia
DPaW	Department of Parks and Wildlife, Western Australia

DSEWPac	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
EPA	Environmental Protection Authority, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2015) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

T	<p>Threatened species: Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).</p> <p>Threatened fauna is that subset of ‘Specially Protected Fauna’ declared to be ‘likely to become extinct’ pursuant to section 14(4) of the Wildlife Conservation Act.</p> <p>Threatened flora is flora that has been declared to be ‘likely to become extinct or is rare, or otherwise in need of special protection’, pursuant to section 23F(2) of the Wildlife Conservation Act.</p> <p>The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.</p>
CR	<p>Critically endangered species Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.</p>
EN	<p>Endangered species Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.</p>
VU	<p>Vulnerable species Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.</p>
EX	<p>Presumed extinct species Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.</p>
IA	<p>Migratory birds protected under an international agreement Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.</p>
CD	<p>Conservation dependent fauna Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the <i>Wildlife Conservation Act 1950</i>, in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.</p>
OS	<p>Other specially protected fauna Fauna otherwise in need of special protection to ensure their conservation. Published as Specially</p>

Protected under the *Wildlife Conservation Act 1950*, in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

P

Priority species

Species which are poorly known; or
Species that are adequately known, are rare but not threatened, and require regular monitoring.
Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1

Priority One - Poorly-known species:

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2

Priority Two - Poorly-known species:

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3

Priority Three - Poorly-known species:

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4

Priority Four - Rare, Near Threatened and other species in need of monitoring:

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.